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Editorial

Dr Abdul Abyad
Chief Editor

This is the last issue of this year. In this issue we have the three papers from the Middle East Network on Ageing Research-MENAR. This is the third project for MENAR that deals with Situation analysis of population ageing in Middle East where we are concentrating on EMRO region for that matter.

In the first three papers we have reports from Egypt, Iraq and Sultanate of Oman.

Egypt is the most populous country in the Middle East. One of the main features of the Egyptian population over the last few decades is the gradual increase in the absolute and relative numbers of older people. This trend is expected to continue over the next decades. The Egyptian census is carried out every 10 years, last one was in 2006. The percent of older people" defined as 60 yrs of age and more" was 4.4% in 1976, 5.66% in1986, 5.75% in 1996, and rising to 6.27% in 2006, to be 7% in 2011. The percentage is projected to be 8.1% in 2016, and 9.2% in 2021, and it is expected to reach 20.8% in 2050. This means that, around 20 million Egyptians will be categorized as elderly by that time., Life expectancy in Egypt at birth is 71.8 years, 74 years for females, and 69.5 years for males. The rate of population aging may also be modulated by migration. Immigration usually slows down population aging, because immigrants tend to be younger and have more children.

In Iraq Elderly segment of population in Iraq are finding it increasingly difficult to cope with daily life as the country's security conditions worsen. Elderly related demographic data showed that Age group Age group 65 years and over: 3.2% (male 487,841/female 561,797). About 72.4 percent of elderly women are illiterate and only 5.4 percent of them have a diploma degree or higher. About 35 percent of these women reported that there physical conditions are either bad or very bad, and there are no differences in women situation in Kurdistan and other governorates of Iraq. Elderly population in Iraq continue to be victims of non-responding health care system in terms of High numbers of elderly "bed blockers" at the main acute hospitals. (Cost). Lack of Elderly Rehabilitation Centers. (Transitional care). Lack of Local Geriatricians or physicians trained in geriatrics. Slowly developing geriatric services. Lack of Geriatric teaching at medical school's curriculum. Under developed community services model. (Not ideal) UN equal services delivery among. There is a need for setting up sustainable national elderly protection and care program through framework of stakeholders at multi sectoral level. Developing elderly care policies to address care access, care cost, care quality& other gaps. Recognizing elderly population as fragile, vulnerable victims for the conflict and violence context.

Sultanate of Oman is located in the south eastern corner of the Arabian Peninsula. It is with an approximate geographical area of 309,500 square kilometres and a population of 2.577 million people . There are no recorded population census before the 1970s. with regards to the Elderly population in Oman, they constituted 3.0% of 1993 population which increased to 3.2% in 2003 then to 3.5% in 2010 . Projections indicate that elderly population in Oman will reach 231 975 in 2025 to constitute 5.8% of the total population and will increase further to 821 023 in 2050 to constitute 15.2% of the total population. Such rapid increase in the proportion of old people in Oman is the result of the continuous decline in infant mortality and the increase in life expectancy at birth brought by the rapid economic and social development, improvement in the standard of living as well as the delivery of quality healthcare services. Concomitantly life expectancy at birth has gained 11.5 years resulting in an increase from 62.7 years in 1980 - 1985 to 74.2 years in 2000 - 2005 and it is expected to reach 80.9 years by 2050. Therefore there is a need to create adequate services.

A cross sectional study from Tunis looked at the Prevalence of obesity in elderly people in Tunisia. The objective of this study is to measure obesity prevalence in elderly population in Monastir and to study the link between obesity and health risk variable. A randomly selected homes in randomly selected geaographical islets, concerning elderly aged more than 65 years living in their home. Study concern 598 elderly aged more than 65 years (mean age 72.3 ± 7.4 years, 66 % women). Obesity was defined using body mass index (BMI) >= 30 kg/m2. Central obesity was considered at a waist circumference of > 102 cm in men and > 88 cm in women.

The prevalence of obesity was 49 %. The prevalence of obesity was higher in women (59.3 % vs 28.5 %, p<0,001) and in elderly aged less than 70 years (60 % vs 29.3 % for elderly aged more than 80 years). The mean BMI was 31,4 kg/m2 in women vs 27,9 kg/m2 in men. The prevalence of obesity was higher in urban region (50.7 % vs 38.7 %, p<0.01), in diabetic (65 % vs 43. 2 %, p<0.001) and hypertensive (59.6 % vs 37 %, p< 0.001). The mean of circumference waist was significantly higher in urban region in both women and men. The central obesity was more important for diabetic and hypertensive elderly. The author conclude that her study support the high prevalence of obesity in elderly living at home in Monastir. Prevention actions are required to decrease the morbidity in this elderly Tunisian people

A paper from India looked at measurement Of Health Inequality In India By Computing Gini Coefficient. This study will measure the disparities in length of life across age, sex, over periods (from 1970/71-2005) for India and some of its states viz. Assam, Kerala, Maharashtra, Orissa, Punjab and Uttar Pradesh using Gini Coefficient. The correlation coefficient between inequality in the length of life and average length of life for all states and age groups is also computed. Data and Methodology: The data is secondary provided by Sample Registration System (SRS), computed by office of the Registrar General of India and put with fitted arguments.

Results and Conclusion: The variation in the value of this measurement in the work established the amount of health disparities prevailing in this part of the world.

Original Contribution/Clinical Investigation

La prévalence de l'obésité des personnes âgées en Tunisie

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ABSTRACT

(En Francais)

L'obésité est un véritable problème de santé public. C'est un facteur de risque majeur de morbi-mortalité et de fragilité chez le sujet âgé.

L'objectif de cette étude est de mesurer la prévalence de l'obésité dans la population âgée de Monastir et d'étudier sa corrélation avec les facteurs de risques associés.

Méthodes : Il s'agit d'une enquête en population âgée de plus que 65 ans vivant à domicile, par tirage aléatoire d'îlots géographique. L'étude a porté sur 598 personnes âgées de 65 ans et plus (d'age moyen de 72,3 ± 7,4 ans, 66 % de sexe féminin). L'obésité est définie par un indice de masse corporelle (IMC) égal ou supérieur à 30 kg/m2 et par une circonférence abdominale > 102 cm chez l'homme et > 88 cm chez la femme.

Résultats : La prévalence de l'obésité est de 49 %. Elle est plus fréquente chez le sexe féminin (59,3 % versus 28,5 %, p<0,001) et chez les sujets âgés de moins de 70 ans (60 % contre 29,3 % chez les sujets âgés de plus que 80 ans). La moyenne de l'IMC est de 31,4 kg/m2 chez la femme vs 27,9 kg/m2 chez l'homme. La prévalence de l'obésité est plus élevée en milieu urbain (50,7 % vs 38,7 %, p<0,01), chez les diabétiques (65 % vs 43, 2 %, p<0,001) et les hypertendues (59,6 % vs 37 %, p< 0,001). La moyenne de la circonférence abdominale est significativement plus élevée en milieu urbain aussi bien chez l'homme que chez la femme. L'obésité centrale est plus importante pour les deux sexes, en cas d'hypertension artérielle et de diabète.

Conclusion : Cette enquête confirme la forte prévalence de l'obésité dans la population âgée de la région de Monastir. Une stratégie de prévention et de prise en charge s'impose pour réduire la morbidité associée dans la population Tunisienne âgée.

*** ENGLISH AND ARABIC VERSIONS OF THE ABSTRACT ARE ON THE FOLLOWING PAGES

ABSTRACT

(In English)

Obesity has become a global public health issue worldwide ; the prévalence has been increasing in all ages groups. It's a risk factor for morbimortality, frailty in elderly. The objective of this study is to measure obesity prevalence in the elderly population in Monastir and to study the link between obesity and health risk variables.

Methods: It is a cross sectional study of randomly selected homes in randomly selected geographical islets, concerning elderly aged more than 65 years living in their home. The study concerns 598 elderly aged more than 65 years (mean age 72.3 ± 7.4 years, 66 % women). Obesity was defined using body mass index (BMI) >= 30 kg/m2. Central obesity was considered at a waist circumference of > 102 cm in men and > 88 cm in women.

Results : The prevalence of obesity was 49 %. The prevalence of obesity was higher in women (59.3 % vs 28.5 %, p<0,001) and in elderly aged less than 70 years (60 % vs 29.3 % for elderly aged more than 80 years). The mean BMI was 31.4 kg/m2 in women vs 27.9 kg/m2 in men. The prevalence of obesity was higher in urban region (50.7 % vs 38.7 %, p<0.01), in diabetics (65 % vs 43. 2 %, p<0.001) and hypertensives (59.6 % vs 37 %, p< 0.001). The mean of waist circumference was significantly higher in urban regions in both women and men. The central obesity was more important for diabetic and hypertensive elderly.

Conclusion: The results of this study support the high prevalence of obesity in elderly living at home in Monastir. Prevention actions are required to decrease the morbidity in this elderly Tunisian people.

Key Words: Elderly people, Oman

L'organisation mondiale de la santé annonce une progression épidémique inquiétante de l'obésité. Elle a estimé à 400 millions obèses adultes en 2005, ce chiffre dépassera les 700 millions en 2025[1]. Cette épidémie concerne essentiellement les pays dont le niveau de vie s'élève et touche toute la population, des plus jeunes au plus âgés. En Tunisie, on assiste à un accroissement soutenu et considérable de la population âgée comme en témoigne l'importante augmentation de la proportion des personnes âgées de 65 ans et plus qui a passé de 3.5% en 1966 à 7 % en 2009 et elle atteindra les 12 % en 2029 [2]. Le fait démographique majeur des prochaines décennies sera le vieillissement de la population qui s'accompagnera inéluctablement d'une augmentation des pathologies cardiovasculaires et métaboliques liés à l'urbanisation et le changement du style de vie.

