

# ME-JAA

Middle East Journal of Age and Ageing

## Contents

### Editorial

- 1 From the Editor  
Abdulrazak Abyad

### Original Contribution/Clinical Investigation

- 3 Investigating the Relation Between Family Support and Glycemic Control in the Elderly Suffering Type 2 Diabetes Mellitus  
*Maryam Nooritajer*

- 8 "The more the merrier". Co-residence and self-reported depressive symptoms among older Kuwaiti men and women  
*Jaafar Behbehania, Nasra M. Shaha, Hanan E. Badr, Makhdoom A. Shahb*

- 18 Prevalence of Diabetic foot among diabetic patients attending a primary care clinic at a teaching hospital, Riyadh, Saudi Arabia  
*Dr Yousef abdullah Al Turki*

### Models and Systems of Elderly Care

- 24 **Factors Affecting Social Participation of the Elderly in Urban Affairs Management in the City of Tehran**  
*Professor Ali Reza Kaldi, Soheila Ebrahimpour*

### Education and Training

- 31 **Geriatrics and Gerontology Department, Faculty of Medicine, Ain Shams University, Cairo - EGYPT**  
*Dr Hala Samir Sweed*

Volume 7, Issue 2

April 2010

Chief Editor:

Abdulrazak Abyad MD, MPH, AGSF,  
AFCHS

Email: aabyad@cyberia.net.lb

Publisher:

Ms Lesley Pocock  
medi+WORLD International  
11 Colston Avenue

Sherbrooke

Australia 3789

Tel: +61 (3) 9755 2266

Fax: +61 (3) 9755 2266

Email: lesleypocock@mediworld.com.au

Editorial enquiries:

aabyad@cyberia.net.lb

Advertising enquiries:

lesleypocock@mediworld.com.au

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

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

# Editorial

---

*Dr Abdulrazak Abyad*

Chief editor

---



This is the second issue this year and has a number of interesting themes. A Cross sectional study was conducted to estimate the prevalence of diabetic foot among diabetic patients attending a primary care clinic at a teaching hospital, in Riyadh, Saudi Arabia. The study showed that the prevalence of diabetic foot among 224 diabetic patients attending a primary care clinic was 6.2% and 1.3% of diabetic patients had amputated foot. About half of the diabetic patients were 60 years and above. The authors concluded that the prevalence of diabetic foot is common among diabetic patients attending the primary care clinic, which emphasized the importance of improving the quality of diabetic care, especially in the elderly, to reduce diabetic foot complications and to reduce the burden of amputation on elderly patient's life, family, community, and health services.

The development of geriatrics and gerontology in Egypt is discussed in a paper on the development of Geriatrics and the Gerontology Department at the Faculty of Medicine, Ain Shams University, Cairo, Egypt. The author stressed that the one of the results of modern civilization is the increase in number of old people. The Egyptian National Census had shown increased prevalence of old aged where the prevalence increased from 5.1% in 1950 to 6.27% in 2006, and it is expected to reach 11.5% in 2025 and to increase to 20.8% in 2050. This means that 20 million Egyptians will be categorized as elderly by that time, which is a big number that resembles the population of a full nation in some parts of the world. The Geriatrics and Gerontology Department at Faculty of Medicine, Ain Shams University is the only academic and clinical department in the Egyptian teaching hospitals and probably all around the Middle East.

The department is a pioneer in being the first department to offer a master degree and doctoral degree in geriatric medicine connected to a specialized residency program and clinical training courses.

A paper from Iran using survey methodology aimed at analyzing factors affecting social contribution of the elderly in urban affairs management in the city of Tehran.

The results of the survey showed a significant correlation between knowledge and education, confidence in municipality, usefulness, self-efficacy and participation, and the hypotheses were confirmed. The authors concluded that self-efficacy and knowledge about urban affairs management are the variables which have the most effect on social participation.

Nooritajer M looked at the relationship between family support and glycemetic control in the elderly suffering type 2 diabetes mellitus. It was a descriptive co-relational study, of 150 elderly suffering diabetes type 2. A self-reported questionnaire was used for gathering information. Results showed a significant relationship between family support and glycemetic control ( $p < 0/0001$ ). The author concluded that this research added further evidence about the impact of family support on the health of older adults with diabetes. These findings suggest using family centered health career interventions and collaboration of family members in the care of the elderly with type 2 diabetes.

A cross-sectional survey of Kuwaiti households was conducted among 2,487 persons aged 50+ attempting to ascertain the association between co-residence and the prevalence of self-reported depressive symptoms among Kuwaiti men and women aged 50+. The mean depressive symptoms score was 10.97. Women had a significantly higher mean score than men. Those with no co-resident children were 2.2 times more likely to report higher depressive symptoms than those with 3+ children. Those with three illnesses were more likely (3.6 times among men and 2.1 times among women) to report higher depressive symptoms than their counterparts without any illness.

The authors concluded that co-habitation with a larger number of children was inversely associated with depressive symptoms experience.

## Investigating the Relation Between Family Support and Glycemic Control in the Elderly Suffering Type 2 Diabetes Mellitus

*Author:*

*Maryam Nooritajer*

*Associate Professor of Islamic Azad University branch of Eslamshahr,*

*Azad University,*

*Iran*

*Email: maryamnoorytajer@yahoo.com*

### ABSTRACT

**Introduction:** As the largest part of elderly (65 years and older) diabetic care is given at home, family support has an important role in their blood sugar level control. This study aimed to assess the relationship between family support and glycemic control in the elderly suffering diabetes type 2.

**Materials and Method:** It was a descriptive-co relational study, of 150 elderly suffering diabetes type 2 who were referred to the Endocrinology and Metabolism Center of Iran University of Medical Sciences, and who were selected continuously. A self-reporting questionnaire was used for gathering information. The questionnaire consisted of four sections: demographic data, HbA1C, perceived family support and family network size. Data were analyzed by SPSS version 15 by using Chi-square and Logistic regression tests.

**Results:** Results showed a significant relationship between family support and glycemic control ( $p < 0/0001$ ). Also there were significant relationships between family support gender and marital status ( $p = 0/001$ ). There was also a significant relationship between glycemic control and marital status ( $p = 0/002$ ). (Financial status ( $p = 0/04$ ) and educational level ( $p = 0/002$ ).

**Conclusion:** Findings of this research added further evidence about the impact of family support on the health of older adults with diabetes. These findings suggest using family centered health care intervention and collaboration of family members in the care of the elderly with type 2 diabetes.

**Key words:** elderly, family support, diabetes type 2, glycemic control

### Introduction

In the present century, infectious diseases have mostly been controlled, and therefore chronic diseases such as diabetes (type 2 diabetes = NIDDM = non-insulin dependent diabetes mellitus) are considered the most important causes of death in the elderly. [1]

Diabetes is a chronic disease which involves all aspects of life, and its treatment requires fundamental changes in the patient's lifestyle. [2]

The elderly population in all nations of the world is increasing due to various factors such as mortality rate reduction, which in turn is caused by developments in the areas of medical sciences, hygiene, and education. Therefore, the rates of life expectancy and aging are progressively increasing. [3] The world population is increasing 1.7% each year, and the growth rate of individuals 65 years old and older is over 2.5%. This

gap drives the age-constitution of the world towards aging, and it is anticipated that in the next 25 years, 1.2 billion people will be 60 years old and older. [4] Pertaining to the last census of Iran's Statistics Center, the population of individuals older than 60 years in 2006 is estimated to be 7.27%. [5]

Although the prevalence of both types of diabetes is increasing worldwide, the prevalence of type 2 diabetes is expected to increase with an accelerated rate due to the increasing prevalence of physical inactivity and obesity. The prevalence of diabetes increases with age; and was estimated to be 0.91%, 8.6%, and 20% among individuals under 20, over 20, and elderly over 65 years of age, respectively. The prevalence rate of diabetes mellitus is similar among most age groups and sex groups, but is slightly higher among men over 60 years old. [6]

The high prevalence rate of diabetes among the elderly, accompanied by the expensive costs of health-care and therapy in these patients, has increased the economic burden of this disease. [7] Diabetes is the seventh leading cause of death and the most important cause of non-traumatic amputation, blindness, and complete renal failure in the United States of America. [8]

Among the factors influencing self-care (i.e. the health care system and its employees, the workplace, society, and the family), the least investigation has been conducted on the family; and most research in this regard has been performed on children and adolescents suffering type 1 diabetes, and little research has been reported on the elderly suffering type 2 diabetes. [9] Regarding the fact that approximately 92% of the elderly are taken care of by their families in Iran, and the family is considered the best support for taking care of the elderly, the researcher performed research in this regard in order to investigate the relationship between family support and glycemic control in the elderly suffering type 2 diabetes.

## Materials and Methods

In the present correlative and descriptive study, 150 patients suffering type 2 diabetes, who were referred to the Institute of Endocrinology and Metabolism, Iran University of Medical Sciences, constituted the research population. The inclusion criteria were: an age of 60 years or higher; diagnosis of type 2 diabetes being made at least a year prior; and treating the disease with insulin or oral hypoglycemic drugs. The exclusion criteria were: the presence of complications of diabetes such as renal failure, blindness, etc; suffering refractory illnesses such as malignancies; suffering various diseases that alter glycosylated hemoglobin level [HbA1C], such as different anemia's, hemoglobinopathies, uremia, renal failure, etc; and suffering illnesses such as mental disorders or drug abuse that affect the family support received or perceived by the patient. The present study was confirmed in the "Ethics in Research" committee of Iran University of Medical Sciences and Health Services.

The data collecting tool of the research was a self-reported questionnaire completed by the subjects, and consisting of 3 main sections: the first section pertaining to the subjects' demographic characteristics, including age, gender, occupation (housewifery, retirement, employment), educational level (illiterate, high school undergraduate, high school graduate, and graduate), marital status (single, married, widowed, divorced), the number of family members, the family type (centered, secondary centered, expanded, fragmented, isolated), the type of therapy (oral, insulin, both), the duration of disease, and economic status (high, good, average, low).

The second section of the questionnaire related to determining and recording the level of glycosylated hemoglobin. In this regard, after rendering explanations about this laboratory test and the method of performing it to the patients and acquiring their consent, and after

requesting the test by a physician, they were referred to the Institute of Endocrinology and Metabolism medical laboratory. 5ml of blood was obtained from the patients. In the Institute of Endocrinology and Metabolism medical laboratory, chromatography was used as the method of measuring glycosylated hemoglobin. The results were given to the patients after a week, and were included in their medical records. In order to evaluate the efficiency of glycemic control, the glycosylated hemoglobin level was divided into two groups: HbA1C < 4.3%, revealing adequate glycemic control, and HbA1C ≥ 4.4%, revealing inadequate glycemic control.

In the third section of the questionnaire, family support was measured using a standard tool, - the "Social Support Questionnaire of Diabetics - Family Version". [10] This questionnaire was designed in 2002 by Greco in order to evaluate the support received by 13-18 year old adolescents suffering type 1 diabetes. It was also used in the present study for elderly suffering type 2 diabetes after internet-based correspondence and acquiring the designer's permission and revising the questions. Following revision, the number of questions of the questionnaire was reduced from 52 to 51. The questionnaire generally evaluated the feeling of belonging and also the amount of emotional, informational, and instrumental supports received and perceived by the patients regarding 4 areas, namely: drug usage, blood-glucose testing, diet, and exercise.

The questions were graded based on a 5-point Likert Scale ranging from never (1 point) to always (5 points), and another choice titled "no indication" was also added for patients that didn't have any indication to answer the pertaining questions, which had no score, and wasn't considered in the statistical analysis. The range of total score was 51-204 points, and the higher the total score, the higher was the family support received by the diabetic patient.

The scientific validity of the tool was determined using content validity, and its scientific reliability was determined using the test-retest method ( $r = 0.96$ ).

Sampling was performed continuously; such that the researcher visited the Institute of Endocrinology and Metabolism, Iran University of Medical Sciences, continuously on different days of a week, and after selecting the subjects meeting the inclusion criteria, she introduced herself, explained the aim of the research, and then acquired written consent and reassured them about the confidentiality of data collected by the questionnaire. Consequently, the personal data and family support questionnaire was given to the subjects.

The research data was analyzed using the SPSS software (version 15) and also descriptive and analytic statistical methods (Chi-square and Pearson tests).

Variables		%
<b>Gender</b>	female	55.4
	male	44.6
<b>Age (years)</b>	60-69	78.3
	70-79	18.5
	80-89	3.2
<b>Marital Status</b>	married	76.1
	divorced	1.1
	widowed	22.8
<b>Educational Level</b>	illiterate	30.4
	high school graduate	44.6
	high school undergraduate	10.9
	graduate	14.1
<b>Occupation</b>	employment	9.8
	retirement	39.1
	housewifery	51.1
<b>Type of Treatment</b>	oral hypoglycemic drug	62
	insulin	15.2
	both	22.8
<b>Economic Status</b>	good	15.2
	average	60.9
	low	23.9
<b>Family Type</b>	centered	35.9
	secondary centered	25
	expanded	19.6
	fragmented	7.5
	isolated	12

**Table 1. Comparison of the percentages of different variables in both groups, before and after the tests**

## Results

The results revealed that most (55.4%) of the subjects were females; the maximum and minimum age of the subjects were 60 and 85 years old, respectively, with a mean age of 66.15 yrs, and most subjects (78.3%) were in the 60-69 years old age group; 76.1% of the subjects were married. The mean duration of diabetes was  $14.2 \pm 9.2$  years; and the mean number of family members was  $1.94 \pm 0.5$ . Other characteristics of the subjects are presented in Table 1.

The results of the present research showed that the mean support received was  $178.29 \pm 0.7$ ; and most subjects (42.4%) received considerable support from their families. The subjects' mean glycosylated hemoglobin level was  $5.06 \pm 0.89$ ; and the level of HbA1C was higher than 4.3% in 62% of the subjects.

The results of the Pearson test revealed a statistically significant and indirect correlation between family support and the level of HbA1C; such that 61.5% of the subjects receiving more support from their family members, had lower HbA1C levels ( $r = -0.56$ ;  $p < 0.0001$ ). The frequency distribution of family support received by the subjects according to the level of glyce-mic control is presented in Table 2.

The findings of this research showed that male patients (53.7%) and the married patients (52.9%) had received the most family support ( $p < 0.0001$ ;  $p < 0.0001$ , respectively); whereas the divorced patients and the widowed patients had received the least family support. Statistical tests didn't reveal any correlation between family support and variables such as age, occupation, educational level, the number of family members, the family type, the type of therapy, the duration of disease, and economic status. Other findings of the research showed a statistically significant correlation between glyce-mic control and variables such as marital status ( $p = 0.02$ ), educational level ( $p = 0.05$ ) and economic status ( $p = 0.04$ ). Statistical tests didn't reveal any correlation between glyce-mic control and variables such as age, gender, occupation, the number of family members, the family type, the type of therapy, and the duration of disease.

## Discussion and Conclusion

The nature of diabetes and the type of its treatment requires that the patient and his/her family take over a considerable proportion of the therapeutic responsibilities. [11] The aim of this cross-sectional research was investigating the relationship between family support and glyce-mic control in the elderly suffering type 2 diabetes.

The findings of this research showed a statistically significant correlation between family support and glyce-mic control, such that patients receiving the most support from their families, had achieved a desirable glyce-mic control. The studies of other researchers such as Schwartz [12] and Dai [1] have also had similar results. Glasgow states

Family Support/Glycaemic Control	Low (%)	Average (%)	High (%)	Sum (%)
<b>Desirable</b>	10	27.3	61.5	38
<b>Undesirable</b>	90	72.7	38.5	62
<b>Sum</b>	100	100	100	100

**Table 2. Frequency distribution of family support received by the subjects, according to the level of glyce-mic control**

that family support is the most prominent factor that determines compliance with diet therapy in patients suffering type 2 diabetes. [13] A similar conclusion was found in a study performed by Dai et al. [4] Graham suggested that women are generally the care providers at home, and in fact, they are an intermediate link between the family and the official health care systems in the society. [14] Kagawa claims that women tend to continue to perform their housewifery duties even in their worst physical conditions, because they believe taking care of family members is their responsibility, and it is difficult for them to quit their basic roles and be taken care of. [15] The findings of a research performed by Wong also showed that in general, women actively supported their diabetic husbands (by buying nutrients and preparing meals appropriate for diabetic patients and also by encouraging them to have healthy diets), and rapidly adapted themselves to their husbands' lifestyle changes, whereas diabetic women were only passively supported by their husbands. [16]

Based on the results of the present research, the married diabetic elderly received the most family support, whereas the divorced and widowed diabetics received the least family support. In their research, Trif et al showed that a successful marriage improves the adaptation to different conditions of diabetes. Support from the patient's spouse, is considered the most important source of support for diabetics in different periods of their disease. [17] Different researchers have revealed that divorced individuals experience more psychosomatic disorders as compared to single and widowed individuals, and that the incidence rate of disorders such as malignancies, cardiovascular disease, pneumonia, and hypertension is higher among them compared to single, married, and even widowed individuals. Some investigators attribute this to losing the most important source of social support (i.e. the family), because the related families either disagree with divorce or experience psychological crises and cannot afford to render appropriate supports. [18]

Although the findings of this research didn't reveal a statistically significant correlation between family support and the duration of disease, the subjects had received the most support 5-9 years after being diagnosed as a diabetic. This may probably have been due to the fact that when a chronic disease such as diabetes is diagnosed in an individual, it causes psychological crisis and stress in his/her family in the first few years; as time passes, the family members become adapted to the new conditions of the patient, and will be able to render the essential support. In addition, during the first years the disease is diagnosed, family members may not have sufficient awareness about the disease, and may not know what kind of support the patient needs. The results of research performed by Schwartz didn't reveal any relation between family support and the duration of the disease either. [12]

Although statistical tests didn't indicate any correlation between family support and family type, diabetics who lived with their spouses after marriage had received the most support from their family. Although expanded

families were the cradle of respect and support for the elderly in the past, large families are nowadays, due to the movement of societies towards industrialization and modernization, moving towards spouse-centered families in which the role of family members are profoundly changing, which in turn, influences the relationships among the members. [19] In spite of the change in family structure (from a large and expanded family to a small and centered one), passion and interconnection and friendship and care-giving spirit has not necessarily been disrupted yet among family members. Even if the youngsters migrate and abandon their families, passion and care-giving spirit may still remain among parents and children. [2]

Similar to the results of Schwartz' research, the findings of the present research revealed that individuals who lived alone received the least family support. [12] Ki Kim too believes that living in isolation restricts the availability to different kinds of support. [20]

Although in the present research, individuals with a higher educational level had received more family support, no statistically significant correlation was found between educational level and family support, which may have been due to the low educational level of most subjects.

In addition, no correlation was found between family support and economic status, which may have been due to the strong emotional connections between family members in the Iranian culture, which obliges them to support the other members, apart from the financial condition they have.

Although the findings of this research didn't reveal any correlation between family support and the type of treatment, patients on both oral and parenteral therapies had received the most family support, and patients on insulin had received the least family support. This may have been due to the fact that family members assume that the elderly who receive both types of treatment are critically ill and need more support, whereas the family members of a diabetic elderly that only receives insulin, don't have much awareness about the treatment of diabetic patients, and presume that insulin alone could achieve glycemic control and thus these patients don't need any support regarding their disease.

Although the retired elderly received the most family support, statistical tests didn't reveal a statistically significant correlation between family support and the occupational status of the elderly. Suppapiorn states that the elderly spend more time with their family after retirement, and this may be the reason for receiving more support from their family members. [11]

The results of the present research revealed that the married elderly had achieved better glycemic control. Research has showed that diabetics experience poorer glycemic control when they have conflicts with their spouses. It is even claimed that excellent glycemic control is related more to the attitude of the patient's spouse regarding proper glycemic control rather than to the patient's own beliefs about it. [17]

The findings of this research showed a statistically significant correlation between economic status and the level of glycemic control, such that individuals with better economic status achieved better glycemic control, and individuals with a low economic status couldn't achieve proper glycemic control. This was also confirmed by the findings of Dai's research.[4] It has been proved that the diabetics' health care costs (such as doctors' fee, the cost of drugs, the cost of diabetic diets, etc) are very high, and the high cost of supplying these nutrients and achieving healthy lifestyles may preclude proper glycemic control in the poor. Having a good economic status ensures selecting and purchasing proper nutrients for diabetics; various sport devices, specialized books and journals regarding diabetes, etc, and therefore directly influences self-care in these patients. [21, 22]

Educational level is also considered an influential factor in glycemic control. In the present research, elderly with academic education achieved better glycemic control. This finding was also confirmed by the results of research performed by Schwartz. [12]

Statistical tests didn't reveal any correlation between glycemic control and variables such as age, gender, occupation, the number of family members, the family type, the type of therapy, and the duration of disease. This finding was also confirmed by the results of research performed by Suppaitorn.

The cross-sectional nature and the low number of subjects were the most important limitations of the present research. Performing longitudinal research with more subjects may explain the "cause and effect" relationships among the findings of this research.

### Suggestions

In spite of the aforementioned limitations, the findings of this research and other research revealed that proper glycemic control is correlated to family support. Regarding these findings and also the important role of family in taking care of the elderly and supporting them, we recommend that health care givers take advantage of participating family members in the treatment of diabetics. For example, the family members of the diabetic elderly should also attend educational sessions, so they would be encouraged to play a more active role in the treatment of diabetic patients.

According to the findings of this research, diabetics living in isolation had received the least family support. Therefore we recommended that the medical team be one of the resources of social support. Regarding economic factors influencing glycemic control it is recommended that the community resources available to support these people, need to be introduced as active centers to which they can be referred.

## REFERENCES

- 1-Dai Y-T .The effect of family support, expectation of filial piety, and stress on health consequences of older adults with diabetes mellitus. University of Washington ;1995.
- 2-Aghamol্লাie T, Eftekhari H, Shojaeizadeh D, Mohammad K, Najavani M, Ghofrani F. Effect of a health education program on behavior, HbA1c and health-related quality of life in diabetic patients. *Acta Medica Iranica* 2004; 43(2):p:89-94.
- 3-Masnavi AT. Comparative of elderly situation in home and a...*journal of geriatric* 2007;4(1):280-285
- 4-Tajer MA . Elderly health. Tehran. Nasle farad.2006;32
- 5-Statistic center of Iran .census of population.2006
- 6- Williams G, Pickup JC. Handbook of diabetes. 2nd Ed .New York: Blackwell Science; 1999: 68
- 7-Smeltzer S, Bare B, Hinkle J, Cheever K. Textbook of Medical-Surgical Nursing, Brunner & Suddarth's. 11 editions. Vol 2. Wolters kluwer, Lippincott, Williams & Wilkins.2007.
- 8-Rhee MK, Slocum W, Ziemer DC, Culler SD, Cook CB, Kebbi IM, et al. Patient adherence improves glycemic control. *The Diabetes Educator* 2005 Mar/April; 31(2):240-250.
- 9- Glasgow RE, McCaul KD, Schafer LC. Self care behaviors and glycemic control in type 1 diabetes. *Diabetes Spectrum* 1987; 2(1):87-93.
- 10- La Greca AM, Bearman KJ. The diabetes social support questionnaire- family version: evaluating adolescent's diabetes-specific support from family members. *Pediatric Psychology* 2002; 27(8):665-676
- 11-Suppaitorn S. the family functioning and glycemic control of non-insulin depended diabetes mellitus *Chula Med* 2005 may;49(5):269-280.
- 12-Schwartz AJ. Perceived social support and self- management of diabetes among adults age 40 years and over. [Master dissertation]. Miami University; 2005.
- 13-Schaffer MA. Social support. In Peterson, Bredow TS, editor. Middle range theories, Application to nursing research.1 ed. Philadelphia: Lippincott: Williams& Wilkins; 2004: 179-202
- 14-Graham H.Providers negotiators and mediators: women as the hidden caregivers .*women health and heading* 1985:25-52.
- 15-Kagawa M. Redefining health: living with cancer. *Social and medicine* 1993;37(31):225-304.
- 16-Wong M,Gucciardi E, Loisa LI, Grace Sh. Gender and nutrition management in type 2 diabetes. *Canadian Journal of Diabetic Practice and Research* 2005;66,4:215-220.
- 17-Trief P, Sandberg J, Greenberg R, Graff K, Catronova N, Yoon M et al. Describing support: A qualitative study of couples living with diabetes. *Families, Systems & HEALTH* 2003; 21(1): 57-67.
- 18-Karen K. Hafen B.Smith N.Fransen K. Mind and body health, the effects of attitudes, motions and relationship.3rd Ed Sanfrancisco.Benjamin Cumming .2006.chapter 11:340-346.
- 19- The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 2002; 25 (1) S5-S20.
- 20-Kim IK .Social support for older person: the role of family, community and state in selected Asian countries. a Paper to be presented at an expert group meeting on the regional preparations for the global review of Madrid plan of action on aging ,Bangkok 27-29 march 2007.
- 21-Brown AF,Ettner SL ,Piette J,Weinberger M,Gregg E,et.al. Socio-economic position and health among persons with diabetes mellitus: A Conceptual Framework and Review of the literature. *Epidemiologic reviewers* 2004; 26
- 22-Simmons D,Gatland B.Ethnic differences in diabetes care in multiethnic community in New Zealand. *diabetes research and clinical practice* 1996;34,suppl:s89-s93.

*Original Contribution/Clinical Investigation*

## “THE MORE THE MERRIER”: CO-RESIDENCE AND SELF-REPORTED DEPRESSIVE SYMPTOMS AMONG OLDER KUWAITI MEN AND WOMEN

**Authors:**

**Jaafar Behbehania (1),  
Nasra M. Shaha (1),  
Hanan E. Badr (1)  
Makhdoom A. Shahb (2)**

(1) Department of Community Medicine and Behavioral Sciences,  
Faculty of Medicine,  
Kuwait University.

(2) Department of Health Information Administration,  
Faculty of Allied Health Sciences,  
Kuwait University

**Correspondence:**

**Prof. Nasra M. Shah**  
Department of Community Medicine and Behavioral Sciences,  
Faculty of Medicine, Kuwait University.  
P.O. Box 24923 Safat  
13110 Kuwait  
Tel: (965) 498 6531  
Fax: (965) 533 8948  
Email: [nasra@hsc.edu.kw](mailto:nasra@hsc.edu.kw)

**ABSTRACT**

**Objectives:** To ascertain the association between co-residence and the prevalence of self-reported depressive symptoms among Kuwaiti men and women aged 50+.

**Methods:** A cross-sectional survey of Kuwaiti households was conducted among 2,487 persons aged 50+. A scale containing 10 items (each ranging from 0-3) was used to calculate the depressive symptom score. Binary logistic regression was used to identify predictors of ? median level of the depressive symptoms score.

**Results:** The mean depressive symptoms score was 10.97. Women had a significantly higher mean score than men. Those with no co-resident children were 2.2 times more likely to report higher depressive symptoms than those with 3+ children. Those with three illnesses were more likely (3.6 times among men and 2.1 times among women) to report higher depressive symptoms than their counterparts without any illness.

**Discussion:** Co-habitation with a larger number of children was inversely associated with depressive symptoms experience.