Concernant l'obésité l'étude nationale entreprise en 2000 a noté une prévalence de 15.6 % chez la population âgée de plus que 65 ans [3]. Cependant peu de données disponibles concernant les facteurs de risque et la co-morbidité associée. L'objectif de cette étude est d'estimer la prévalence de l'obésité dans une population âgée de plus que 65 ans vivant à domicile et d'analyser les facteurs de risques associés.

Méthodes

Les données de ce travail sont tirés des résultats de l'étude régionale sur l'état de santé et les conditions de vie des personnes âgées de 65 ans et plus vivant à domicile dans le gouvernorat de Monastir qui a été entreprise en 2009 conjointement par l'association de protection des personnes âgées de Monastir et l'Institut National de Santé Publique avec le soutien de l'Organisation Mondiale de la Santé et l'Office Nationale de la Famille et de la Population. Il s'agit d'une enquête épidémiologique descriptive transversale à visée à la fois explicative et analytique. Elle consiste à étudier par un sondage à domicile un échantillon de personnes âgées de 65 ans et plus et d'évaluer au moyen d'un questionnaire leur état de santé, leurs conditions de vie ainsi que leurs besoins socio-médicaux. Ce questionnaire a été rempli par des médecins enquêteurs, lors d'une seule visite au domicile de la personne âgée après avoir reçu son consentement propre et /ou celui de son entourage. Le recrutement a concerné l'ensemble de la population résidant dans le Gouvernorat de Monastir. De cette étude ont été exclus tous les sujets âgés qui ont refusé de participer à l'étude ainsi que toutes les personnes âgées présentes, le jour de la visite des enquêteurs, dans les foyers enquêtés mais qui n'en font pas habituellement partie (personnes dont le domicile habituel se situe ailleurs). En l'absence de listes de personnes âgées de 65 ans et plus vivant à domicile et afin de disposer d'un échantillon représentatif de cette population, nous avons réalisé un sondage en grappes à un seul degré en procédant au tirage au sort d'un certain nombre de districts dans chacun des délégations du gouvernorat. Le plan de sondage de cette enquête a été établi grâce à la collaboration des services techniques de l'Institut National de la Statistique. Ces mêmes services nous ont également fourni les supports cartographiques qui sont des outils essentiels à la localisation sur le terrain des districts tirés au sort.

Afin d'améliorer le degré de précision des résultats, nous avons procédé à la stratification de notre base de sondage selon le milieu de résidence. En effet, une telle stratification permet de réduire la variance des estimateurs. L'examen clinique a comporté une mesure de la pression artérielle sur des sujets assis après 10 mn de repos. L'hypertension est définie selon les recommandations de JNC VII [4]. Est considérée comme hypertendue, toute personne ayant une pression artérielle systolique ≥ 140 mm Hg et / ou une pression artérielle **diastolique** ≥ 90 mm et celle déclarant être suivie pour hypertension artérielle et ayant une ten-

مقدار انتشار البدانة عند كبار السن

الخلاصة :

أصبحت البدانة من مشاكل الصحة العامة في كل انحاء العالم , كما أن انتشارها قد ازداد في مختلف الفئات العمرية. وهي عامل خطورة للوفيات المرضية و الضعف عند المسنين. موضوع هذه الدراسة هو تحديد مقدار انتشار البدانة عند كبار السن في مدينة المنستير, ولدراسة العلاقة بين البدانة ومتغيرات عوامل الخطورة.

طريقة الدراسة:

دراسة مقطع مستعرض لعينة عشوائية من المنازل الموجودة في جزر تم اختيارها بشكل عشوائي, وتتناول هذه الدراسة المسنين الاكبر من 65 سنة والذين يعيشون في منازلهم. تناولت الدراسة 598 شخص من كبار السن الأكبر من 65 سنة, (متوسط العمر 7,4 ± 72.3 سنة, 66% منهم نساء).

قد تم تحديد البدانة من خلال "مشعر كتلة الجسم Body Mass Index " حيث (BMI =< 30 كغ/م^2)

تم تحديد البدانة المركزية من خلال قياس محيط الخصر. بحيث (محيط الخصر >=102سم عند الرجال,

محيط الخصر >= 88 عند النساء).

النتائج:

كان انتشار البدانة49% . وإن انتشار البدانة أشيع عند النساء(59,3 % مقابل28,5 % عند الرجال p<0,001). أما عند المسنين الأكثر من 70 سنة كانت نسبة الانتشار (60%) مقابل (29,3 %) فقط للأشخاص الأكبر من 80 سنة. وكان متوسط مشعر كتلة الجسم" BMI" يعادل 31,4 كغ/م2 عند النساء, مقابل 27,9 كغ/م2 عند الرجال. كما أن انتشار البدانة هو أكثر في مناطق المدن (50,7 % مقابل 38,7 % , p<0,01), وأكثر عند السكريين (65 % مقابل 43, 2 % , p<0.001) وأيضاً أكثر في حالات ارتفاع الضغط الدموي (59,6 % مقابل 37 % , p< 0.001) وإن متوسط محيط الخصر كان وبشكل واضح أكبر في المدن عند كل من الرجال والنساء, وكانت السمنة المركزية أكثر أهمية عند المسنين السكريين والمصابين بارتفاع التوتر الشرياني.

الخاتمة:

إن نتائج هذه الدراسة تشير بقوة إلى الانتشار العالي للبدانة عند كبار السن الذين يعيشون في منازلهم في مدينة المنستير. وهذا ما يتطلب إجراءات وقائية لإنقاص المراضة في هذه المجموعة السكانية.

sion artérielle équilibrée. Concernant l'obésité, les critères retenus sont ceux de l'OMS, l'indice de masse corporelle (IMC, poids/taille^2 en Kg/m^2), ou indice de corpulence était le critère utilisé. Le diagnostic d'obésité est envisagé lorsque l'IMC est supérieur ou égal à 30 Kg/m^2, le surpoids correspond à un IMC compris entre 25 et 29,9. L'obésité androïde est définit par un tour de taille > 102 cm chez l'homme et > 88 cm chez la femme (critères NCEP ATP III) [5]. La présence d'un diabète a été définie par la déclaration d'un diagnostic posé par un professionnel de la santé ou d'un traitement par un régime diabétique ou médicament.

L'analyse statistique des données a été effectuée grâce au logiciel SPSS® version 13. Elle a utilisé essentiellement le test du Chi-2 pour l'étude de la relation entre deux variables qualitatives ; l'analyse de variance pour la comparaison de variables quantitatives. Le degré de significativité des tests a été fixé au seuil de 5 %.

Résultats

Au total 598 personnes âgées ont participé à l'enquête (d'age moyen de 72.3 ± 7,4 ans, 66 % de sexe féminin). L'IMC a été déterminé chez uniquement 531 personnes. La répartition de l'échantillon par tranche d'age est la suivante : 37,2 % sont âgés moins que 70 ans, 23,7 % de 70 à 74 ans, 20,3 % de 75 à 79 ans et 18,6 % de 80 ans et plus. La prévalence du surpoids est de 31 % (n=165) et celle de l'obésité de 49 % (n=260). L'obésité est modérée (IMC de 30 à 34,9 kg/m2) chez plus d'une personne sur deux des obèses (53 %), sévère (IMC de 35 à 39,9 kg/m2) chez 33 % et morbide (IMC > 40 kg/m2) chez 14 %. Nos résultats montrent que l'obésité est significativement plus fréquente chez le sexe féminin (59,3 % versus 28,5 %, p<0,001), la moyenne de l'IMC est de 31,4 chez les femmes contre 27,9 chez les hommes. La prévalence de l'obésité décroît régulièrement et significativement avec l'age. Elle est de 60 % chez les sujets âgés de moins de 70 ans contre 29,3 % chez les sujets âgés de plus que 80 ans ; p<0,001. La moyenne de l'IMC décroît d'une manière linéaire selon l'age, elle est de 31,8 chez les sujets âgés de moins de 70 ans vs 27,8 chez ceux âgés de plus que 80 ans, p< 0 ,001 . On n'a pas noté de variation de la prévalence de l'obésité avec le niveau d'instruction (Tableau 1). L'étude de l'obésité en fonction de l'état matrimoniale n'a pas montré de différence significative. La prévalence de l'obésité est plus élevée en milieu urbain (p<0,01). Les sujets obèses se caractérisent, par ailleurs, par une plus grande fréquence de diabète et d'hypertension artérielle (Tableau 2). Ces personnes ne présentent pas plus de dépendance sévère.

La moyenne du tour de taille (TT) est de 104,5 chez le sexe féminin vs 100 cm chez le sexe masculin, p<0,001. Selon l'age la moyenne du TT décroît d'une manière linéaire, elle est de 106,6 chez les femmes âgées de moins que 70 ans vs 99 cm pour celles âgées de plus que 80 ans, alors que on n'a pas noté de différence significative chez les hommes. La moyenne du TT est significativement plus élevée en milieu urbain aussi bien chez l'homme que chez la femme. L'obésité centrale est plus importante pour les deux sexes, en cas d'hypertension artérielle et de diabète (Tableau 3 et 4 la page 8).

La polymédication est fréquente chez cette population à haut risque cardio-vasculaire (69,6 % consomment plus que 3 médicaments contre uniquement 49,4 % chez les non obèses, p<0,001).