**Key words:** depressive symptoms, geriatric health, social support, Kuwait

**Introduction**

With a life expectancy of 77 years and 75 years for Kuwaiti females and males in 2005, issues related to healthy aging have become especially important (MoH, 2005). Recognition of physical as well as psychological health deficiencies among older persons deserves a high priority in health planning since both are important ingredients of the overall quality of life. The occurrence and persistence of depressive symptoms among older persons may be indicative of long term psychological ailments that may also affect their physical health and functional ability. Depressive symptoms among older adults have been reported to have various health consequences. Such symptoms are positively associated with chronic illnesses and other medical conditions (Okwumabua, Baker, Wong & Pilgram, 1997; Baker, Okwumabua, Philipose, & Wong, 1996;

Al-Shammari & Al-Subaie, 1999) increased risk of dementia (Fuhrer, Dufouil, & Dartigues, 2003), higher physical performance decline (Penninx, Guralnik, Ferrucci, Simonsick, Deeg, & Wallace, 1998), and increased mortality level (Schulz, Beach, Ives, Martire, Ariyo & Kop, 2000).

Co-residence with children and other relatives has been found to have strong negative associations with the prevalence of depressive symptoms in various developed as well as developing countries (Chen, Wei, Hu, Qin, Copeland, & Hemingway, 2006; Zunzunegui, Beland, & Otero, 2001; Harris, Cook, Victor, Rink, Mann, Shah et al., 2003). However, co-residence patterns are undergoing major changes. Kuwait has traditionally been a country with very strong family ties with rich networks of social support. Co-residence has declined in consort with rapid socio-economic development that the country has

experienced during the last 3-4 decades. Once married, the children have an increasing preference for setting up their own nuclear units, resulting in a larger percentage of older persons residing without any co-habiting children. Comparison of data from the 2005/6 survey on which the present paper is based, with a previous household survey held in 1999, shows that the percentage of older persons age 50+ co-habiting with at least one child, declined from 92 % to 80 % in less than one decade.

Relatively little is known about the impact of the above changes on the psychological health of older Kuwaitis. The objective of this paper is to present a description of the self-reported depressive symptoms among Kuwaiti nationals aged 50+ and assess the role of family structure in such perceptions. The analysis controls for socio-demographic background, and experience of chronic illness, in order to gauge the net impact of co-residence. Kuwaiti men and women are compared in order to examine the differences in self-reported depressive symptoms and their correlates between the two sexes.

## Methods

Data for this paper were collected through a cross-sectional survey of Kuwaiti households conducted during April, 2005 to December, 2006 where 2,487 men and women aged 50 and over were interviewed. Non-Kuwaitis were not included in the study. The study was approved by the Ethics Committee of the Faculty of Medicine. Verbal consent was obtained from each respondent before the interview.

Our survey was based on two of Kuwait's six geographical regions, or governorates. One governorate (Capital) represented a relatively more, and the other (Ahmadi), a relatively less urban area. Within each governorate residential areas were randomly selected where all Kuwaiti households were approached for inclusion in the survey if they agreed and had a resident aged 50 or over. A sample representing the proportion of older persons aged 50+ in each of the governorates was chosen. About 800 persons were selected from each of the three following age groups: 50-59, 60-69, and 70+. All older men and women who agreed to participate in the study were interviewed. In January 2005, these two governorates had 41,205 Kuwaiti persons aged 50+. Our survey covered 6% of them.

Of the total households with at least one older person aged 50+, 75.3 % agreed to participate. These households had 2,605 potentially eligible persons, 2,487 (95 %) of whom participated. A total of 1,451 individuals from the Capital and 1,036 from Ahmadi governorates were successfully interviewed. A proxy respondent, usually a close relative, was used in 5.4% of the cases where the respondent was not able to answer, primarily due to old age or disability. A questionnaire was developed in English and then translated into Arabic. Trained male and female Arab interviewers collected the data on psychological health, physical health,

socio-demographic background and several other aspects.

The present paper focuses on psychological health as measured by a scale of depressive symptom experience adapted from the Mexican Health and Aging Study (Soldo, Wong, & Palloni, 2003). This scale consists of 10 items measured on a Likert scale ranging from "Never" to "Most of the time", shown in Table 2. A reference period of 7 days prior to the interview was used. For example, a question was asked on whether the respondent had poor appetite during the previous 7 days, and whether this occurred most of the time, sometimes, seldom or never. A weight of 3 was given to the item if it occurred most of the time and a weight of 0 was given if it never occurred. The ten items were summed to arrive at a composite score of depressive symptom experience, with a range between 0 and 30. Comparisons between males and females were made by calculating the mean score of depressive symptoms by sex according to major socio-demographic characteristics. Associations between explanatory variables and depressive symptoms were tested by using ANOVA. Multivariate analysis using binary logistic regression was then conducted in order to assess the factors that significantly predicted the prevalence of higher than median depressive symptom score. The p values of <0.05 were considered to be statistically significant.

The association of co-residence with depressive symptoms was examined by using three variables, namely, the type of respondent's family (nuclear vs. extended), the number of children who were living with the respondent and the number of children living away from him/her. In order to control for socio-demographic background the following variables were included: age, marital status, ethnic background (Bedouin vs. non-Bedouin, the former representing relatively more traditional socio-demographic characteristics and attitudes), years of schooling, work status, and per capita family monthly income. Also, the presence of chronic illnesses was assessed in terms of whether the respondent had been diagnosed to have hypertension, diabetes or heart disease. A variable indicating the intensity of illnesses was developed in terms of respondents who reported none of the above illnesses, or reported 1, 2, or all 3 of these illnesses.

## Results

A profile of the socio-demographic characteristics of the 2,487 Kuwaiti older persons aged 50+ is shown in Table 1. About 61% of the sample comprised women. Men were significantly older than women (Mean= 66.3 and 62.3 years, respectively,  $p < .001$ ). The percentage of widowed persons was significantly higher among women than men (32.5% and 3.6%). About 45% of men as well as women belonged to a Bedouin family. About 14% of men and 18% of women had less than 5 years of education, while almost a quarter of each had beyond high school education. Men and women differed very significantly in terms of their work history. About 84%

of the women had never worked while 87% of the men had worked earlier but were now retired. The distribution of per capita monthly income was similar for men and women.

A larger percentage of men (72%) were residing in nuclear families (defined as a family where the husband and/or wife is living alone or with unmarried children) compared with women (63%). Kuwait is a relatively high fertility society and co-residence with children is common. We found that none of the children were living with the respondent among 19% of men and 20% of women, while 3 or more children were living with the respondent among 47% of men and 41% of women. About 70% of men as well as women were suffering from at least one chronic illness, namely hypertension, diabetes or heart disease, while 14% of men and 10% of women were suffering from all three of these diseases. (see Table 1).

The ten items used as indicators of depressive symptoms are shown in Table 2. About 21% of men and 23% of women reported that during the previous week they did not enjoy doing anything most of the time. Other items that 7-12% of the respondents reported experiencing most of the time consisted of having poor appetite, restless sleep, feeling unhappy, and not feeling proud of children's accomplishment. A consistently larger percentage of women expressed the experience of depressive symptoms compared with men for most items. The differences between the two sexes were statistically significant for seven of the ten items. The mean score on depressive symptoms was significantly higher for women than men (11.2 and 10.6;  $p < .001$ ), as shown in Table 3.

The depressive symptoms total score was divided according to percentiles into three categories, mild (<50th percentile), moderate (50th-75th percentiles) and severe (>75th percentile). Severe depressive symptoms were prevalent among 16.6% of the sample (18.1% of the females and 14.2% of the males,  $p < 0.05$ ). Moderate symptoms were reported among 38.2% of the older men and women with almost equal gender distribution (data not shown).

Bivariate analysis showed a strong inverse association between co-residence and depressive symptoms. Men as well as women who had children living with them had a lower depressive symptom score (Table 3). For example, women who had 3 or more children living with them had a mean score of 10.1 compared with 12.7 among those who had no children living with them ( $p < 0.001$ ). On the other hand, the association between the number of children living away from the house and the depressive symptom score was generally positive for men ( $p < 0.001$ ), as well as women ( $p < 0.01$ ). The presence and intensity of chronic illnesses had a strong positive association with depressive symptoms (Table 3). Among women with no illness, for example, the mean score was 9.9 compared with 13.3 among those who were suffering from all three chronic illnesses ( $p < 0.001$  for each sex).

The bivariate association of depressive symptom mean scores with socio-demographic and other predictors showed a very similar pattern for males and females, even though

the score was consistently higher for females. The mean score of depressive symptoms increased significantly by age among both sexes ( $p < 0.001$ ). Marital status did not show a notable difference in the depressive symptoms score. Bedouins had significantly higher scores than non-Bedouins among men ( $p < 0.01$ ) as well as women ( $p < 0.05$ ). There was a linear, inverse association between educational level and depressive symptom score among men as well as women ( $p < 0.001$ ). Those who were currently employed had significantly lower scores than those who had never worked or were retired, among both sexes ( $p < 0.001$ ). Those with relatively higher per capita monthly income reported significantly higher mean scores on depressive symptoms within each sex. Those living in extended families generally had lower scores than those living in nuclear families.

Logistic regression analysis for the total sample as well as men and women is shown in Table 4. Respondents at or below the median score were coded as 0 (54%) and those above the median (46%) were coded as 1. All ten variables shown in Table 3 were included as predictors. Also, sex was included as a variable in the analysis for the combined sample. We found that in the total sample, sex did not appear as a significant variable, indicating that men were not significantly different from women once the socio-demographic and other characteristics were controlled.

In terms of the associations of various predictors with higher depressive symptoms, the findings were very similar for the two sexes. The presence and intensity of chronic illnesses was the most important predictor in case of men and the second most important one in case of women. For example, among males, those with two chronic illnesses were 2.6 ( $p < .001$ ) times more likely and the ones with all three illnesses were 3.6 ( $p < .001$ ) times more likely to report higher depressive symptoms compared with those who had no illnesses.

All three variables that measured co-residence patterns were significantly associated with higher depressive symptoms. Among men, those who had no children living with them were 2.2 times more likely to report higher depressive symptoms than those who had 3 or more children living with them ( $p < .001$ ). A similar association was present for women, among whom presence of children in the house was the most important variable. Men as well as women who had larger numbers of children living away from the house were significantly more likely to report higher depressive symptoms than those who had no children living away. Among men, those living in a nuclear family were almost twice as likely to report higher depressive symptoms than those living in an extended family with married and unmarried children as well as other relatives ( $p < .05$ ). Among women, the association with type of family was different than men; those living only with married and unmarried children reported a significantly lower risk (odds ratio = 0.66) of higher depressive symptoms than those living with their children plus other relatives.

VARIABLES	Total n=2487	Males n=965	Females n=1522	p* value
<b>Age:</b>				
50-59	34.9	25.0	41.3	<b>&lt;0.001</b>
60-69	32.6	34.5	31.3	
70+	32.5	40.5	27.4	
(Mean ±SD)	63.8±9.5	66.3±9.4	62.3±9.2	<b>&lt;0.001</b>
<b>Current marital status:</b>				
Married	72.0	94.6	57.6	<b>&lt;0.001</b>
Not married	28.0	5.4	42.4	
<b>Ethnicity:</b>				
Bedouin	45.2	44.5	45.7	0.553
Non-Bedouin	54.8	55.5	54.3	
<b>Years of education:</b>				
0-4	16.1	14.4	18.1	0.248
5-8	35.5	36.8	34.1	
9-12	25.3	24.8	25.8	
13 +	23.1	24.0	22.0	
<b>Working status:</b>				
Never worked	51.5	0.3	84.0	<b>&lt;0.001</b>
Retired	41.2	86.7	12.3	
Currently working	7.3	13.0	3.7	
<b>Income per capita per month (KD):</b>				
<200	23.1	23.8	22.7	0.245
200-<300	22.5	23.1	22.0	
300-<450	28.7	28.6	28.8	
450+	25.7	24.4	26.5	
<b>Family type:</b>				
Nuclear	66.3	72.2	62.6	<b>&lt;0.001</b>
Extended 1	20.3	19.3	21.0	
Extended 2	13.3	8.5	16.4	
<b>Reported chronic illness:</b>				
No illnesses	29.7	29.1	30.0	<b>0.120</b>
One disease	26.4	26.2	26.5	
Two diseases	32.4	30.4	33.8	
Three diseases	11.5	14.2	9.7	
<b>Number of children living with respondents:</b>				
0	19.5	18.7	20.0	<b>&lt;0.01</b>
1	20.2	17.2	22.1	
2	16.9	17.3	16.7	
3+	43.4	46.8	41.2	
<b>Number of children living away from respondents:</b>				
0	14.5	16.1	13.5	<b>&lt;0.05</b>
1-2	17.2	17.7	16.9	
3-4	25.1	24.9	25.2	
5+	43.2	41.3	44.4	

\*p value indicates the differences between males and females.

**Table 1. Percentage distribution of socio-demographic features of older Kuwaiti males and females (n=2487) (% is column wise)**

Despondency items	Sex	Never	Seldom	Sometimes	Most of the time	p* value
Had poor appetite	M	38.8	20.4	34.1	6.7	<0.001
	F	32.2	18.9	40.1	8.8	
Had restless sleep	M	38.7	18.4	35.9	7.1	<0.001
	F	30.7	17.8	41.5	10.0	
Felt unhappy (b)	M	36.8	43.9	7.5	11.8	0.16
	F	34.9	42.7	9.8	12.5	
Felt they were a burden for others	M	86.5	5.9	5.0	2.6	<0.001
	F	80.1	7.4	8.9	3.5	
Were worried about financial status	M	63.4	20.6	14.0	2.0	0.094
	F	61.8	19.3	15.7	3.2	
Didn't feel proud about children's accomplishments (b)	M	55.0	29.5	3.7	11.8	0.113
	F	56.7	30.5	3.0	9.8	
Felt sad	M	57.0	27.0	12.6	3.4	<0.001
	F	47.0	26.3	20.6	6.0	
Worried about children	M	62.7	21.0	14.3	2.0	<0.05
	F	58.6	21.5	16.5	3.4	
Couldn't shake off the blues	M	66.0	26.7	6.1	1.2	<0.001
	F	61.0	27.1	10.5	1.4	
Didn't enjoy doing anything (b)	M	29.1	41.5	8.3	21.1	<0.05
	F	24.2	42.4	10.6	22.8	

b These items were phrased in a positive manner and the percentages reflect a negative response to the given item. For example, the question asked whether the respondent felt happy.

\*p value indicates the differences between males and females.

**Table 2. Respondents' self-reported depressive symptoms during the 7 days preceding the survey among older Kuwaiti males and females (% is row wise)**

Of the six predictors included to measure the socio-demographic background of respondents, educational level was significant among both sexes and work status was significant among men. Educational level had a linear, inverse association with higher depressive symptoms. For example, compared to women with above secondary level education, the odds of reported depressive symptoms were 1.9 times higher among those with 9-12 grades of education ( $p < .05$ ), 2.3 times higher among those with 5-8 grades of education ( $p < .01$ ) and 2.8 times higher among those with 0-4 grades of education ( $p < .001$ ). A roughly similar pattern was reported by men. Current employment appeared to reduce the odds of higher depressive symptoms among men while this variable did not appear as a significant one for women. Men who were currently employed were about one-third less likely to report depressive symptoms than the retired men ( $p < .01$ ).

## Discussion

Our study on 2,487 Kuwaitis aged 50+ showed that on a ten item scale of depressive symptoms ranging from 0-30 the mean and median scores of respondents were 10.97 and 11.0, respectively. A previous study conducted in Kuwait indicated a prevalence rate of 9.1% among persons aged 45 years and above (Al-Otaibi, Al Weqayyan,

Taher, Sarkhou, Gloom, Aseeri et al., 2007). Women had a significantly higher mean score than men, 11.2 and 10.6, respectively. A higher level of depressive symptoms among women than men has been reported in several previous studies (Al-Shammari & Subaie, 1999; Fuhrer, Dufouil, & Dartigues, 2003; Zunzunegui, Beland, Llacer, & Leon, 1998; Minicuci, Maggi, Pavan, Enzi, & Crepaldi, 2002).

After controlling for the presence of chronic illness and socio-demographic background, co-residence emerged as a very significant factor in the multivariate analysis. Absence of children in the house was positively associated with depressive symptoms in our study. The odds of depressive symptoms among men as well as women were 2.2 times higher among those with no children in the house compared with those who had 3 or more co-resident children. In Kuwaiti society, children play a pivotal role in the lives of families, especially women. In a national survey of married women in reproductive ages in 1999, it was found that the desired number of children was 5.5 per woman. Children are perceived as a form of social, economic and political capital that help an individual to enlarge and extend a family's network (Shah & Nathanson, 2004). The number of children borne by Kuwaiti women has declined from almost 7 in 1965 to 4.1 in 2005 (MoH, 2005). However, Kuwaiti fertility is much higher than world fertility (2.7), as

Variables	Mean $\pm$ SD		
	Total n=2487	Males n=965	Females n=1522
<b>Mean of total score</b>	<b>10.97 <math>\pm</math> 4.6</b>	<b>10.6 <math>\pm</math> 4.5</b>	<b>11.2 <math>\pm</math> 4.6</b>
<b>Age:</b>			
50-59	10.1 $\pm$ 4.5	9.2 $\pm$ 4.3	10.5 $\pm$ 4.5
60-69	10.8 $\pm$ 4.6	10.4 $\pm$ 4.4	11.0 $\pm$ 4.7
> 70	12.1 $\pm$ 4.4 ***	11.6 $\pm$ 4.4 ***	12.6 $\pm$ 4.5 ***
<b>Marital status:</b>			
Married	10.9 $\pm$ 4.6	10.6 $\pm$ 4.5	11.2 $\pm$ 4.7
Not Married	11.2 $\pm$ 4.6	10.4 $\pm$ 4.2	11.3 $\pm$ 4.6
<b>Ethnic groups:</b>			
Bedouin	11.3 $\pm$ 4.8	10.9 $\pm$ 4.5	11.6 $\pm$ 4.9
Non-Bedouin	10.7 $\pm$ 4.4 ***	10.3 $\pm$ 4.5 **	10.9 $\pm$ 4.4 *
<b>Years of education:</b>			
0-4	11.8 $\pm$ 4.6	11.9 $\pm$ 4.5	11.8 $\pm$ 4.7
5-8	10.5 $\pm$ 4.5	10.4 $\pm$ 4.5	10.7 $\pm$ 4.5
9-12	9.9 $\pm$ 4.4	9.7 $\pm$ 4.4	10.1 $\pm$ 4.3
13 +	8.7 $\pm$ 3.5 ***	8.7 $\pm$ 3.6 ***	8.6 $\pm$ 3.3 ***
<b>Work status:</b>			
Never worked	11.6 $\pm$ 4.7	12.0 $\pm$ 1.7	11.6 $\pm$ 4.7
Currently working	10.7 $\pm$ 4.4	8.3 $\pm$ 3.5	8.3 $\pm$ 3.9
Retired	8.3 $\pm$ 3.6 ***	10.9 $\pm$ 4.5 ***	9.7 $\pm$ 3.7 ***
<b>Income per capita per month (KD):</b>			
<200	10.52 $\pm$ 4.5	10.3 $\pm$ 4.3	10.6 $\pm$ 4.6
200-<300	10.80 $\pm$ 4.3	10.4 $\pm$ 4.3	11.0 $\pm$ 4.4
300-<450	11.45 $\pm$ 4.3	11.6 $\pm$ 4.2	11.4 $\pm$ 4.4
450+	11.96 $\pm$ 4.5 ***	11.2 $\pm$ 4.2 **	12.4 $\pm$ 4.6 ***
<b>Family type:</b>			
Nuclear	11.21 $\pm$ 4.6	10.7 $\pm$ 4.6	11.6 $\pm$ 4.6
Extended 1	10.13 $\pm$ 4.2	10.0 $\pm$ 4.3	10.2 $\pm$ 4.2
Extended 2	11.02 $\pm$ 4.9 ***	10.3 $\pm$ 4.1	11.3 $\pm$ 5.1 ***
<b>Reported chronic illness:</b>			
No illnesses	9.5 $\pm$ 4.8	8.7 $\pm$ 4.4	9.9 $\pm$ 4.9
One disease	10.4 $\pm$ 4.3	9.7 $\pm$ 4.0	10.8 $\pm$ 4.4
Two diseases	12.1 $\pm$ 4.2	12.0 $\pm$ 4.2	12.1 $\pm$ 4.2
Three diseases	13.1 $\pm$ 4.2 ***	12.9 $\pm$ 4.0 ***	13.3 $\pm$ 4.3 ***
<b>Number of children living with respondents:</b>			
0	12.5 $\pm$ 4.6	12.1 $\pm$ 4.7	12.7 $\pm$ 4.5
1	11.5 $\pm$ 4.4	11.1 $\pm$ 4.0	11.8 $\pm$ 4.6
2	11.6 $\pm$ 4.6	11.6 $\pm$ 4.4	11.6 $\pm$ 4.7
3+	9.8 $\pm$ 4.4 ***	9.4 $\pm$ 4.3 ***	10.1 $\pm$ 4.4 ***
<b>Number of children living away from respondents:</b>			
0	9.9 $\pm$ 4.3	9.0 $\pm$ 4.4	10.7 $\pm$ 4.1
1-2	10.4 $\pm$ 4.3	9.6 $\pm$ 4.1	10.9 $\pm$ 4.4
3-4	11.8 $\pm$ 4.7	11.5 $\pm$ 4.4	12.0 $\pm$ 4.8
5+	11.5 $\pm$ 4.6 ***	11.1 $\pm$ 4.4 ***	11.7 $\pm$ 4.6 **

**Table 3. Mean and Standard Deviation (SD) of depressive symptoms score according to major socio-demographic characteristics of older Kuwaiti males and females (n=2487)**

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

VARIABLES	$\beta$	Adjusted odds ratio	p value	95% CI
<b>TOTAL MALES AND FEMALES</b>				
<b>Reported chronic illness:</b>			<b>&lt;0.001</b>	
No illnesses (RG) (a)				
One disease	-0.019	0.981	0.878	0.764 - 1.259
Two diseases	0.617	1.854	<b>&lt;0.001</b>	1.452 - 2.366
Three diseases	0.932	2.540	<b>&lt;0.001</b>	1.806 - 3.573
<b>Years of education:</b>				
0-4			<b>&lt;0.001</b>	
5-8	0.928	2.530	<b>&lt;0.001</b>	1.709 - 3.746
9-12	0.638	1.894	<b>0.002</b>	1.276 - 2.811
13 + (RG) (a)	0.537	1.712	<b>0.011</b>	1.128 - 2.596
<b>Number of children living with respondents:</b>			<b>&lt;0.001</b>	
0				
1	0.775	2.170	<b>&lt;0.001</b>	1.644 - 2.864
2	0.466	1.593	<b>&lt;0.001</b>	1.236 - 2.53
3+(RG) (a)	0.486	1.643	<b>&lt;0.001</b>	1.265 - 2.132
<b>Number of children living away from respondents:</b>			<b>&lt;0.001</b>	
0 (RG) (a)				
1-2	0.471	1.601	<b>0.005</b>	1.150 - 2.229
3-4	0.336	1.399	<b>0.022</b>	1.049 - 1.866
5+	0.537	1.710	<b>&lt;0.00</b>	1.355 - 2.158
<b>Family type:</b>			<b>&lt;0.001</b>	
Nuclear	0.217	1.243	0.143	0.929 - 1.663
Extended 1	-0.311	0.732	0.071	0.522 - 1.027
Extended 2(RG) (a)				
<b>Working status:</b>			<b>&lt;0.001</b>	
Never worked	0.071	1.074	0.508	0.870 - 1.326
Currently working	-0.853	0.426	<b>&lt;0.001</b>	0.264 - 0.688
Retired (RG) (a)				

**MALES**

<b>Reported chronic illness:</b>			<b>&lt;0.001</b>	
No illnesses (RG) (a)				
One disease	0.074	1.077	0.734	0.702 - 1.653
Two diseases	0.977	2.656	<b>&lt;0.001</b>	1.752 - 4.025
Three diseases	1.271	3.565	<b>&lt;0.001</b>	2.101 - 6.051
<b>Number of children living with respondents:</b>			<b>0.002</b>	
0	0.791	2.205	<b>0.001</b>	1.393 - 3.490
1	0.443	1.558	0.046	1.008 - 2.408
2	0.655	1.926	<b>0.003</b>	1.252 - 2.962
3+(RG) (a)				
<b>Family type:</b>			<b>0.001</b>	
Nuclear	0.686	1.985	<b>0.017</b>	1.131 - 3.486
Extended 1	0.033	1.034	<b>0.920</b>	0.538 - 1.987
Extended 2(RG) (a)				

(continued next page)

VARIABLES	$\beta$	Adjusted odds ratio	p value	95% CI
<b>MALES</b>				
<b>Working status:</b>			<b>0.006</b>	
Never worked	-0.891	0.410	<b>0.567</b>	0.019 - 8.649
Currently working	-1.011	0.364	<b>0.002</b>	0.194 - 0.681
Retired (RG) (a)				
<b>Years of education:</b>			<b>0.003</b>	
0-4	0.968	2.633	<b>&lt;0.001</b>	1.542 - 4.493
5-8	0.578	1.782	<b>0.034</b>	1.045 - 3.039
9-12	0.442	1.556	0.127	0.892 - 2.745
13 + (RG) (a)				
<b>Number of children living away from respondents:</b>			<b>0.013</b>	
0 (RG) (a)				
1-2	0.697	2.007	<b>0.015</b>	1.144 - 3.520
3-4	0.173	1.189	0.487	0.730 - 1.939
5+	0.560	1.751	<b>0.005</b>	1.182 - 2.595
<b>FEMALES</b>				
<b>Number of children living with respondents:</b>			<b>&lt;0.001</b>	
0	0.771	2.162	<b>&lt;0.001</b>	1.520 - 3.076
1	0.407	1.502	<b>0.012</b>	1.095 - 2.061
2	0.390	1.476	<b>0.021</b>	1.061 - 2.054
3+(RG) (a)				
<b>Reported chronic illness:</b>			<b>&lt;0.001</b>	
No illnesses (RG) (a)				
One disease	-0.035	0.966	<b>0.825</b>	0.709 - 1.316
Two diseases	0.458	1.581	<b>0.003</b>	1.164 - 2.147
Three diseases	0.738	2.092	<b>0.002</b>	1.324 - 3.305
<b>Years of education:</b>			<b>0.001</b>	
0-4	1.024	2.785	<b>&lt;0.001</b>	1.640 - 4.730
5-8	0.822	2.275	<b>0.006</b>	1.272 - 4.070
9-12	0.654	1.922	<b>0.039</b>	1.034 - 3.572
13 + (RG) (a)				
<b>Family type:</b>			<b>0.009</b>	
Nuclear	0.045	1.046	0.799	0.738 - 1.485
Extended 1	-0.415	0.661	<b>0.043</b>	0.442 - 0.988
Extended 2(RG) (a)				
<b>Number of children living away from respondents:</b>			<b>0.012</b>	
0 (RG) (a)				
1-2	0.245	1.278	0.242	0.847 - 1.928
3-4	0.392	1.480	<b>0.034</b>	1.030 - 2.127
5+	0.468	1.596	<b>0.002</b>	1.191 - 2.140

**Table 4. Stepwise binary logistic regression of significant predictors of depressive symptoms among older Kuwaiti males and females (n=2487)**

(a) RG: Reference Group

well as the fertility of developing countries (2.9) (PRB, 2007). Thus, the country is pro-fertility and encourages the growth of the national population. For older persons, it appears that the presence of co-resident children as well as their larger number act as factors that protect against depressive symptoms. It is culturally expected that children would take care of parents and co-residing with them is one way of fulfilling that expectation.