Discussion

Dans cette étude la prévalence de l'obésité est de 49 %, L'étude nationale réalisée en 2000 a montré une prévalence de 15,6 % [3]. Laouani en 2004 dans une population représentative des personnes âgées de la région de Sousse a trouvé une prévalence de 24,2 % [6]. Cette augmentation considérable de la prévalence de l'obésité est la conséquence de la transition sociale et du changement du modèle nutritionnel dans notre pays. L'amélioration des conditions de vie et de la situation économique a conduit à un régime riche en graisses saturées, en cholestérol et en glucides ainsi qu'à un mode de vie nettement sédentaire. Ce changement est responsable d'une forte progression de l'obésité. Ce même phénomène a été remarqué initialement depuis les années 1980 aux Etats Unis, ou la prévalence de l'obésité est passée de 15 à 33 % entre 1980 et 2004 [7]. Les données Nord-Américaines soulignent la fréquence de l'obésité chez les seniors, la prévalence était de 32 % en 2000 avec une progression à 37,4 % en 2010 [8]. A l'union européenne, la prévalence de l'obésité a augmenté de 10 à 40 % dans la majorité des pays au cours des 10 dernières années [9]. En France l'enquête déclarative ObEpi effectuée en 2009, indiquait que 17,9 % des sujets de plus que 65 ans étaient obèses [10]. Contrairement à ce qui est observé en France, Il faut noter que les études menées en Etats Unis retrouvent en général une prévalence plus élevée de l'obésité chez les femmes que chez les hommes [10,11]. Hant TS et coll rapportent une augmentation de la prévalence de l'obésité (de 5.3 à 6.1 %), chez la population âgée masculine européenne en 4 ans d'évolution (EMAS study) [12]. Cette tendance est aussi observée chez notre population. Cette prédominance féminine s'expliquerait par la forte représentation féminine au age avancé de la vie. La prévalence de l'obésité culmine dans la tranche d'age < 70 ans, la prévalence ensuite décroît, elle est nettement plus faible chez les plus que 80 ans. Cette diminution liée à l'age est la conséquence soit d'une adaptation spontanée de la balance énergétique et des métabolismes soit d'une sélection des survivants dans la mesure ou l'obésité morbide est associée à un risque de mortalité accrue [13]. La prévalence de l'obésité était plus importante en milieu Urbain. L'influence du lieu de résidence sur le risque d'obésité a été confirmée dans d'autre étude Tunisienne [3,6]. L'urbanisation est un déterminant important de l'obésité, c'est un facteur important de transition nutritionnelle. Le rythme rapide de la vie urbaine favorise la sédentarité et contribue à une hausse de l'obésité [14].

L'analyse uni variée montre l'association significative entre obésité, hypertension artérielle et diabète, le même constat est fait dans l'étude réalisé par Laouani et al [6]. Une étude cas témoins réalisée en Guadeloupe confirme également un risque plus élevé d'hypertension artérielle et de diabète chez les obèses (p< 0.001) [15]. Par ailleurs, l'intérêt de mesure du tour de taille des sujets âgés est bien démontré et cet indicateur reflet du degré de l'obésité abdominale est un marqueur simple des facteurs de risque cardiovasculaires [16]. Le vieillissement affecte tous les composants du syndrome métabolique : obésité, diabète de type 2 et hypertension artérielle. Le risque relatif de développer

Tableau 1: Prévalence de l'obésité selon les paramètres socio-démographiques dans la population âgée de Monastir

Variable		N	BMI Moyenne (DS)	Obésité (%)	p
Sexe					
	Femme	351	31,4 (2,1)	208 (59,3)	
	Homme	180	27,9 (2,4)	52 (28,8)	p<0.001
Age (ans)					
	< 70	198	31,8 (2)	119 (60)	
	70-74	126	30,5 (2,2)	64 (50,8)	
	75-79	108	29,2 (2,1)	48 (44,4)	
	≥80	99	27,8 (2,2)	29 (29,3)	p<0.001
Niveau de scolarité					
	Analphabète	422	30,1 (2,2)	208 (49.2)	
	Kuttabs	61	30,8 (2,3)	31 (50.8)	
	Primaire	23	31,3 (2,4)	10 (43,4)	
	Secondaire et plus	25	29 (2,2)	11 (44)	NS
Place de résidence					
	Urbain	451	30,2 (2,2)	229 (50,7)	
	Rural	80	27,4 (2,9)	31 (38,7)	p<0.01

Tableau 2: Prévalence de l'obésité selon le diabète, l'hypertension artérielle et la dépendance dans la population âgée de Monastir

Variable		N	BMI Moyenne (DS)	Obésité (%)	p
Diabète					
	Absent	391	29,4(2,1)	169 (43,2)	
	Présent	140	32,3 (2,3)	91 (65)	p<0.001
Hypertension artérielle					
	Absent	251	28,5 (2,3)	93 (37)	
	Présent	280	31,7 (2,1)	167 (59,6)	p<0.001
Niveau d'autonomie					
	Dépendance sévère	48	29,7 (2,7)	26 (54,1)	
	Dépendance modérée	140	29,6 (2,5)	70 (50)	
	Autonome	343	30,5 (2)	164 (47,8)	NS

Tableau 3: Prévalence de l'obésité androïde selon l'age, le lieu de résidence le diabète, l'hypertension artérielle chez les hommes dans la population âgée de Monastir

Variable		N	Tour de taille Moyenne (DS)	Tour de taille > 102 cm , %
		180	100 (2,5)	43,2
Age (ans)				
	< 70	50	101 (2,1)	46
	70-74	45	100 (2,2)	44,4
	75-79	48	101,2 (2,2)	42,8
	≥80	37	101,4 (2,6)	40,5
	p		NS	NS
Place de résidence				
	Urbain	147	102,7 (2,2)	48,9
	Rural	33	95,6 (2,9)	21,2
	p		0,03	<0.01
Diabète				
	Absent	127	98 (2,1)	33,8
	Présent	53	107,8 (2,3)	67,9
	p		<0.001	<0.001
Hypertension artérielle				
	Absent	100	98,8 (2,3)	35
	Présent	80	107,8 (2,1)	55
	p		<0.001	<0.01

Tableau 4: Prévalence de l'obésité androïde selon l'age, le lieu de résidence le diabète, l'hypertension artérielle chez les Femmes dans la population âgée de Monastir

Variable		N	Tour de taille Moyenne (DS)	Tour de taille > 88 cm , %
		351	104,5 (2,6)	90,5
Age (ans)				
	< 70	148	106,6 (4,1)	94,6
	70-74	81	104 (2,2)	89
	75-79	61	104,2 (2,1)	90,3
	≥80	61	99 (2,6)	81,9
	p		0,04	0,002
Place de résidence				
	Urbain	304	105,1 (3,2)	91,7
	Rural	47	100,3 (2,6)	80,8
	p	0,03	0.01	
Diabète				
	Absent	261	103,4 (1,3)	89
	Présent	90	107,7 (2,1)	94,4
	p		<0.005	NS
Hypertension artérielle				
	Absent	151	100,1 (2,3)	82
	Présent	200	107,7 (2,1)	96,5
	p		<0.001	<0.001

un syndrome métabolique est 5 fois plus important chez les sujets âgés de plus que 65 ans comparativement à des sujets âgés de moins que 35 ans [17]. Le vieillissement de la population tunisienne avec l'augmentation de l'espérance de vie explique l'augmentation épidémique de l'obésité, de diabète et d'hypertension artérielle [18].Toutefois, DECODE Study a démontré que le rôle de l'obésité semble s'atténuer après 85 ans [19]. La corrélation entre polymédication et obésité a montré que 2 /3 des obèses reçoivent plus que 3 médicaments, ceci souligne la comorbidité associée à l'obésité nécessitant la prise de plusieurs médicaments. Pflieger et al ainsi que Legren ont bien confirmé l'association polypathologie et polymédication [20,21].

Limites méthodologiques

Notre étude est de type populationnel descriptif, elle n'échappe pas à un risque de biais inévitable. Nous avons essayé de repérer certains points :

- Cette étude a été réalisée à Monastir à prédominance population urbaine et l'IMC n'a été disponible que chez 531 personnes âgées mais cette étude est un indicateur vu l'importance de l'épidémie.
- Nous avons utilisé le questionnaire comme outil de collecte de données, un biais pourrait être constaté chez certains sujets qui répondent de manière subjective, à l'origine d'une sous où surestimation des données.
- Nous avons utilisés des seuils classiques établis chez l'adulte d'age moyen. Cette définition ne peut être déclinée sans nuance chez la personne âgée. En effet le vieillissement est à l'origine d'une double difficulté car il affecte le poids et la taille. L'augmentation de la masse grasse du tronc représentée par le tour de taille, est constante à cet age et semble presque physiologique.

Conclusion

La prévalence de l'obésité a nettement augmenté chez la personne âgée dans notre pays. Ce constat souligne l'impératif et l'urgence de la mise en place d'une stratégie de prévention de l'obésité, conduisant à l'adoption d'un mode de vie sain depuis le jeune age pour assurer un vieillissement réussi.