We presume that co-residence with a larger number of children provides a great deal of social support and personal satisfaction. Consistent with our findings, several previous studies have reported an inverse association between social support and depressive symptom experience among older persons in diverse locations such as rural China (Chen, Wei, Hu, Qin, Copeland & Hemingway, 2006), Spain (Zunzunegui, Beland & Otero, 2001), and London (Harris, Cook, Victor, Rink, Mann, Shah et al., 2003). Social isolation, loss of close social contacts and low emotional support from children were found to be potential risk factors for the onset of depressive symptoms and depressive episodes in older people (Brilman & Ormel, 2001; Zunzunegui, Beland, Llacer & Leon, 1998). Furthermore, the size of the social network was found to be inversely associated with depressive symptoms in community-dwelling persons in urban Canada (St John, Blandford & Strain, 2006), and men and women aged 65+ in an American community (Palinkas, Wingard & Barrettconnor, 1990).

In addition to family structure, experience of chronic illnesses (hypertension, diabetes, and heart disease) appeared as a very important variable among both sexes. Those with all three illnesses were 3.6 times more likely among men and 2.1 times more likely among women to report above median depressive symptoms compared with their counterparts without any illness. A similar association was reported among Saudi elderly where depression was associated positively with the number of medical diagnoses and medications received (Al-Shammari & Al-Subaie, 1999). Among older African Americans, depression symptoms were significantly higher among those with six or more chronic illnesses (Okwumabua, Baker, Wong & Pilgram, 1997). Similar findings were reported among Taiwanese older residents at nursing homes (Lin, Wang & Huang, 2007), community dwelling older adults (Mojtabai & Olfson, 2004) and among Canadian older population (Ostbye, Steenhuis, Walton & Cairney, 2000). The presence of multiple chronic illnesses is likely to seriously affect functional ability, interfere with sleep, and have a negative impact on self-perception of well being, resulting in the increase of depressive symptoms.

Similar to our results, an inverse association between educational level and depressive symptoms was also reported among older community residing Taiwanese (Wang, 2001) and older Finnish persons (Pahkala, Kesti, Kongassaviaro, Laippala & Kivela, 1995). The risk of mental disorders decreased with increasing educational level in an Iranian study (Noorbala, Yazdi, Yasamy & Mohammad, 2004). Higher educational level may affect depressive symptom experience through several

pathways. It may enable an older person to appreciate and develop a healthier lifestyle. It may also provide greater self confidence and ability to control one's health. A similar situation may exist in case of employed men who were found in our study to be about one-third less likely to report high depressive symptoms compared to the retired men. Our study has two important implications, one, regarding the protective role of social networks and the other regarding the positive association between chronic illness and depressive symptoms. The presence of social networks, as well as their larger size, seems to play a very important role in acting as a buffer against depressive symptoms in older persons. However, co-residence patterns are changing and a larger percentage of older persons now live without any children as they did about a decade ago. This change seems to have had some negative implications for the emotional health of older persons, as judged from the presence of depressive symptoms in our study. While health planners cannot intervene in residential arrangements of families, health care providers should be sensitive to the type of social network support available to the older patients under their care, especially in cases where depressive symptoms as well as chronic illnesses are especially high.

About 70% of the older respondents in our study were suffering from at least one of the three specified chronic illnesses, while 12% had all three diseases. Data from the same survey used for this paper also show a marked increase in chronic illnesses in the country compared to the past (Shah, Behbehani & Shah, 2008). The increasing prevalence of chronic illnesses poses a serious concern not only for the physical but also the emotional health of older persons and needs to be addressed on a priority basis by health planners.

One of the limitations of the present study is its cross-sectional nature that does not allow an assessment of the causal direction of association between chronic illnesses and depressive symptoms, or between changes in co-residence patterns and depressive symptoms. Longitudinal studies could contribute greatly to a better understanding of the above relationships.

Finally, the two implications identified above may form the basis for the following interventions by the Ministry of Health. Firstly, efforts at reducing the incidence of chronic illnesses may be intensified through encouraging lifestyle changes such as weight control, exercise and improved dietary habits. Secondly, health care workers may be provided training to identify older persons at a higher risk of developing depressive symptoms by asking specific questions about residential patterns and the availability of social support. Programs to provide social support for those living alone may then be devised. The above may help not only in improving the emotional health of older persons but may also reduce the impact of depressive symptoms as a risk factor for chronic illnesses.

## References

- Al Otaibi, B., Al Weqayyan, A., Taher, H., Sarkhou, E., Gloom, A., Aseeri, F., Al Mousa, E., Al Zoubi, H., & Habeeba, S. (2007). Depressive symptoms among Kuwaiti population attending primary healthcare setting: Prevalence and influence of sociodemographic factors. *Medical Principles and Practice*, 16, 384-388.
- Al Shammari, S. A. & Al Subaie, A. (1999). Prevalence and correlates of depression among Saudi elderly. *International Journal of Geriatric Psychiatry*, 14, 739-747.
- Baker, F. M., Okwumabua, J., Philipose, V., & Wong, S. (1996). Screening African-American elderly for the presence of depressive symptoms: A preliminary investigation. *Journal of Geriatric Psychiatry and Neurology*, 9, 127-132.
- Brilman, E. I. & Ormel, J. (2001). Life events, difficulties and onset of depressive episodes in later life. *Psychological Medicine*, 31, 859-869.
- Chen, R., Wei, L., Hu, Z., Qin, X., Copeland, J. R., & Hemingway, H. (2005). Depression in older people in rural China. *Archives of International Medicine*, 165(17), 2019-2025.
- Fuhrer, R., Dufouil, C., & Dartigues, J. F. (2003). Exploring sex differences in the relationship between depressive symptoms and dementia incidence: Prospective results from the PAQUID study. *Journal of the American Geriatrics Society*, 51, 1055-1063.
- Harris, T., Cook, D. G., Victor, C., Rink, E., Mann, A. H., Shah, S., DeWilde, S., & Beighton, C. (2003). Predictors of depressive symptoms in older people - a survey of two general practice populations. *Age and Ageing*, 32, 510-518.
- Lin, P. C., Wang, H. H., & Huang, H. T. (2007). Depressive symptoms among older residents at nursing homes in Taiwan. *Journal of Clinical Nursing*, 16, 1719-1725.
- Minicuci, N., Maggi, S., Pavan, M., Enzi, G., & Crepaldi, G. (2002). Prevalence rate and correlates of depressive symptoms in older individuals: The Veneto study. *Journals of Gerontology Series A-Biological Sciences and Medical Sciences*, 57, M155-M161.
- Ministry of Health (MoH) (2005). Health Kuwait. Department of Statistics. Kuwait.
- Mojtabai, R. & Olfson, M. (2004). Major depression in community-dwelling middle-aged and older adults: prevalence and 2-and 4-year follow-up symptoms. *Psychological Medicine*, 34, 623-634.
- Noorbala, A. A., Yazdi, S. A. B., Yasamy, M. T., & Mohammad, K. (2004). Mental health survey of the adult population in Iran. *British Journal of Psychiatry*, 184, 70-73.
- Okwumabua, J. O., Baker, F. M., Wong, S. P., & Pilgram, B. O. (1997). Characteristics of depressive symptoms in elderly urban and rural African Americans. *Journals of Gerontology Series A-Biological Sciences and Medical Sciences*, 52, M241-M246.
- Ostbye, T., Steenhuis, R., Walton, R., & Cairney, J. (2000). Correlates of dysphoria in Canadian seniors: The Canadian study of health and aging. *Canadian Journal of Public Health-Revue Canadienne de Sante Publique*, 91, 313-317.
- Ostir, G. V., Markides, K. S., Black, S. A., & Goodwin, J. S. (2000). Emotional well-being predicts subsequent functional independence and survival. *Journal of the American Geriatrics Society*, 48, 473-478.
- Pahkala, K., Kesti, E., Kongassaviaro, P., Laippala, P., & Kivela, S. L. (1995). Prevalence of Depression in An Aged Population in Finland. *Social Psychiatry and Psychiatric Epidemiology*, 30, 99-106.
- Palinkas, L. A., Wingard, D. L., & Barrettconnor, E. (1990). The Biocultural Context of Social Networks and Depression Among the Elderly. *Social Science & Medicine*, 30, 441-447.
- Penninx, B. W., Guralnik, J. M., Ferrucci, L., Simonsick, E. M., Deeg, D. J., & Wallace, R. B. (1998). Depressive symptoms and physical decline in community-dwelling older persons. *The Journal of American Medical Association*, 279(21), 1720-1726.
- Population Reference Bureau (PRB). (2007). 2007 World Population Data Sheet. Washington DC.
- Shah, N., Behbehani, J., & Shah, M. (2008). Prevalence and correlates of major chronic illness among older Kuwaiti nationals. Presented at the annual meeting of Population Association of America, New Orleans, USA.
- Schulz, R., Beach, S.R., Ives, D.G., Martire, L.M., Ariyo, A.A., & Kop, W.J. (2000). Association between depression and mortality in older adults: the cardiovascular health study. *Archives of Internal Medicine*, 160(12), 1731-1732.
- Soldo, B. J., Wong, R., & Palloni, A. (2003). Mexican Health and Aging Study.
- St John, P. D., Blandford, A. A., & Strain, L. A. (2006). Depressive symptoms among older adults in urban and rural areas. *International Journal of Geriatric Psychiatry*, 21(12), 1175-1180.
- Wang, J. J. (2001). Prevalence and correlates of depressive symptoms in the elderly of rural communities in southern Taiwan. *Journal of Nursing Research*, 9(3), 1-12.
- Zunzunegui, M. V., Beland, F., Llacer, A., & Leon, V. (1998). Gender differences in depressive symptoms among Spanish elderly. *Social Psychiatry and Psychiatric Epidemiology*, 33, 195-205.
- Zunzunegui, M. V., Beland, F., & Otero, A. (2001). Support from children, living arrangements, self-rated health and depressive symptoms of older people in Spain. *American Journal of Epidemiology*, 153, S22.

## **Prevalence of Diabetic foot among diabetic patients attending a primary care clinic at a teaching hospital, Riyadh, Saudi Arabia**

**Author:**

**Dr Yousef abdullah Al Turki**

*Associate Professor and Consultant Family Medicine*

*Department of Family and Community Medicine*

*King Khalid University Hospital*

*College of Medicine*

*King Saud University*

*P.O Box 28054 Riyadh 11437*

*Saudi Arabia*

*Telephone :096614671942*

*Fax: 096614671967*

*Email: yalturki@ksu.edu.sa*

### **ABSTRACT**

**Objectives:** To estimate the prevalence of diabetic foot among diabetic patients attending a primary care clinic at a teaching hospital, Riyadh, Saudi Arabia.

**Method:** A cross sectional study was conducted during the period from June 2009 till January 2010 in a primary care clinic at King Khalid University hospital, Riyadh, Saudi Arabia. All diabetic patients attending a primary care clinic were interviewed and examined by a consultant family physician who filled the data collection form containing clinical aspects about patients' foot care and diabetic control. Relevant laboratory results were taken from patients' files. The following aspects have been determined as follows: age of patients, type of diabetes, type of treatment, duration of diabetes, does the patient have diabetic foot now, does he/she have previous amputated foot or partial amputation, does the patient care for his/her feet regularly at home, does he/she use suitable shoes, does he/she use moisturising cream for his/her foot, does the patient follow blood sugar levels at home gluco meter regularly, is the patient followed with regularly by their his physician , does the patient follow medical instruction and comply with medication regularly. Recent HBA1C and Fasting blood sugar has been recorded from the patients' files. All data was entered into the computer using Statistical Package for Social Science version 15 and statistical analysis has been done, with P value considered to be significant when it is more than 0.05%.

**Results :** The study showed that the prevalence of diabetic foot among 224 diabetic patients attending a primary care clinic, was 6.2%, and 1.3% of diabetic patients had amputated foot. About half of the diabetic patients were 60 years and above. Most of the patients (69.7%) were on oral hypoglycemic agents, and 28.1% were on insulin. Only 31.7% had HBA1C less than 7, 33% followed their blood sugar levels regularly at home by gluco meter, and only 30.8% of diabetic patients examined their feet regularly at home.

**Conclusions and recommendations:** The prevalence of diabetic foot is common among diabetic patients attending a primary care clinic, which emphasized the importance of improving the quality of diabetic care especially in the elderly, to reduce diabetic foot complications, and to reduce the burden of amputation on elderly patient life, family, community, and health services. More research would be helpful regarding prevention and early management of diabetic foot in the elderly, in a primary care setting in Saudi Arabia.

**Key words:** Diabetic foot, elderly, primary care.

## Introduction

Diabetes is reaching epidemic proportions and with it carries the risk of complications. Disease of the foot is among one of the most feared complications of diabetes especially among elderly patients. The ultimate endpoint of diabetic foot disease is amputation, which is associated with significant morbidity and mortality, besides having immense social, psychological and financial consequences(1). Almost half of diabetes-related hospital admissions are for lower limb disease, which emphasizes the need to be aware of potential problems and offer appropriate and reinforced patient education (2). Almost 50% of patients with diabetic foot syndrome undergo major or minor amputation especially in the elderly age group (3,4). Foot complications are considered one of the most expensive diabetes complications to treat (5). One study indicates that considerable differences exist between diabetic foot patients from western communities and developing countries when developing programmes for treatment and prevention of diabetic foot complications in developing countries need to be considered (6). The prevalence of concomitant complications of diabetes is high among Saudis, as one study reflects that diabetes and its complications have progressed in Saudi Arabia. Not only has the prevalence rate of each complication risen, but multiple complications were also frequent (7). Another study in Saudi Arabia showed that diabetes control at primary care level is poor in spite of significant resource allocation (8). The aims of this study were to estimate the prevalence of diabetic foot among diabetic patients attending a primary care clinic at a teaching hospital, in Riyadh, Saudi Arabia.