References

1. World Health Organisation : Obesity and Overweight(WHO Sheet N° 311) WHO Media centre 2006[http//WWW.who.int/mediacentre/factsheets/fs311/en/print.html]
2. Annuaire Statistique de la Tunisie 2005-2009. http:/www.ins.nat.tn
3. Kammoun M, Hajem S, Gueddana N, Achour N,Slimane H. Diabète, hypertension, obésité chez les sujets âgés : étude à propos de 981 tunisiens âgés de 65 ans ou plus. Rev Geriatrie, 2006;31 : 477- 86.
4. Chobanian AV, Bakris GL, Black HR et al. and National Heart, Lung, and Blood Institute Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; National High Blood Pressure Education Program Coordinating Committee. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA. 2003 ; 289 : 2560-72.
5. Executive Summary of the third Report of the National Cholesterol Education Program (NCEP) expert Panel on Detection, Evaluation and Treatment of High blood cholesterol in Adults (Adult Treatment Panel III) . JAMA 2001 ; 285 : 2486-91
6. Laouani K C, Hamouda H, Ben Naceur MH, Ghannem H, Toumi S, Ajmi F. Hight blood pressure for people aged more than 60 years in the district of Sousse. Tunis med 2004; 82 : 1001-5
7. Ogden CL, Carroll MD, McDowell MA, Flegal KM. Obesity among adults in the United States--no statistically significant chance since 2003-2004. NCHS Data Brief. 2007;1:1-8.
8. Arterburn DE, Crane PK, Sullivan SD. The coming epidemic of obesity in elderly Americans. J Am geriat Soc 2004; 52 : 1907-12
9. The challenge of obesity in the WHO European Region and the strategies for response. Available at : http/www.euro.who.int/__data/assets/pdf_file/.../E90711.pdf
10. Eschwège E, Charles M, Basedevant A. Enquête épidémiologique nationale sur le surpoids et l'obésité. ObEpi Roche 2009, http : /www ; roche.fr
11. Ziegler O, Quilliot D. Obésité de la personne âgée épidémiologie et conséquences. Obésité 2009 ;4 : 166-175
12. Han TS, Correa E, Lean ME et al. Changes in prevalence of obesity and high waist circumference over four years across European regions: the European male ageing study (EMAS). Endocrine. 2016 [Epub ahead of print]
13. Janssen I, Mark AE, Elevated body mass index and mortality risk in the elderly. Obes rev 2007;8 : 41-59
14. Jacobi D, Buzelé R, Couet C. peut -on parler de pandémie d'obésité. Press Med 2010 ;39 : 902-6
15. Foucan L, Bangou-Brédent J, Ekouévi DK, Deloumeaux J, Roset JE, Kangambega P.Hypertension and combinations of cardiovascular risk factors. An epidemiologic case-control study in an adult population in Guadeloupe (FWI). Eur J Epidemiol. 2001; 17(12):1089-95.
16. Foucan L, Hanley J, Deloumeaux J, Suissa S. Body mass index (BMI) and waist circumference (WC) as screening tools for cardiovascular risk factors in Guadeloupean women. J Clin Epidemiol 2002; 55:990-6.
17. Villareal DT, Apovian CM, Kushner RF et al. Obesity in older adults: technical review and position statement of the American Society for Nutrition and NAASO, the obesity Society. Am J clin Nutr 2005; 82 : 923-34
18. Schlienger JL, Luca F, Pradignac A. particularités de l'obésité chez la personne âgée. Medecine des maladies métaboliques 2009 ; 4: 375-9
19. DECODE Study Group Age- and Sex -specific prevalence of diabetes and impaired glucose regulation in 13 European cohorts. Diabetes Care 2003; 26 : 61-9
20. Pflieger M, Gavazzi G, Bioteau C, et al. Prescriptions médicamenteuses en gériatrie : intérêt d'une surveillance par enquête de prévalence. Rev d'Epidemiol Santé Publique 2009, 57: S93
21. S. Legrain Prescription médicamenteuse du sujet âgé EMC - Médecine. 2005 ; 2 : 127-136

Population Ageing - Egypt Report

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Introduction

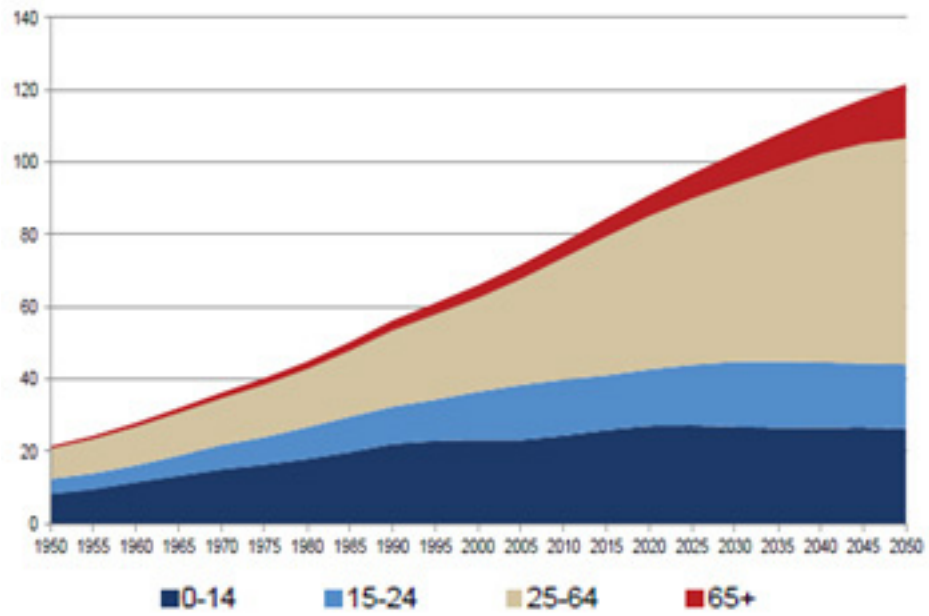
Egypt is the most populous country in the Middle East and the second most populous on the African continent (after Nigeria). The population of Egypt represents 1.20 percent of the world´s total population which arguably means that one person in every 84 people on the planet is a resident of Egypt. One of the main features of the Egyptian population over the last few decades is the gradual increase in the absolute and relative numbers of older people. This trend is expected to continue over the next decades. Egypt is expected to maintain the highest rank in absolute numbers in both old and oldest populations in the region, in 2050 Egypt is expected to have the largest number of old (23.7 million) and oldest old (3.1 million) populations in the region.
The Egyptian census is carried out every 10 years; the last one was in 2006. The percent of older people "defined as 60 years of age and more" was 4.4% in 1976, 5.75% in 1996, rising to 6.27% in 2006. The percentage is projected to be 6.9% in 2015, 9.2% in 2021, and it is expected to reach 20.8% in 2050. This means that, around 20 million Egyptians will be categorized as elderly by that time; this is a big number that resembles a full nation in some parts of the world.

Population ageing is widespread across the world. It arises from two demographic effects: increasing longevity and declining fertility. An increase in longevity raises the average age of the population by increasing the numbers of surviving older people. A decline in fertility reduces the number of babies, and as the effect continues, the numbers of younger people in general also reduce.

The decline in fertility in Egypt is actually planned too. Since mid of the 20th century, Egypt has been suffering from the problem of rapid population increase, a phenomenon faced by most developing countries as a result of programs of environmental improvement, preventive care, as well as medical progress in better diagnosis and treatment of diseases causing a dramatic decline in number of deaths. That decline was not accompanied with a similar decrease in number of births which resulted in a major population increase associated with a growing pressure on the scarce economic resources.

As a result, since 1973, Egypt has been adopting a set of population policies and strategies aiming for family planning. As a result, the average number of children per family declined from

Figure 1: Population Estimates & Projections of Egypt (1950-2050)



(Source: world population prospects. Revised 2012)

about five children during the eighties to about three in 2005. And still the National Population Strategy (2002-2017) is targeting to bring down the average number of children to two per family by 2017.

Life expectancy in Egypt at birth is 72.9 years for females and 70.1 for males (CAPMAS, 2016). In 2014, it was 71.8 years, 74 years for females, and 69.5 years for males. The life expectancy for males at birth was 60.5 years in 1986 while for older people was 14.3 years. In 2026 the expected life expectancy for males at birth will be 74.7 years and for older people will be 19.3 years. So the percent of increase in life expectancy for males at birth from 1986 to 2026 is 23.5% and for older people is 35%. Similarly, for females at birth the percent increase is 25 % and for older females 44%.

The rate of population aging may also be modulated by migration. Immigration usually slows down population aging, because immigrants tend to be younger and have more children. On the other hand, emigration of working-age adults accelerates population aging.

Although the effects of migration on population aging are usually stronger in smaller populations, because of higher relative weight (proportion) of migrants in such populations, still, the Egyptian aged population can be affected by migration. According to the International Organization for Migration, an estimated 2.7 million Egyptians live abroad and contribute actively to development of their country through remittances, circulation of human and social capital, as well as investment. Approximately 70% of Egyptian migrants live in Arab countries (923,600 in Saudi Arabia, 332,600 in Libya, 226,850 in Jordan, 190,550 in Kuwait with the rest elsewhere in the region) and the remaining 30 % are living mostly in North America (318,000 in the United States, 110,000 in Canada) and Europe (90,000 in Italy). Still, this number may be much less than the actual number, if there is a defect in reporting to the embassy on arrival to a new country.

In addition, there is the migration within the country from rural to urban areas, leaving the elderly behind. This causes variation in the distribution of the aged population within the Egyptian governorates. According to the last Egyptian census, the absolute total number of the elderly is greater in rural areas than urban ones, in spite of the fact that their percentage is more in urban (7.18%) than rural (5.6%).

A distinctive feature of the elderly population throughout the world is the preponderance of women over men "feminization" of population aging (because of longer life expectancy among women). The greater improvement in female life expectancy than that for males will not only result in lower sex ratios for the elderly population as a whole, hence a predominance of females, but for the individual elderly females, greater longevity will very often result in loss of support from spouse, and greater economic deprivations. Current sex ratio in Egypt is 83 men for 100 women.

(See Figure 2: Population Pyramid of Egypt - next page)

Population ageing is a medal with two sides. Currently the public focus is primarily on negative aspects related to the socio-demographic development, such as increasing spending for pensions, as well as problems in the field of social and health care. Yet population ageing also offers opportunities, for example, in the voluntary work on behalf of retirees.

Positive Aspects of Aging

Although elder people are often considered as a homogeneous social group which is 'passive', 'unproductive' and dependent, yet, ageing is an individual process and elder people are anything but a homogeneous group.

Not all seniors will become terminally ill the day after they turn 60. Many old people are not in need of the care of others, and, on the contrary, may be caregivers themselves. In fact, they could live up to 30 or more additional years and, without major disabilities.

Older people can live vigorous and active lives until a much later age than in the past and if they're encouraged to be productive, they can be economic contributors as well.

They can be creative, have a network of friends and family, exercise, be reasonably healthy and they continue to grow, learn, help and teach others, using their cultural background, knowledge, expertise and experience.

For instance, they are able to guide the young people through various ways. Elderly Egyptians are the resource for providing training, advice and skills in many fields. In the Egyptian Universities for instance, retired Professors after 60 years of age, continue giving lectures, training courses, and supervising theses and research.

Not only that, the elderly people can also assist in taking care of their grandchildren. Thus, this will allow their children to work thus increasing economic productivity.

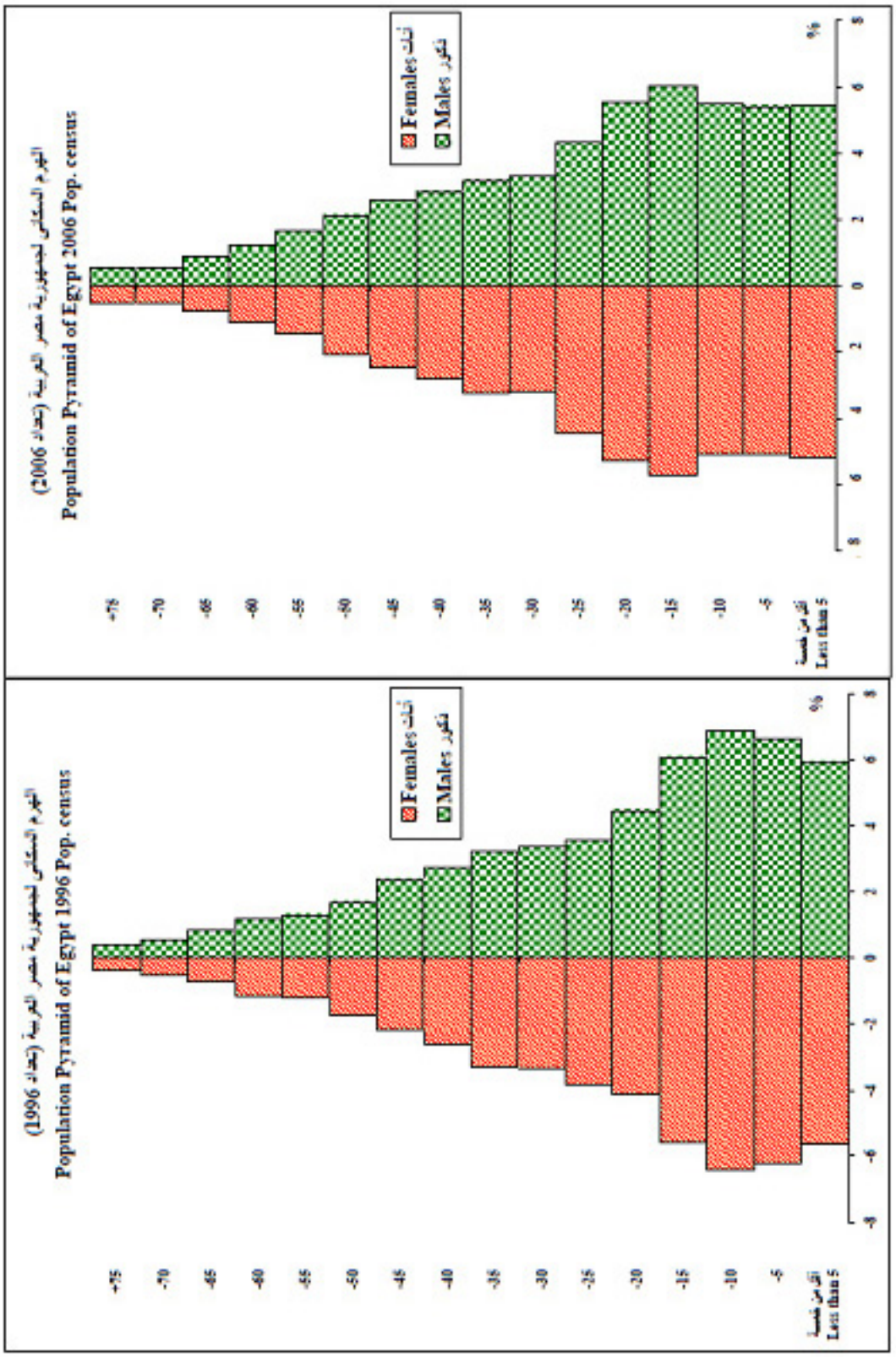
As long as the elderly female is in good health, she is carrying out her household work, helping in bringing up her grandchildren, whereas the older man carries out the outdoor activities, like taking grandchildren out or driving them to school, especially within families with young men travelling abroad, working in the gulf area for example, and leaving the wife and children behind with the grandparents.

Egyptians have a strong family web, supporting each other. Some elderly even provide financial support to their sons, daughters and grandchildren.

Implications of population ageing and Policy response

While population aging represents, in one sense, a success story for mankind (massive survival to old ages has become possible), it also poses profound challenges to public institutions that must adapt to a changing age structure. The rapid ageing of the population can be considered a great threat to the preservation of society welfare.

Figure 1: Population Pyramid of Egypt



Population aging has many important socio-economic and health consequences, including the increase in the old-age dependency ratio (the number of individuals of retirement ages compared to the number of those of working ages). It presents challenges for public health as well as for economic development.

Detailed and accurate data on elderly population size and characteristics is the essential first step to describe the real situation, to conduct effective development planning and help project future needs of elderly in context with other sectors of population and to determine gaps that need to be closed and achievements that need to be sustained.

The policy making bodies in Egypt, mainly the Ministry of Health and Population, Ministry of Social Solidarity, the universities and the academic institutions have been long acting to cope with population ageing.

Table 1: Egyptian Elderly population and services

Characteristic	Value
Total population Males Females	90.086 million (CAPMAS 2016) 45.94 million 44.141 million
Percentage of population aged 60+	6.9% (CAPMAS 2016)
Life expectancy at birth Men Women	 70.1 years 72.9 years (CAPMAS 2016)
Elderly dependency ratio	8.5 %
Health care expenditure (% of gross national product)	5.37% of GNP (CAPMAS 2016)
Physicians density	96,122 physicians in MOH (CAPMAS 2016)
Hospital bed	130,900 beds (CAPMAS 2016)
Elderly houses	170 concentrated mostly in Cairo
Elderly clubs	196 concentrated mostly in Cairo
Elderly beneficiaries of Social Solidarity system	2.83 million (CAPMAS 2016)

Social highlights

The family has been and still is the main social institution, which offers support and services to the aged. However, social changes e.g. rural-urban migration with older people left behind, Egyptian women increasingly being employed outside homes, changing in housing stock (nuclear instead of extended family) and decreasing family size with fewer people in the 'young generation' available to take care of larger numbers of people in the 'old generation', have created some demands for extra-familial services.

According to the Egyptian constitution, the government is obliged to provide services of medical and social security for aged. Legislation, laws, resolutions and programs on the protection and promotion of seniors' human rights were laid down for the social and medical security systems aiming to give the elderly the maximum support they need.

There are some privileges offered to older people by the government including; 25% discount for local transportation (50% for railways), 50% discount in the price of entry tickets for theaters, cinemas, clubs, and fairs, 10% discount in the price of air tickets for local/national flights and 5 % for international flights, and 20% for internal tourism (trips).

Social insurance law: The law adjudicates disbursing security pensions - through the Social Insurance Fund for the governmental sector and the Insurance and Pensions Fund for the public and private sectors in the following cases: (aging, disability and death- work injuries- illness- unemployment- social welfare for pension beneficiaries), on top of this pension beneficiaries' list come elderly.

The ministry of Social Solidarity also has laid down a number of laws and regulations over the past years supporting the elderly. In 1990 the Ministry laid down the internal regulations of the geriatric clubs, in 1992 set a committee for celebrating with the day of the elderly, and in 1997 established the higher committee for the geriatric care. Law 84/2002 on regulating the work of NGOs and private foundations, allowed elderly to participate in the management of some NGOs, run projects and utilizing their capabilities; it is worth noting here that most NGO's boards in Egypt consist of seniors.

Health Care Services

Population aging is a great challenge for the health care systems. Although the health status of older people is improving over time now and the life expectancy is increasing, still, with aging, the prevalence of disability, frailty, cancer, and chronic

diseases (Alzheimer's disease, cardiovascular and cerebrovascular diseases, etc.) is expected to increase, especially with the large growth in the oldest old group (+70yrs old) that constitutes 31.73% of the Egyptian elderly and 2.5% of the Egyptian population. The older the person is, the more likely they are to face a compounding of multiple health, psychological and social problems that make accurate medical diagnosis and proper medical management difficult.

Elderly people have high risk for functional impairments with inability to perform ordinary activities of daily living (ADL) and activities related to household management termed instrumental activities of daily living (IADL).

Therefore, a country in which there are increases in the older population has to be prepared for the epidemiologic transition from infectious diseases of the young population to the chronic diseases of the old population. In such conditions health services and resources have to be directed to medical care as well as home and institutional care.

Various services for elderly are provided through governmental, private, and non- governmental sectors. The government also provides some medical services through the medical insurance scheme. It has been estimated that 6% of the total population have been covered by the Health Insurance Organization (HIO).

The Egyptian national medical security covers all pensioners with subscription of 1% from monthly pension salary (2% for widows). The medical services are distributed all over the governorates.

In addition to the general health services, whether governmental or private, available for the use by the elderly, there are other special services for the older people that have developed in Egypt.

Since 2007, 11 geriatric healthcare centers (offering health care services to elderly people through specialists from different branches) have been set up by the Ministry of Health distributed all over the governorates.