## Method

A cross sectional study was conducted during the period from June 2009 till January 2010 in a primary care clinic at King Khalid University hospital, Riyadh, Saudi Arabia.

All diabetic patients attending a primary care clinic were interviewed and examined by a consultant family physician who filled the data collection form containing clinical aspects about the patients' foot care and diabetic control. Relevant laboratory result was taken from patients' files.

The following aspects have been determined as follows: age of patients, type of diabetes, type of treatment, duration of diabetes, does the patient have diabetic foot now, does the patient have previously amputated foot or partial amputation, does the patient care for his feet regularly at home, does the patient use suitable shoes, does the patient use moisturising cream for his/her feet, does the patient follow blood sugar levels at home by gluco meter regularly, is the patient followed up by his/her physician regularly, does the patient follow medical instruction and take medication regularly. Recent HBA1C and Fasting blood sugar has been recorded from the patients' files. All data was entered into the computer using Statistical Package for Social Science version15, and statistical analysis has been done, with P value considered to be significant when it is more than 0.05%.

**(Results next page)**

## Discussion

Diabetes is one of the growing health problems in the elderly population in the world and in the Middle East region in general and Saudi Arabia in particular (9-13).

The present study highlighted that diabetic foot is still a common health problem which affects the patient's quality of life, especially after amputation. The prevalence of diabetic foot among attending diabetic patients in this study was 6.2%. Other studies showed that the prevalence ranges from 4% to 10% in different countries (14-19).

The social and economic burden of diabetic foot in the elderly can be reduced through early diagnosis and treatment (20--24).

Regular foot examination by patients might help to detect early wounds, but in this study only 30.8% of attending diabetic patients do regular checkup and foot examination by themselves. Effective and good diabetic education has long been acknowledged as essential in the maintenance of good glycemic control and prevention of diabetic complications. It is widely accepted as the cornerstone of successful diabetes management and as the best prescription for diabetes(25,26). In the current study only 31.7% of diabetic patients had HBA1C less than 7. In the ADVANCE trial, an intensive glucose- control strategy, lowered the average glycated hemoglobin value to 6.5% in a broad range of patients with Type 2 diabetes and reduced the incidence of the combined primary outcome of major macro vascular and micro vascular events (27). Most of the diabetic patients in this study (75.9%) were followed up regularly by their primary care physician. A Quality Improvement intervention for diabetic patients based in community health centers is particularly relevant today because of the substantial growth in both the number of sites and numbers of patients served over the past decade. One study showed that participating in collaboration with community health centers improved the processes of care related to prevention, screening, disease monitoring and treatment for diabetes(28). Improving doctor- patient relationships with diabetic patients especially the elderly, is important for effective communication and to facilitate patient's education especially regarding the prevention of diabetic foot. Patients who are satisfied with their care are more likely to be self-confident, motivated, practice healthy behaviors and follow medical advice (29).

In conclusion, the prevalence of diabetic foot is common among diabetic patients attending a primary care clinic, which emphasizes the importance of improving the quality of diabetic care, especially in elderly patients, to reduce diabetic foot complications and to reduce the burden of amputation on elderly patient life, family, community, and health services. More research would be helpful regarding prevention and early management of diabetic foot in elderly patients in the primary care setting.

## Results

Clinical Status	Frequency	Percentage %
<b>Type of diabetes</b>	<b>11</b>	
Type 1	213	4.9
Type 2		95.1
<b>Type of treatment</b>		
Diet only	5	2.2
Oral hypoglycemic agents	156	69.7
Insulin	63	28.1
<b>HBA1C</b>		
Less than 7	71	31.7
7 - 9	66	29.4
More than 9	36	16.1
Not done	51	22.8
<b>Fasting Blood Sugar</b>		
Less than 7	67	29.9
7 - <9	49	21.9
9 - 11	32	14.3
More than 11	42	18.8
Not done	34	15.2
<b>Duration of diabetes ( years)</b>		
Less than 5	74	33
5 - 10	73	32.6
11 - 20	55	24.6
More than 20	22	9.8
<b>Total</b>	<b>224</b>	<b>100</b>

Table 1: Clinical Status of diabetic patients

Does patient have diabetic foot now?	Frequency	Percentage %
Diabetic foot	14	6.2
Normal	210	93.8
<b>Total</b>	<b>224</b>	<b>100</b>

Table 2: Prevalence of diabetic foot among attending diabetic patients

Amputated foot	Frequency	Percentage %
Yes	3	1.3
No	221	98.7
<b>Total</b>	<b>224</b>	<b>100</b>

Table 3: Numbers of amputated feet among diabetic patients

Foot care at home	Frequency	Percentage %
Yes	69	30.8
No	42	18.8
Sometimes	113	50.4
<b>Total</b>	<b>224</b>	<b>100</b>

Table 4: Foot care at home

Using suitable comfortable shoes	Frequency	Percentage %
Yes	62	27.7
No	32	14.3
Sometimes	130	58
Total	224	100

Table 5: Using suitable comfortable shoes

Using home gluco meter	Frequency	Percentage %
Yes	74	33
No	94	42
Sometimes	56	25
Total	224	100

Table 6: Using home gluco meter

Using skin moisturising cream	Frequency	Percentage %
Yes	18	8
No	65	29
Sometimes	141	63
Total	224	100

Table 7: Using skin moisturising cream for foot care

Regular follow up	Frequency	Percentage %
Yes	170	75.9
No	8	3.6
Sometimes	46	20.5
Total	224	100

Table 8: Regular follow-up with physician

Compliance with medical instruction	Frequency	Percentage %
Yes	175	78.1
No	5	2.2
Sometimes	44	19.7
Total	224	100

Table 9: Compliance with medical instruction

## References

- 1- Khanolkar M, Brain S, Stephens W. The diabetic foot. QJM 2008;101(9):685-695.
- 2- Marilyn E. Risk reduction and care for the diabetic foot. Practice nurse 2008;36(4):21-26.
- 3- Samann A, Tajiyeva O, Muller N, Tschavner T, Hoyer H, Wolf G, et al. Prevalence of the diabetic foot syndrome at the primary care level in Germany: a cross sectional study. Diabetic Medicine 2008;25(5):557-563.
- 4- Jennifer M, Gayle R, Robert N, Tom G. Do foot examinations reduce the risk of Diabetic amputation? Journal of Family Practice 2000;49(6):499-504.
- 5- Maskari F, El-Sadig M. Prevalence of risk factors for diabetic foot complications. BMC Family Practice 2007;8:59-68.
- 6- Morbach S, Lutalet K, Viswanathan J, Mollenberg J, Ochs H, Rajashekar S, et al. Regional differences in risk factors and clinical presentation of diabetic foot lesions. Diabetic Medicine 2004;21(1):91-95.
- 7- Al Wakel J, Sulimani R, Al-Asaad H, Al-Harbi A, Tarif N, Al-Suwaida A, et al. Diabetes complications in 1952 type 2 diabetes mellitus patients managed in a single institution. Ann Saudi Med 2008;28(4):260-266.
- 8- Al- Hussein F. Diabetes control in a primary care setting: a retrospective study of 651 patients. Ann Saudi Med 2008;28(4):267-271

Clinical Status	Diabetic foot	Normal	P value *
<b>Type of diabetes</b>			
Type 1	1	10	0.690
Type 2	13	200	
<b>Type of diabetes</b>			
Diet only	0	5	0.001
Oral hypoglycaemic agents	2	154	
Insulin	12	51	
<b>HBA1C</b>			
Less than 7	3	68	0.383
7 - 9	4	62	
More than 9	4	32	
<b>Fasting blood sugar</b>			
Less than 7	2	65	0.031
7 - >9	1	48	
9-11	1	31	
More than 11	6	36	
<b>Duration of diabetes (years)</b>			
Less than 5	1	73	0.001
5 - 10	1	72	
11-20	5	50	
More than 20	7	15	
<b>Total</b>	<b>14</b>	<b>210</b>	

\*P value considered significant if less than 0.5%

**Table 10: Cross tabulation between diabetic foot and clinical status**

Clinical Status	Amputated foot	Normal	P value *
<b>Type of diabetes</b>			
Type 1	0	11	0.692
Type 2	3	210	
<b>Type of diabetes</b>			
Diet only	0	5	0.325
Oral hypoglycaemic agents	1	155	
Insulin	2	61	
<b>HBA1C</b>			
Less than 7	2	69	0.234
7 - 9	0	66	
More than 9	0	36	
<b>Fasting blood sugar</b>			
Less than 7	1	66	0.637
7 - >9	0	49	
9-11	0	32	
More than 11	1	41	
<b>Duration of diabetes (years)</b>			
Less than 5	0	74	0.008
5 - 10	1	72	
11-20	0	55	
More than 20	2	20	
<b>Total</b>	<b>3</b>	<b>221</b>	

\*P value considered significant if less than 0.5%

**Table 11: Cross tabulation between diabetic foot amputation and clinical status**

- 9- Ahmed A. Review on the prevalence of Diabetic Foot and its Risk Factors in Saudi Arabia. *Middle East Journal of Family Medicine* 2009;7(6): 29-34
- 10- Steinbrook R. Facing the Diabetes Epidemic- mandatory reporting of Glycosylated hemoglobin value in New York city. *N Engl J Med* 2006;354:545-548
- 11- Hossain P, Kavar B, El Nahas M. Obesity and Diabetes in the Developing World- A Growing Challenge. *N Engl J Med* 2007;356:213-215
- 12- Chang J, Malik V, Jia W, Kadowaki T, Yajnik C, Hoyoor K, etal. Diabetes in Asia, Epidemiology, Risk factors, and pathophysiology. *JAMA* 2009;301(20):2129-2140
- 13- Mokdad A, Ford E, Bowman B, Dietz W, Vinicor F, Bales V, etal. Prevalence of obesity, Diabeters, and obesity related health risk factors. *JAMA* 2003;289:76-79
- 14- Beckman J, Creager M, Libby P. Diabetes and Atherosclerosis, Epidemiology, Pathophysiology, and management. *JAMA* 2002;287:2570-2581
- 15- Karter A, Ferrara A, Liu J, Moffet H, Ackerson L, Selby j. Ethnic disparities in diabetic complications. *JAMA* 2002;287:2519-2527
- 16- Singh N, Armstrong D, Lipsky B. Preventing Foot ulcers in patients with Diabetes. *JAMA* 2005;293:217-228
- 17- Malgrange D, Richard J, Leymarie F. Screening Diabetic patients at risk for foot ulceration. A multi- centre hospital based study in France. *Diabetes and Metabolism* 2003;29(3):261-268
- 18- Desonnaville J, Colly L, Wijkel D, Heine R. The Prevalence and determinant of foot ulceration in type 2 diabetic patients in a primary health care setting. *Diabetes Research and Clinical Practice* 1997;35(2):149-156
- 19- Ribe L, Rustoen T, Bir, elard R, Honestard R, Paul S, Miskowski C. The Prevalence and occurrence of diabetic foot ulcer pain and its impact on health related quality of life. *The Journal of Pain* 2006;7(4):290-299
- 20- Armstrong D, Lavery L. Diabetic foot ulcers: Prevention, diagnosis and classification. *American family Physician* 1998;57(6):1325-1336
- 21- Game F. Management of osteomyelitis of the foot in diabetes mellitus. *Nature Review Endocrinology* 2010;6:43-47
- 22- Al Fadda A, Bin Abdulrahman K. Assessment of care for type 2 Diabetic Patients at the primary care clinics of a referral hospital. *Journal of family and Community Medicine* 2006;13(1):13-17
- 23- Embil L, Trepman E. A case of diabetic charcot arthropathy of the foot and ankle. *Nature Review Endocrinology* 2009;5:577-581
- 24- Sawacha Z, Cristoferi G, Guarneri G, Corazca S, Dona G, Denti P, etal. Characterizing multi segment foot kinematics during gait in diabetic foot patients. *Journal of Neuro Engineering and Rehabilitation* 2009;6:37-48
- 25- Khaldi Y, Khan M. Audit of a diabetic health education program at a large primary health care center in Asir region. *Saudi Med J* 2000;21(9):838-842.
- 26- Tuomilehto J, Lindstrom J, Erikson J, Valle T, Hanelainen H, Parikka P, etal. Prevention of Type 2 Diabetes Mellitus by changes in lifestyles among subjects with impaired glucose tolerance. *N Engl J Med* 2001;344:1343-1350
- 27- The Advance Collaborative Group. Intensive Blood Glucose Control and Vascular outcomes in patients with Type 2 Diabetes. *N Engl J Med* 2008;358:2560-2572
- 28- Landon B, Hicks L, Malley j, Lieu T, Keagan T, Mcneil B, etal. Improving the management of chronic disease at community health centers. *N Engl J Med* 2007;356:921-934
- 29- Conboy L, Macklin E, Kelley J, Kokkotou J, Lembo A, Kaptchuk T. Which patients improve: Characteristics increasing sensitivity to a supportive Patient- Practitioner relationship. *Social Science and Medicine* 2010;70(3):479-484

## *Models and Systems of Elderly Care*

# **Factors Affecting Social Participation of the Elderly in Urban Affairs Management in the City of Tehran**

*Professor Ali Reza Kaldi,*

*Soheila Ebrahimpour, M.A.*

*University of Social Welfare & Rehabilitation*

### **Correspondence:**

*Ali Reza Kaldi,*

*Email: arkaldi@yahoo.com*

### **Abstract**

**Introduction:** The present research aims at analyzing factors affecting the social contribution of the elderly in urban affairs management in the city of Tehran.