Ministry of Health has also established Clinical Diagnostic Service to the dementia patients (Memory clinic in hospitals) since January 2000. The service included assessment service, counseling and family support.

Outside the ministry of health, academic units provide a very satisfactory unique model of care including;

• Geriatrics and Gerontology Department - Ain Shams University

The Geriatrics and Gerontology Department at Faculty of Medicine- Ain Shams University started in 1982, as a day care unit providing services to the elderly patients of the medical and psychiatry department, then development and growth went on where an outpatient clinic was established and the department was developed in 1994, and over time more services were developed in the department including geriatric intensive care unit in 2000, and an osteoporosis unit in 2002.

The department involved 23 inpatient, plus 9 ICU beds, an osteoporosis Unit which offers diagnostic and therapeutic services, and daily outpatient clinic. Comprehensive geriatric assessment is being carried out through a multidisciplinary team including geriatricians, nurses, social workers, physiotherapists, psychologists, dieticians, and speech therapists. In addition to the care offered to the patient, family and caregiver education and psychological support is offered by the team.

Currently the department is being renovated; the 3 floor building was put down and in its place a 7 floor building is being established with a capacity of 109 beds including 36 ICU beds. The new hospital will be offering several levels of care including acute and subacute care, long term care and day care services.

• Center of elderly care, Helwan University (CEC)

The center of elderly care - Helwan University was established in 1996, as a self-financed unit under the umbrella of the center for community development in Helwan University. Services offered include; 10 inpatient beds, day care services and out-patients clinic.

A Long term unit is also available in the CEC mainly for frail older people who are functionally dependent on others for their ADLs and IADLs.

Examples of other unique centers include; center of geriatric service, Nasr city, and geriatric department in Palestine Hospital.

Military hospitals also provide elderly care services, and NGOs and the private sector also play a role.

In addition, population aging implied new services that meet the specific needs of the elderly including homes for the aged and geriatric clubs.

As for the Egyptians themselves, the family has been and still is the main social institution, which offers support and services to the aged. According to a report from Cairo Demographic Center most elderly people (66.8%) live with sons and daughters and (13%) live with spouse. A small percentage (9.1%) of elderly people live with relatives other than mentioned above and the same percentage live alone due to different reasons.

However, social changes e.g. rural-urban migration with older people left behind, Egyptian women increasingly being employed outside homes, changing in housing stock (nuclear instead of extended family) and decreasing family size with fewer people in the 'young generation' available to take care of larger numbers of people in the 'old generation', have created some demands for extra-familial services.

All these factors caused changes in living arrangements resulting in an increasing number of older people living alone especially females, raising the need for institutions for the aged.
The beginning of the twentieth century witnessed a great concern of the Egyptians about institutions. The establishment of the first ministry of social affairs in 1939 represented a milestone in social work. Since then, official policy has encouraged and supported social work through numerous associations. One of these is the General Association for the Care of the Aged established in 1981 to offer social, cultural, and religious services

to the aged with branches in different governorates. The association has given the priority to two services: setting up homes and clubs for the aged and training staff for this purpose. By the financial support of the Ministry of Social Affairs, several associations have set up homes in different parts of the country.

The participation of NGOs in care of elderly started before 1939. Many houses for the elderly had been established by local and foreign social organizations before that date; many of these houses are still operating in the present and such services were sometimes offered on a religious basis.

The first home for aged in Egypt was established in 1900. In 1980, the total number of geriatric homes in Egypt was 63, increasing to 94 in 1990, 103 in 2000, 161 in 2011and currently reaching to 170 in 2015 with a capacity of more than 4,800 elderly. All of the registered geriatric homes are supervised by the ministry of social affairs.

These homes provide medical, social and recreational services and allow the elderly to live with dignity.

Several elderly clubs have been established all over the country with different activities practiced under the supervision of the organizing committees and the ministry of social affairs. The number of these clubs was 50 clubs in 1990, and increased to be 110 in 1999 with a ratio of increase 120%. The numbers of elderly who benefited from this service were 8,538 in 1990 which increased in 1996 to be 23,970 with an increase of 181%. In 2011, there was 193 clubs with 40,171 elderly benefiting from them. Currently, the number of these clubs reached 196 all over Egypt.

The day services are offered in the elderly clubs through which medical, social and recreational services are introduced.

Since 2011, 52 physiotherapy units attached to the geriatric homes and clubs are offering rehabilitation for 50,000 elderly.

In 2009, the Ministry of Social Affairs developed offices (most of them were attached to elderly clubs) that provide home care services (as basic activities of daily living) for the elderly especially those living alone. These offices were 30 distributed all over the Egyptian governorates serving 40,000 elderly but unfortunately this service stopped in 2011.

There are 857 NGOS concerned with geriatric care and their branches are distributed all over the Egyptian governorates. In spite of being a large number, this represents only 1.55% of the whole Egyptian NGOS. NGOs play a key role in the field of social work in support of governmental plans. They carry out their plans within the framework of stable regulatory and structural mechanisms, namely the General Union of NGOs, regional unions and specific unions.

Some of them are offering social and medical services e.g. the Egyptian society of geriatric care. Others are scientific e.g. Egyptian Society of Gerontology, Egyptian Alzheimer's Society, and Egyptian Society of Psycho-geriatrics. Some of these NGOS do provide some integrated services in the form of homes for the aged along with hospital and religious services.

Still, there is minimal role of NGOS in policy planning of care of elderly, in research work, and in media to increase the awareness of population by the problem of aging. Every individual organization works separately, with minimal communication between each other.

Alzheimer Egypt society was started in 1999. It aims at raising awareness among the health and social care providers to persons with dementia and their caregivers. It has many activities such as monthly "Alzheimer café" a meeting to support persons with dementia and their carers; annual celebration of the "Alzheimer day"; non-regular Alzheimer bulletin; and a health education book for caring after persons with dementia at home.

The Egyptian Society of Geriatrics and Gerontology, an NGO, was founded late in the year 2014. Being founded by geriatric specialists, The Geriatric and Gerontology Department, Ain Shams Faculty of Medicine, it adopted a more specific way to decide on its goals that are to be based more on the needs of the seniors in the Egyptian community goals than most others. In order to attend to actual needs of the senior Egyptian citizens on multiple levels (e.g. medical, social, financial and any other societal services) rather than the expected, the Society started a project of building a database on the needs of the Egyptian seniors.

Wikiageing, a knowledge management tool, was established in 2014 by academics from Ain Shams Geriatrics and Gerontology Department. Its mission is to promote and improve the elderly care in MENA. The tool operates by the Wiki technology based on a dynamic website (http://wikiageing.org/). It is a collaborative, voluntary, open access knowledge project aiming at improving the elderly care in the Arab speaking region. Wikiageing as an open access knowledge tool provides a means to pool knowledge, categorizes knowledge, networking, and general knowledge management.

Several conferences, symposiums, and workshops concerned with ageing have been held in Egypt over the past years. These were sponsored by either the Ministry of Health, Ministry of social affairs, Universities, and non-governmental organizations. They were aiming to orient the health-professionals and also the general people with aging and the elderly needs.

Media also made modifications to cope with the graying of the population. The Radio developed a channel specific for old people, and the television developed a program since 1994 called 'Age Spring'

ربيع العمر

The national newspaper 'Al-Ahram' developed a page since 2001 named 'Age Flower'

"زهرة العمر

concerned with older people. There is also a special Radio channel for elderly named

"إذاعة الكبار المتخصصة

"Elderly specialized Radio " broadcasted all through the day.

Large amounts of research in the field of aging was done and still ongoing to develop a data base of the elderly population and their needs.

Bulletins are published regularly by non-governmental organizations e.g. 'towards healthy aging', 'sound of time'
'صوت الزمن',
"the Butterfly ",
"الفراشة",
and 'for better mental health for the elderly'.

Social training programs are presented by the Ministry of Insurance and Social Welfare including a program for older people to prepare the population for the changes that occur after retirement.

The whole health system in Egypt became oriented to the phenomenon of aging. For several years now, the Ministry of Health started to have residents for geriatric medicine with training courses and residency programs offered to them in collaboration with the academic departments. As mentioned above several services were established to cope with the elderly needs and others will be. A large number of Egyptian geriatric specialists and consultants are available nowadays across the country. Health professionals were trained and are being trained for geriatric care.

Training programs for health professionals

With the graying of the population, geriatric medicine specialty was developed and well established in Egypt with continuous education and training programs for the health professionals dealing with elderly patients.

Geriatric medicine education programs

• The Geriatrics and Gerontology Department at Faculty of Medicine, Ain Shams University
The Geriatrics and Gerontology Department at Ain Shams University is the only academic department in Egypt that offers Diploma, Master Degree and Doctoral Degree in geriatric medicine connected to a specialized residency program and clinical training courses.

The Ain Shams geriatrics and gerontology department is a center of excellence specialized in elderly care in Egypt and the MENA region. The scope of the department involves three main domains; education, research and medical services.

By now there are more than 80 trained physicians working in the department with positions and titles of professors, associate professors, consultants, lecturers, and residents fulfilling the residency program. In addition the department has trained and graduated many physicians to work 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 department is also involved in the teaching process of the undergraduates and introduced the first undergraduate curriculum in geriatrics in Egypt to promote skills of handling elderly patients, and to spread knowledge about geriatric medicine and gerontology. Also courses are designed for physicians of the Ministry of Health, nurses and caregivers. The department is helping build capacities and training doctors for other equivalent departments in Egyptian universities (Mansoura, Suez Canal and Helwan) and the Ministry of Health (11 departments).

A large amount of research was carried out by the department covering varying fields of geriatric medicine and gerontology and has been 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.

0n 2014, the department developed the Egyptian Journal of Geriatrics and Gerontology, a peer-reviewed journal aiming to address the most significant aging issues affecting health status and quality of life of older individuals. The journal addresses research on biological, clinical, epidemiological, and psychosocial aspects of later life.

• Geriatric Physical therapy education programs
Geriatric physical therapy education is available in three Physical therapy colleges. The study of geriatrics is introduced at the third year undergraduate for two terms. Postgraduate studies are available to attain higher diploma, Master and Ph.D. degrees.

• Geriatric Nursing education programs
At the colleges of nursing (Alexandria, Tanta, Mansura, Cairo universities, etc) there is a module in geriatrics nursing both at the undergraduate level as well as postgraduate level at the diploma level, M.Sc., and Ph.D. in geriatric nursing.

• The Higher Institute for Public Health, Alexandria University
This is a postgraduate institute for public health. There are 9 academic departments of which one is the Department of Health at old age. This department offers postgraduate training in geriatric health at the diploma level, Master degree level and Ph.D. degree level in Geriatric public health.

• Colleges of Social Services:
In Helwan, and Assiut Universities, provide Diploma, Master degree and Ph.D. in geriatric care. Also in the other Universities, geriatric care is included in the undergraduate curriculum with training courses and field training.

The Ministry of Health and Population started from 2001 to develop health programs targeting older people within its structure. These include;

• Short term training program for family physicians held with the collaboration of experts from Ain Shams University. These programs are held twice a year and aim to train such physicians to acquire skills in geriatric practice.
• Short term training program for community nurses held with the collaboration of experts from Ain Shams University. These programs aim to train such nurses in geriatric nursing skills.

Training courses for professional caregivers

Different governmental and non-governmental organizations are involved in training of professional caregivers. These programs are very variable in terms of method of training, length of training, and course objectives. Some of these programs would link such training with mechanisms to employ the trainee either in long term units or home care programs, but others would just offer the training. Organizations offering these courses include; Geriatrics and Gerontology Department at Ain Shams University, College of Nursing at Cairo University, CEC, and the Red Crescent.

Recommendations

According to the principles and recommendations for action of the International Plan of Action on Ageing, endorsed by the United Nations General Assembly in 1982, and the United Nations Principles for Older Persons, adopted by the General Assembly in 1991, which provided guidance in areas of independence, participation, care, self fulfillment and dignity, Aging is a mass phenomenon, and international and regional cooperation is needed for creating a supportive community for the aged worldwide. National, regional and inter-country dialogues need to be established to lay down a joint strategy and plan of action.

Ageing must be incorporated within social and economic strategies, policies and action. The national security system umbrella must be enlarged to cover a wider range of older population.
Good linkage between all the governmental and non-governmental organizations is needed for more success in the aging story.

Empowering NGOs is needed to achieve their objectives and functions through supporting them technically and financially. In addition, the role of the private sector must be activated.

Elderly must be encouraged to participate actively in the economic, political, social and cultural life of their societies enabling the society to rely increasingly on the skills, experience and wisdom of older persons. The potential of older persons is a powerful basis for future development.

In spite of all the efforts carried out in the field of elderly care and support, these efforts are still segregated. Properly managed integrated systems for health and welfare services would result in more effective and efficient coordination of the care needed by older persons.

The significant increase in life expectancy implies not only heightened demand for the existing services but also for new services and alternative approaches to meet the varied and specific needs of the older persons. A good health status of elder people can have a positive influence on public budgets in this context; hence, an increase of preventative measures may pay off in the long-run.

Existing services need also to be expanded to cover the increasing number of the elderly all over the Egyptian governorates.

Educational and training programs must be extended to include physicians and health professionals all over the governorates.

Programs to educate the people on how older people can contribute, and how their life experiences can be a tremendous asset to the community and not a threat to the younger generations must be established aiming to change society's perception of older persons and establish age-friendly community.

Also programs for the older people must be carried out for orienting them to retirement coping and establishing the attitude of positive aging.

Research on ageing and age related issues must be encouraged as an important instrument for the formulation of policies on ageing. The results of this research should be taken into consideration in planning the strategy and policy of health care for ageing

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Main References

www.campas.gov.eg.
www.elderlyegypt.com
Gad Allah M. (2004): Draft Country Profile on Ageing: Egyptian case study, www.un.org/ageing/documents/workshops/Vienna/egypt.pdf
Refaay M A et al (2007): Role of Non-governmental Organizations in the Care of Egyptian Elderly. Msc Thesis. Geriatrics and Gerontology Department Library. Ain Shams University.

Elderly, health and socio-demographic profile in Iraq, the context of conflict, violence and social exclusion, systematic review

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ABSTRACT

Background: The elderly segment of the population in Iraq are finding it increasingly difficult to cope with daily life as the country's security conditions worsen. Continuing violence and the consequent mass displacement has had a debilitating effect on the health and psychological conditions of the elderly.

Objectives: To study the elderly health profile in Iraq in the context of violence, conflict and social exclusions. To assess response of health care system health care services (to elderly needs, problems and sickness).

Methodology: A systematic review research design was carried out by using multiple search engines utilizing specific key words relevant to the elderly health profile and direct interview with experts, as well as official reports of Governmental and NGOs. Multiple Electronic databases were carefully investigated, through a pre-defined search strategy. Additional references from the bibliographies of retrieved articles and experts in the area were approached.

Selection Criteria: Only original research articles seeking to identify the elderly health and conflicts, Iraq, were included. The initial literature search identified 30 papers. Of these, 13 original articles met the selection criteria, and directly related to human cost and health relevance of conflict in Iraq. All were type II evidence population-based studies. The methodological qualities of included studies were assessed using the Downs and Black check-list.

Results: Elderly related demographic data showed that Age group (55-64 years) equal to 4.2% of total Iraqi population (male 652,973/female 713,662), Age group 65 years and over: 3.2% (male 487,841/female 561,797) (2014 est.) 2.8 percent of Iraq's population were 65 and older, the most recent year for which figures were available. Population projections reveal that the total number of women 55 years and above in Iraq is estimated at about one million women; which comprise around 6.8 percent of total women in Iraq, and about 53 percent of total elderly population aged 55 years and above. The results of I-WISH survey revealed that 43.3 percent of these women are widowed, 3.3 percent are unmarried and 23.1 percent are heads of households. About 52.1 percent of women 55+ needed health care during the month that preceded the survey. About 60.5 percent of these women got it from government health facilities, of which 30 percent reported that quality of service was good, while 18.7 percent reported that quality of the service was bad. About 58.6 percent found it hard trying to get government health care. 64.5 percent of elderly women 55+ were concerned about the future for different reasons. About 40.6 percent reported to be concerned due to the likelihood of leaving her usual residence due to health reasons. Around 53.5 percent were worried not to have enough money for long term health care, 49.3 percent were concerned to have to become a burden on her family, 53 percent were concerned about the increasing cost of health care and not having enough money to cover it, and 29.9 percent were afraid to go to an elderly house. About 11.3 percent of women 55 years and above in Iraq have experienced some kind of verbal violence by family members during the year that preceded the survey. Conclusion The elderly population in Iraq continue to be victims of non-responding health care system in terms of: High numbers of elderly "bed blockers" at the main acute hospitals. (Cost). Lack of Elderly Rehabilitation Centers. (Transitional care). Lack of Local Geriatricians or physicians trained in geriatrics. Slowly developing

geriatric services. Lack of Geriatric teaching in medical school's curriculum. Under developed community services model. (Not ideal) UN needs to provide equal service delivery among all sectors. Geographic variations, i.e. accessibility and quality of services. Lack of emergency hotlines for older persons. Lack of trained geriatric nursing services; they are directly and indirectly victimised by long term conflicts and never ending violence cycles.

Recommendation: Setting up a sustainable national elderly protection and care program through framework of stakeholders at multi sectoral level. Developing elderly care policies to address care access, care cost, care quality and other gaps. Recognizing the elderly population as fragile, vulnerable victims in the conflict and violence context.

Key words: Elderly, Health Profile, Iraq, conflict

Introduction

The world is experiencing a major demographic transformation globally and the Middle East is not an exception. Today, about two thirds of all older people are living in the developing world; mainly Asia, and particularly China and India. In the Arab countries the number of elderly is increasing due to the improvement in health care services as well as the eradication of most of the infectious diseases that were causing early death (1).

Elderly people in Iraq in the context of long term conflicts and repeated cycles of violence are finding it increasingly difficult to cope with daily life as the country's security conditions worsen. Continuing violence and the consequent mass displacement has had a debilitating effect on the health and psychological conditions of the elderly, advise the specialists. There are no reliable statistics available for the number and conditions of elderly people in Iraq but aid agencies say that it is the elderly who find it most difficult to cope with displacement (2). As a result, they have developed illnesses which, with a lack of medical assistance, can lead to death.

Elderly are a fragile and vulnerable segment of population, (like children and need especial care). "Without a proper diet, medical assistance, pension and welfare payments, aged people have been indirectly targeted by increasingly violence in Iraq,(3)" according to Iraq Aid Association (IAA). "With constant moving to flee sectarian violence, elderly in Iraq are encountering accelerated hardships of getting their pensions, their monthly food rations and are even targeted by insurgents or militants. Those unable or unwilling to flee their homes become easy targets for fighters.