The theoretical framework of the research is based on social exchange, self-efficacy, and action theory.

**Materials and Method:** Survey research method was used, and data was collected from the elderly of district 10 of Tehran city, using a questionnaire. The population included 30,609 and the sample was 379, who were selected by simple random sampling. Face validity of the measurement tool was approved. At the preliminary stage, the reliability of 40 questionnaires was assessed using Cronbach's alpha. Data collected through questionnaires were analyzed using Pearson correlation, Spearman, t-test, and regression.

**Results:** The results of the research are as follows: There is a significant correlation between knowledge and education, confidence in municipality, usefulness, self-efficacy and participation, and the hypotheses are confirmed.

**Conclusion:** Self-efficacy and knowledge about urban affairs management are the variables which have the most effect on social participation. Research suggestions include guaranteeing physical and mental gains for participants, attempt to draw civilians' confidence in municipalities, continuous polling, increase in participation capacity in municipality rules, and development of training and promotional activities with the aim to increase participation.

**Key Words:** Elderly Persons, Social Participation, Municipality, Urban Affairs Management.

### **Introduction**

The history of participation is as old as Human History, because participation exists in the heart of every society, and is defined as correlation, union, association, co-ordination, and so on. Since long ago, it was the cause of origination of social life and human recognition of human kind (1).

Most people believe that many problems and difficulties that cities are facing, are resolvable. Social participation

covers all kinds of individual and group actions in order to participate in the fate of the community, and effect decisions about public affairs (2).

Some of the main effects of participation are as follows :

- 1- It makes it easy to hear the other's voice.
- 2- It breaks the culture of silence.
- 3- It rectifies the problem regarding lack of investment, money and manpower (3).

Since the beginning of decade 1950, developing programs based on ideas of renovation was defeated, and the definition of participation and cooperational developments were discussed in the literature of development. In this way, participation in politics and in activities of the social organizations, is considered the duty of an active fellow citizen, not a means to fulfill the requirements, personal interests or making benefits. The programs which look to the subject of participation with such assumptions, mainly have the following specialties:

- A- They are being done with collaboration and cooperation of the main benefiter, meaning the People.
- B- They hand over the power of decision making and programming to the benefiter.
- C- They cause people to increase their knowledge and abilities.
- D- They help the main benefiter to criticize ideas about present situations, with respect to thoughts of others.
- E- They put positive effects on confidence and they create social assets.
- F- They cause development and they deepen the channels of social relationships (4).

Participation is a branch of Democracy and it forms between the frames of citizens relationships and the government and relation of power in the society. At the end of decade 1969, the subject of participation was paid attention to by decision makers and decision holders as an essential matter in the development of communities.

Arnstein (5) was one of the first people to apply citizen participation, with interpretation of power of citizens and to explain that he used the “ ladder of participation “. At the end of decade 1970, the World Health Organization introduced the phrase “ citizen cooperation “ for the first time in the subject of hygienic first aids. In documents of the United Nations organization, in decade 1980, people’s participation is defined as follows :

“ To create opportunities for increasing abilities of all members of a society for active participation, to effect procedures of development and to take fair shares out of development benefits (6). In 1996, the plan of “Citizen’s Participation” was submitted by the conference of United Nations, to make homes for people, named as “ Plan for participation of the people in city affairs “ as one of the effective plans in development of life in the cities (7).

Some researchers also believe that public participation means to take decisions by the aiming groups, people benefiting group and the groups which used democratic methods and move towards the direction of public benefits (8).

In dictionaries, city programming is defined as the public participation in constructing the city. The equipment in which the members of the society would be able to obtain the plans and politics that effects their vital environments (9).

Participation is the mental and sentimental engagement of people in group situations, in what activates them to help each other in reaching their own group aims and

share the responsibilities of jobs. In this definition, there are 3 important elements: engagement, assistance, and responsibility (10).

Participation as a behavior of a group requires certain limits of organizing. The existence of mediating social groups like trade groups, local groups, cooperatives, local committees and so on, prepares the grounds for development of participation (11).

Generally speaking, the shape of participation is dependent upon protecting goals by the producers of a program. There may be a discrepancy between the aims of decision makers and the aims of original participators. To make participation successful, designers, first select the official aims, then they find out the aims of citizens to achieve them, so that the people are encouraged in participation. The main problem in designing the cooperational plan, is the limitations of liabilities that has to be given to the citizens (5).

Alvin Toffler also in the Third Wave, predicted 3 essential factors for future governments. One of these factors is the disappearance of too many decision making centers and handing them over to the people themselves (12).

The meaning of cooperation has been paid attention by the thoughtful people in the fields of social science. In fact, even the scientists and social philosophers of the 17th and 18th centuries, such as Jean Jacques Rousseau, Thomas Hobbes, Montesquieu and others, also paid attention to this matter.

Basics of work performance ideology is the fact that the survival of all the traditions, relations and social associations, depends upon the work or duties that they do in the social system, meaning all of them (13).

Participation is dependent upon the changes and basic movements and emphasis on social relationships, construction of power and level positioning of the social system at national and local levels (14).

Arnstein tried to make the meaning of participation clear by using citizen’s “ ladder of participation “. At the lowest level of the ladder, Arnstein does not consider any power in citizens.

The story of success means that for all activities people do, it is usually like, every action of a person if it is rewarded, the possibility of it’s reoccurrence by the same person will be increased (15).

The result of research in investigation of backgrounds and straits of citizen’s social - economical participation in city management in Tabriz city shows that, the parameters of information and satisfaction have an important role in social and economic participation of the people in Tabriz (16). Other research named “ investigation for recognition of society’s level of citizen’s social participation in activities of the Tehran municipality and it’s effect on city management “ shows that there is a relation between the feeling of being powerless and participation (17).

Also in research called “investigations into the ways of attracting people’s participation in management of city

of Khoramabad , in investigation of average answers, most belonged to participation of the people in elections of town committee members with an average of 7.17 and the least belonged to the payment of city dues with an average of 5.22 (18).

In other research named “ investigation in effects of performing participation of helping committees in suburbs of Tehran , on Tehran citizen’s cooperation with city management “, it was clear that helping committees in suburbs of Tehran, despite its inability in finding its position between all citizens, was effective in the formation of backgrounds for people of Tehran cooperation (19).

One item of research shows that methods of people’s participation in city programming systems of the country, and methods of suggesting participation, can reduce centralization in city programming systems of the country and hands over the responsibilities of the programming to the local associations, especially the municipalities and Islamic committees with the help of people’s protection and coordination with non-governmental organizations (20).

Research named “The social participation of citizens in Iran” shows that 60.6 % of tendencies are positive, 27.2 % of them are neutral and 12.2 % have negative tendencies toward participation. It also emphasizes that the tendencies of the majority of the citizens in lieu of participation, are positive and it only needs some practical background preparation (21).

Research named “ investigation of views of the citizens in participation in city management: A study in region 7 of the city of Tehran”, showed that participation of women is higher than men, the youth more than elderly people, singles more than couples, and older residents of the region, more than newcomers. Also there is a meaningful relationship between the imagination of someone out of his performance (political and social confidence ) and amount of his participation (22).

In investigation of effective elements in social cooperation between the citizens more than 18 years of age and over in Tehran’s 22 regions , the findings show that availability of facilities, educational opportunities, acceptance of value of cooperation as an internal affair, choosing of things worthy in life to get the amount of knowledge of people for participation and assessment of objections that exist in the society, can affect the social participation of the people (23).

Research also has been performed, named ‘regional participation in city management which gave suggestions regarding frames of cooperational developments and exceptional special studies in cities of the world, which at the end obtains participation for city management (24).

## Materials and Method

This research is performed by method of survey. The statistical society in this research contains elderly people (over 60 years old ) in district no.10 in which according to the

census of 2006 are 30,609 persons. The sample in this research is 379, and to obtain the sample, the Cochran formula is used.

Sampling is done randomly. The main equipment for collecting data in this research is the questionnaire. The questionnaire forms are distributed to the elderly people in all parts of the region.

Participation means to have shares in something and having its benefits or participating in a group and therefore cooperating with it.

### To assess this parameter the following phrases were used:

Participation and coordination in essential or constructive plans, such as separation of paper trash from plastic and other trash, snow sweeping from the streets and footpaths , garbage collection at certain times, coordination and cooperation in keeping the footpaths,/ brooks and streams, payment of municipality charges, management of animal and insect pests, putting efforts and coordination into the maintenance of green spaces and gardens, and participating in the city’s committee elections.

The judgment of the people in relation to their abilities for achieving their plans, is called “Self-effectiveness”.

What is meant by self effectiveness, is the personal beliefs about the abilities of a person in organizing and performing courses of actions required to manage the situations that may happen in the future. To assess this parameter the following phrases are used : You can do everything if you want to. Loss is the beginning of victory. When I want to learn something new, if I do not succeed from the beginning, I leave it immediately. You have to be sober and strong when facing accidents. I believe in my abilities in doing the jobs. I am self sufficient. I do not surrender easily. When I decide to do something, I concentrate on that job seriously and precisely.

Being powerless, is the “ beliefs and views of a person about the ability of effecting government decisions, government organizations, powerful and influential groups in the society, basically lack of control on the course of events effecting the fate of the person (2).

Being powerless means the possibility or expectation of a person about the ineffectiveness of his/her actions or thinking that his/her behavior is not able to reach and obtain the expected results, and his/her actions are not leading towards his/her goals.

### To assess this parameter the following phrases were used:

The existing regulations in the municipality, discourages the cooperation of the citizens in management of the cities. In performing municipality projects, there are no values for people’s ideas and suggestions. The city management system is acting in such a way that people do not have essential roles in management of the city. Some people ask, if the municipality’s regulations are necessary and still it is not protected by sanctions. Even if I believe that

my knowledge and skills are sufficient, I find it useless to participate in group activities regarding public comforts and solving public difficulties.

Benevolence, is the assessment of a person regarding negative or positive results and consequences of cooperating or not cooperating(10). To assess this parameter, the following phrases were used:

Since the municipalities do not notice the requirements and problems of the citizens, the raising of problems by the people is useless. Cooperation with the municipality causes development in the municipality's services. In the opinion of some people, cooperation with municipality causes identification of the city's requirements and therefore brings about their rectification. In the opinion of some of the citizens, municipality charges and congestion dues are spent correctly and citizens see their results. Some say, municipalities avoid doing activities which do not have any benefit or advertising effect for them. In the opinion of some people, the invitation of people to cooperate by the municipalities, are more like to have motto effect than practical effect. It seems that income given to the municipalities by the citizens is entirely spent for development and rectifying city problems. Some people believe that the construction permit and congestion due charges, more than being useful to the people are useful to the municipalities. It seems that a large city like Tehran has such expenses that the municipality itself cannot compensate it with dues and other charge payments by the people.

Information and knowledge about city affairs: This refers to quantity and quality of information that an active citizen should have. To assess this parameter the following phrases were used: How many suggestions did you submit to the municipality by use of telephone number 137 which is specialized for suggestions to the municipality? How many times did you submit your criticism by the use of telephone number 1888, which is specialized for criticism? How much are you aware of activities of the local committee? How much are you aware of the duties of the city committee?

Trust means to believe and be assured about the rightness, truthfulness, reliance, and justice of a person, group or a society in general. To assess this parameter the following phrases were used:

As a citizen, I trust the working steps of the municipality. Some citizens say, there is no necessary equipment for controlling the municipality and its personnel or they are very weak. Some others believe that, there is too much wastage of money and incorrect usage of treasury in the municipality. The information that municipality submits about how it acts, is precise. It seems that municipality acts correctly regarding it's liabilities, therefore the important jobs should be handed over to municipalities.

In this investigation, to ensure about the reliability of the measuring tools, the Visual Credit method was used. In the present research, for the sake of measurements, after obtaining the introducers, the method of "exam - repeat the exam" was used. To do this, in the basic steps, 40 questionnaires were investigated through investigating

their information by the software SPSS ; the correlation introducer was assessed by examination of alpha Cronbach. The results showed that correlation of 0.92 is the element of social participation for elderly people. Therefore it can be announced that the designed questionnaire acted satisfactorily.

## Results

The received data was analyzed in 2 sections, by methods of descriptive and inferential statistics. In the section of descriptive statistics, we describe the data in 2 parts :

- 1- Characteristics of the participants
- 2- The views of the participants .

In the section of the test of hypotheses, the association between the independent and dependent parameters are discussed.

In this research, 62 % of the participants are gentlemen and 38 % of them are women. 75.2 % of the participants were aged 60-64, 14.8 % of them aged 65-69, 5.8 % of them aged 70-74, 3.7% of them aged 75-79, and 0.8 % of them are aged more than 80 years old.

31.7 % of the participants have no Diploma, 36.1 % have Diploma, 11.3 % have Upper Diploma, 18.5 % have B.A., and 2.4% are the holders of M.A. and above. 33.8 % of the participants are retired, 7.7% are jobless, 33.2 % are employed and 25.3 % of them are householders. 19 % of the participants are 0-5 years old in their place, 26.1 % of them are 6-10 years, 18.5 % of them are 11-20 years and 36.4 % of them are 21 years old in their residential place.

In this research the cooperation of the participants are: 5.5 % low , 58.6 % middle and 35.9 % high. Also in this research, 20.3 % of the participants have low powerlessness, 76.5% have medium powerlessness and 3.2 % of them are high powerlessness. The self effectiveness of the participants are: 16.6 % low, 39.8 % medium and 42 % high and 1.6% of them did not answer. The degree of trust of the participants was 24% low, 63.3 % medium and 12.4 % high, and 0.3 of them did not answer. The profitability of the participants were 9.5 % low, 78.9 % medium and 8.2 % high, also 3.4 % of them did not answer. The level of knowledge of the participants were 53.3 % low, 38.8 % medium and 7.4 % high, also 0.5 % of them did not answer. In order to assess the parameters of research and after that to investigate the theories, one of the tests used is the Coefficient of Correlation of Pearson , because the level of assessment of research parameters is at distant level.

On this basis, it was tried to use the test for investigation of relations between the independent and dependant parameters of the research, as follows:

Parameter	Correlation Coefficient	Level of Significance
Profitability	0.29	0.000
Being powerless	0.21	0.000
Self effectiveness	0.30	0.000
Knowledge of city affairs	0.27	0.000
Social trust	0.15	0.002

**Table 1 : Correlation between the level of participation and independent**

Parameter	Correlation Coefficient	Level of Significance
Duration of residency	-0.01	0.82
Level of education	0.13	0.007
Age	-0.024	0.64

**Table 2 : Correlation between duration of residency, level of education , age and amount of participation**

Affecting parameter	Obtaining coefficient	Correlation coefficient	Level of Significance	Beta
Self effectiveness	7.43	0.53	0.000	0.34
Trust	-0.30	-0.032	0.75	-0.01
Profitability	1.96	0.15	0.050	0.12
Knowledge	3.79	0.31	0.000	0.18
Being powerless	2.96	0.33	0.003	0.17

**Table 3 : The result of regression analysis in parameters affecting social participation of elderly people**

As is shown in Table 1 , increase in profitability causes increase in amount of participation. The less the sense of being powerless, the is higher the amount of participation. The more self-effectiveness, the higher is the amount of participation. The more Knowledge of city affairs, the higher is the rate of participation. The higher the social trust, the higher the level of participation.

There is no meaningful relationship between the duration of residency and participation. The higher the level of education, the higher the level of participation. Also there is no meaningful relationship between age and the level of participation.

We take the advantage of T test for investigation between sex and amount of participation. The amount of T test is 20.9 % and Level of Significance 0.000, shows that the tendency of the men is higher than women, in cooperation.

Self effectiveness is a parameter which entered the equation, and with respect to amount of  $t = 7.43$  and level of significance of 0.000, it has a direct effect on dependent parameter (social participation ).

Knowledge is another parameter, which entered the equation and with respect to amount of  $t = 3.79$  and level of significance of 0.000, it has a direct effect on dependent variable (social participation ).

### Conclusion

The findings of the research show that between social trust and amount of social participation, there is a meaningful relationship. Trust and trusting somebody, is one of the definitions and important social factors in society. As

a result, the higher the trust of the elderly people in the municipalities, the more is their participation in management of the city affairs.

The findings of the research show that between the self-effectiveness and amount of social participation there is a meaningful relationship. What we mean by Self-effectiveness, is the comprehension and belief in someone about his/her own abilities. The feeling of Self-effectiveness, includes subjects such as Tendency to commence a behavior, Tendency to complete a behavior, Insist in case of failure. People who feel they have the ability to perform a job, show more tendency for group activities and jobs. As a result those old people who believe that, in spite of their high age , they can still do something about the subjects around their life or even in their city, or take any responsibility or give any ideas and suggestions, can increase the amount of their cooperation in management of city affairs.

Between the feeling of being powerless and amount of participation, there is a meaningful relationship. The feeling of being powerless, is the belief of a person that his/her actions do not have any effects on influencing the directions of social events and this would cause the person to stop doing that action. In the present research, the subjected action is the same as social participation. As a result those who feel being less powerless, and believe that their actions affect social events, have increased their amounts of participation. On the contrary, the more citizens being powerless against the rules and regulations of the municipalities, the less is their participation in the city affairs.

The findings of the research show that between the personal characteristics, middle age and amount of social

participation, there is no meaningful relationship. But between the parameter of level of education and the social participation, there is a meaningful relationship and the higher the level of education in one person, the more is his/her amount of social participation. Between parameters of gender and amount of participation, there is a meaningful relationship and men have a higher tendency of participation.

The findings showed that between the effective parameters on social participation of the old people in management of city affairs, having knowledge and awareness of city affairs and self- effectiveness have greater effects in comparison to other parameters.

Research in the year 2007, named “ Investigation of society recognition on amount of citizen’s social participation in Tehran municipal activities and it’s affect on management of city affairs “ in limitations of region 9 of the Tehran municipality, the result of theories subjected in that research and the present research are matching. But in research in 2007, the theory of : ( there is a relationship between the profitability and amount of participation ) was not confirmed, whereas in the present research, it is confirmed. That may be because of the difference in statistical societies between these two bodies of research. Therefore, the greater the profitability of old people in participation affairs, the higher is the amount of their participation.

In the year 2000 there was research named “The social participation of the citizens in Iran”. In that research there is no relation between the parameter of knowledge and participation, but in the present research, there is a meaningful relationship between these two parameters. It means that old people do participate if they are aware of the city affairs. In this research, women have a greater tendency toward cooperation, but in the present research, men have a greater tendency in participation. In this research there is no relation between the parameter of education and the amount of participation, but in the present research between these two parameters there are meaningful relationships. The higher the education of elderly people, the greater is their tendency toward participation.

In the year 2000, there was research named “investigation of the views of the citizens in region 7 of Tehran about the participation in the city management”. In this research there is a relationship between the duration of residency and the amount of participation, but in the present research there is no relation between them. The result of this research showed that the participation of women is higher than men, but in the present research the men’s participation is higher.

## Suggestions

With regard to what was detailed in the subjected research, the following suggestions are pronounced:

- 1- It is suggested that for more participation of the people, the financial and spiritual results of their participation need to be guaranteed. Maybe one of the reasons for people’s presence is that they can see the results.
- 2- Endeavour and efforts to make the citizens trust the municipality by avoiding wastage of capital, submitting précised information about works being done by the municipality, execution of plans to the citizens through different methods ( Radio, Television, Newspapers, ) and serious and précised supervision of municipal personnel .
- 3- Performing continuous referendums from citizens during execution of plans and generally during decision-making for the city.
- 4- Increase in the capacity of citizen’s participation about municipal regulations and also municipal actions.
- 5- Development of educational, cultural, and advertising activities for identification of the meaning of cooperation, its dimensions and importance and announcing the benefits of cooperation with the use of successful examples on the national and international levels.  
Formation and development of people’s participation in different city affairs, needs training, cultural and job development in the society and the aim of the training for making strong roots in cooperation, should be foremost in people’s mind in the necessitation of participation in their own affairs.
- 6- Submitting information and awareness about the actions and duties of the municipality, city committee , local helping committee , projects and plan, to the citizens.

## References

- (1) Jamshidzadeh E. (2007) The Concept of Participation and Strategies of Increasing It, Tehran, Cultural research Centre, Tehran Municipality.
- (2) Rezaee A. (1994) Guild Formation and Social Participation, M A Thesis, Tehran, Faculty of Social Science, Allameh Tabatabaee University.
- (3) Saeedi MR., (2003) Introduction to People’s participation and Non-Governmental Organizations, Tehran, SAMT Publications.
- (4) Tavakoli M. et al., (2007) Citizens’ Social Participation in District 17 of Tehran Municipality, Tehran, Cultural research Centre, Tehran Municipality.
- (5) Arnestein S A (1995) A Ladder of Citizen Participation, Classic Reading in Urban Planning, An Introduction, New York: McGraw Hill.

- (6) Midgley J. et al. (1986) *Community Participation, Social Development and the State*, London: Routledge.
- (7) Sharifian Sani M (2001) *Citizen Participation, Civil Governance and City Administration*, Journal of Administration and City Planning, Tehran, Iranian Municipalities Organization Publications, No. 8: 42-55.
- (8) Nagel S (1990) *Policy Theory and Policy Evaluation: Concepts, Knowledge, Causes and Norms*, Greenwood Press.
- (9) Whittick A (1974) *Encyclopedia of Urban Planning*, New York, McGraw- Hill.
- (10) Alavitabar A (2000) *The Pattern of Citizen Participation in the Management of City Affairs*, Vol.1, Tehran, Iranian Municipalities Organization Publications.
- (11) Bigdeli M (2008) *The Role of People's Participation on the achievement of Local administration*, vol. 5, Tehran, Cultural research Centre, Tehran Municipality.
- (12) Alaei S (2008) *The Establishment of Local Councils as a Way of City Problems' Solution*, vol. 5, Tehran, Cultural research Centre, Tehran Municipality.
- (13) Tavasoli G (2003) *Social Participation in Anomic Society*, Tehran, University of Tehran Press.
- (14) Mohseni Tabrizi A (2005) *The Concept of Adjustment and Classification of Theories in the Disciplines of sociology and Psychology*, Journal of Social Sciences, vol.2, No.2, Tehran University.
- (15) Ritzer G (2004) *Sociological Theory*, University of Maryland.
- (16) Mohammadian M (2002) *Citizens' Socio-Economic Participation in Urban Administration: problems and Bottlenecks*, MA Thesis, Tehran, Science and Research Branch, Islamic Azad University.
- (17) Roshan S (2008) *The Effect of Citizens' Social Participation on Tehran Municipality Activities*, MA Thesis, Tehran, Science and Research Branch, Islamic Azad University.
- (18) Maleki R (2006) *Ways of People's Participation Attraction on the Administration Affairs in the City of Khoramabad*, Centre of Research, Statistics and Information Technology, Khoramabad, Lorestan Province, Iran.

(Geriatrics and Gerontology Department, Faculty of Medicine, Ain Shams University, Cairo - EGYPT continued from page 31)

in geriatrics in Egypt to promote skills of handling elderly patients, and to spread knowledge about geriatric medicine and gerontology. The curriculum includes Introduction to Geriatric Medicine, Physiological age related changes, Comprehensive geriatric assessment, Atypical presentation in elderly, and the main geriatric medicine domains; Delirium, Dementia, Urinary incontinence, Pressure ulcers, Osteoporosis, and Falls

Postgraduate residency program and courses aim to produce a certified qualified specialist, and consultant efficient enough to share effectively in the Egyptian health system. The curriculum being taught for the postgraduate course includes basic sciences related to geriatrics, together with clinical practice, management and skills. Also some courses are designed for physicians of the Ministry of Health, nurses and caregivers.

Much research was carried out by the department covering varying fields of geriatric medicine and published in varying national, regional and international journals. And still ongoing research is being carried out to study the old aged population and their needs.

## *Education and Training*

### **Geriatrics and Gerontology Department, Faculty of Medicine, Ain Shams University, Cairo - EGYPT**

*Author:*

*Dr Hala Samir Sweed*

*Egypt*

One of the results of modern civilization is the increase in the number of old aged which is interesting but a little scary. Over the past 20 years the world has experienced an increased interest in the phenomena of aging, and this started when the United Nations considered the year 1983 as the year for studying the problems of the elderly, all over the world. This was the same year that the geriatric medicine specialty started in Egypt as an idea that came true 2 years later when Ain Shams University Hospitals established the first Geriatric medicine unit in Egypt.

The Egyptian National Census had shown increased prevalence of old aged where the prevalence increased from 5.1% in 1950 to 6.27% in 2006, and it is expected to reach 11.5% in 2025 and to increase to 20.8% in 2050. This means that, 20 million Egyptians will be categorized as elderly by that time, which is a big number that resembles a full nation in some parts of the world.

Geriatrics and the Gerontology Department at the Faculty of Medicine, Ain Shams University, is the only academic and clinical department in the Egyptian teaching hospitals and probably all around the Middle East. The Department is a pioneer in being the first department to offer a Master degree and Doctoral degree in Geriatric Medicine, connected to a specialized residency program and clinical training courses.

The Department started in 1982 as a day care unit, providing services to the elderly patients of the medical and psychiatry department, then development and growth occurred where an outpatient clinic was established and with the efforts of the newly joined doctors the Department was established in 1994, after 12 years of tremendous effort.

Many Professors with different specialties joined the department: Professors of neuropsychiatry, internal medicine, and community medicine and they all interacted with professors and administrators of the faculty and in collaboration with the University of Minnesota in the United States, to develop the first academic and clinical curriculum for training physicians in this new specialty in Egypt. A large number of physicians joined the department and many managed to have Master degree and also medical doctoral degree (MD) after a tough academic and clinical training, and in time more services were developed in the department including geriatric

intensive care unit in 2000, and an osteoporosis unit in 2002. The physicians of the department of geriatrics are now running all the services provided by the department, after adequate professional training. By now there are more than 50 physicians working in the department with positions and titles of assistant professors, consultants, lecturers, and residents fulfilling the residency program. In addition the department has trained and graduated many physicians who are working now in the Ministry of Health in Egypt and in some Arab countries. Establishing a stable system and advocating the specialty led to training of new generations of geriatricians and spreading the department mission locally and regionally.

The main objective of the department is to achieve the best possible quality of life and the highest degree of independence for old age group strata that is characterized by physiological decline in organ reserve, co-morbid medical conditions, polypharmacy and atypical presentation of diseases, delaying disease diagnosis in addition, to social and psychological changes. All of this makes the elderly prone to impaired quality of life and increases the need for such a specialty.

The scope of the department involves three main domains; education, research, and services. The department involves 23 inpatient plus 10 ICU beds, an osteoporosis Unit, and daily outpatient clinic. Comprehensive geriatric assessment is being carried out through a multidisciplinary team including geriatricians, nurses, social workers, physiotherapists, psychologists, dietician, and speech therapist. In addition to the care offered to the patient, family and caregiver education and psychological support is offered by the team.

The main scope of the department is to prepare qualified specialists. The department is the only one in the Egyptian universities offering Diploma, master degree, and medical doctoral degree in Geriatric medicine. The academic education is tightly connected to the clinical training and experience. With the ongoing residency training program, there are several training and educational courses offered by the department for non-geriatricians in Egypt to increase awareness of the trainees by geriatrics and services needed for the elderly. The department is also involved in the teaching process of the undergraduates and introduced the first undergraduate course ([go to page 30](#))