The vast majority of the elderly group are encountering delayed or even not receiving needed care because of cost. Although the most important factor affecting the ability to use health services in the non-elderly is lack of insurance, other factors have also emerged. Factors highly correlated with lack of insurance, including race, income, and other sociodemographic characteristics, have been associated with lower health care use in younger populations (4-6). Cost appears to be one of the major factors associated with lack of access to care. Even in high standard health care system settings like the USA, between 1995 and 1997, approximately 11% of Medicare beneficiaries reported delaying care because of cost or because they had no specific source of care (7). Because out-of-pocket expenses are the greatest financial burden for Medicare recipients, issues of cost in the elderly are primarily related to insurance coverage supplemental to Medicare. Type of insurance has been reported to be independently related to both use of health services and medical outcomes (8,9). In addition to lack of complementary health insurance, evidence is accumulating that other sociodemographic factors may affect the health care services received by individuals aged 65 years and older, including race, education, age, and gender.(10-14) It is also becoming evident that satisfaction with provider services may impact perceptions of access to health care (15,16) and clinical outcomes (17,8). Socioeconomic indicators and nature of illness were the most pervasive determinants of health care seeking behavior among the elderly, overriding age and sex, and in terms of health-care expenditure, the nature of illness and quality of service provided ranked the major determinants (19).

Objectives

Elderly health profile in Iraq in the context of violence, conflict and social exclusions. To assess response of health care system health care services (to elderly needs, problems and sickness).

Methodology

Systematic review research design was carried out by using multiple search engines utilizing specific key words relevant to elderly health profile, Iraq, conflicts and so on with direct interview with experts, as well as official reports of Governmental and NGOs. Multiple Electronic databases were carefully investigated, through a pre-defined search strategy. Additional references from the bibliographies of retrieved articles and experts in the area were approached.

Selection Criteria

Only original research articles seeking to identify the (elderly health and conflicts, Iraq) were included. By defining the review question and developing criteria for including studies, we searched for studies, selected studies and collected data, and assessed risk of bias in included studies. The initial literature search identified 30 papers. Of these, 13 original articles met the selection criteria, and directly related to human cost and health relevance of conflict in Iraq. All were type II evidence - population-based studies. The methodological qualities of included studies were assessed using the Downs and Black checklist.

Findings

Elderly related demographic data in Iraq showed that the age group 55-64 years represents about 4.2% of the total Iraqi population (male 652,973/female 713,662) and for those of 65 years and over: 3.2% of total Iraqi population (male 487,841/female 561,797) (2014 est.). While 2.8 percent of the total Iraqi people were 65 years old and older in 2005. Population projections reveal that the total number of women 55 years and above in Iraq is estimated to about one million women; which comprises around 6.8 percent of total women in Iraq, and about 53 percent of total elderly population aged 55 years and above. The results of I-WISH survey also showed that 43.3 percent of these women are widowed, 3.3 percent are unmarried and 23.1 percent are heads of households. The results also showed that elderly women live in households with an average of 6.5 members, amongst 13.4 percent who live in households with average household size totaled to less than 3 persons. About 76.2 percent of these women live in urban areas and 23.8 percent live in rural areas. The results of the survey reveal also that 72.4 percent of elderly women are illiterate and only 5.4 percent of them have a diploma degree or higher. About 35 percent of these women reported that their physical conditions are either bad or very bad and there are no differences in women's situation in Kurdistan and other governorates of Iraq. About 11 percent of these women reported that they are unhappy with their life in general of whom 6.4 percent live in Kurdistan and 11. 4 percent in other governorates. Furthermore, 12.9 percent take care of disabled, sick or weak members of the household, amongst 46.5 percent who needed help in this task but couldn't find it. 31.1 percent of these women needed help in eating, drinking, wearing clothes, moving around and using the bathroom in the year that preceded the survey. The main source of this help came from family members (88.8%), while 0.5 percent received help from government health care workers. Family forms the main safety net for elderly women in Iraq; about 83.6 percent of women 55+ reported that family members such as sons, daughters, grandsons and others provided them with help regularly when needed. Furthermore, about 66.9 percent provided financial and material assistance, versus about 71.2 percent provided health care, and 68.4 percent provided company when needed.

Health Care Services for the Elderly

About 52.1 percent of women 55+ needed health care during the month preceding the survey. About 60.5 percent of these women got it from government health facilities, of which 30 percent reported that quality of service was good, while 18.7 percent reported that quality of the service was bad. About 58.6 percent found it hard trying to get government health care. This difficulty of finding government health care increases in other governorates (60.9%) compared with Kurdistan region (48.0%). Those who faced difficulties reported different reasons for that; due to inability to reach the service (40.6%), or due to lack of enough money to get help (47.7%), and 8.8 percent could not find anyone to take them to the health facility. There is a general belief that health care is improving in Iraq although there are differences by environment and region.

Covering the cost of health care

About 40.3 percent of women 55+ faced difficulties to cover the cost of health care. It is worth noting that this percentage is higher in Kurdistan region (44.2%) compared with other Iraqi governorates (39.4%). Only 14.3 percent of women 55+ suffer from a health situation that requires medical treatment or medication that government or NGOs cover all/part of the required cost. Concerns about future: 64.5 percent of elderly women 55+ were concerned about the future for different reasons. About 40.6 percent reported to be concerned due to the likelihood of leaving her usual residence due to health reasons. Around 53.5 percent were worried not to have enough money for long term health care, 49.3 percent were concerned to have to become a burden on her family, 53 percent were concerned of the increasing cost of health care and not having enough money to cover it, and 29.9 percent were afraid to go to elderly houses.

Violence

About 11.3 percent of women 55 years and above in Iraq have experienced some kind of verbal violence by family members during the year preceded the survey. About 12.2 percent were not allowed to move freely, 12.9 percent have been told that they cause burden on the family, and 17.1 percent were left alone. Women who had income were less exposed to violence, 8.4 percent of them were exposed to verbal violence and 11.2 percent were not allowed to move freely, 11.7 percent were told they are a burden on the family, and 16.9 percent were left alone.

Elderly women

Population projections according to CSO reveal that the total number of women 55 years and above in Iraq is estimated to be about one million women; which comprise around 6.8 percent of total women in Iraq, and about 53 percent of total elderly population aged 55 years and above. The results of I-WISH survey also showed that 43.3 percent of these women are widowed, 3.3 percent are unmarried and 23.1 percent are heads of households. The results also showed that elderly women live in households with an average of 6.5 members, amongst 13.4 percent who live in households with average household size totaled to less than 3 persons. About 76.2 percent of these women live in urban areas and 23.8 percent live in rural areas. The results of the survey reveal also that 72.4 percent of elderly women are illiterate and only 5.4 percent of them have a diploma degree or higher. Elderly women in Iraq have gone through two fold pressure; on one hand the need to be more dependent due to their increasing needs for health and social care; but on the other hand they are requested to take care of other members especially disabled, sick and weak family members. About 51.35 percent of these women reported that their physical conditions are either bad or very bad, and there are no differences in women's situation in Kurdistan and other governorates of Iraq. About 11 percent of these women reported that they are unhappy with their life in general of whom 6.4 percent are in Kurdistan and 11.4 percent in other governorates. Furthermore, 12.9 percent take care of disabled, sick or weak members of the household, amongst 46.5 percent who needed help in this task but couldn't find it. As for the need for help in daily activities, the results of the survey showed that 31.1 percent of these women needed help in eating, drinking, wearing clothes, moving around and using the bathroom in the year that preceded the survey. The main source of this help came from family members (88.8%), while 0.5 percent received help from government health care workers. Family forms the main safety net for elderly women in Iraq; about 83.6 percent of women 55+ reported that family members such as sons, daughters, grandsons and others provided them with help

regularly when needed. Furthermore, about 66.9 percent provided financial and material assistance, versus about 71.2 percent who provided health care, and 68.4 percent provided company when needed. In regard to health care, about 52.1 percent of women 55+ needed health care during the month preceding the survey. About 60.5 percent of these women got it from government health facilities, of whom 30 percent reported that quality of service was good, while 18.7 percent reported that quality of the service was bad. About 58.6 percent faced a hard time trying to get government health care. This difficulty of 52 finding government health care increases in other governorates (60.9%) compared with Kurdistan region (48.0%). Those who faced difficulties reported different reasons for that; due to inability to reach the service (40.6%), or due to lack of enough money to get help (47.7%), and 8.8 percent could not find anyone to take them to the health facility. There is a general belief that health care is improving in Iraq although there are differences by environment and region. About 40.3 percent of women 55+ faced difficulties to cover the cost of health care. It is worth noting that this percentage is higher in Kurdistan region (44.2%) compared with other Iraqi governorates (39.4%). About 12.2percent were not allowed to move freely, 12.9 percent have been told that they cause burden on the family, and 17.1 percent were left alone. Women who had income were less exposed to violence, 8.4 percent of them were exposed to verbal violence and 11.2 percent were not allowed to move freely, 11.7 percent were told they are a burden on the family, and 16.9 percent were left alone have no income.

Regarding mortality rates of NCD among elderly in Basra governorate south of Iraq , the study revealed that most of NCDs mortalities increased on 2007 comparing with 1978.

Table 1: shows frequency distribution of health care services (access and cost) provided to elderly as per their perception all over Iraq

No	Variable	Iraq Total (General) percent	Other governorate	Kurdistan governorate
1.	% of women 55+ who reported that their general Health status is bad or very bad	35.4	35.1	36.5
2.	% of women 55+ who are not satisfied at all with their life	10.51	11.4	6.4
3.	% of women 55+ who needed health care during the month preceding the survey	52.1	52.0	52.5
4.	% of women 55+ who received health care from public health facility amongst those who needed health care during the last month before Survey	60.5	60.7	59.8
5.	% of women 55+ who faced difficulties to get public health care amongst those who received health care from public health facility	58.6	60.9	48.0
6.	% of women 55+ who faced difficulties to cover the cost of health status during the 12 months preceding the survey	40.3	39.4	44.2
7.	% of women 55+ who do not have an income	34.0	32.5	41.0

Health Survey- (I-WISH) Iraq Elderly Women)(25)

Figure 1: Trend of quality of Governmental health services provided to elderly population in Iraq.
(http://www.irinnews.org/report)

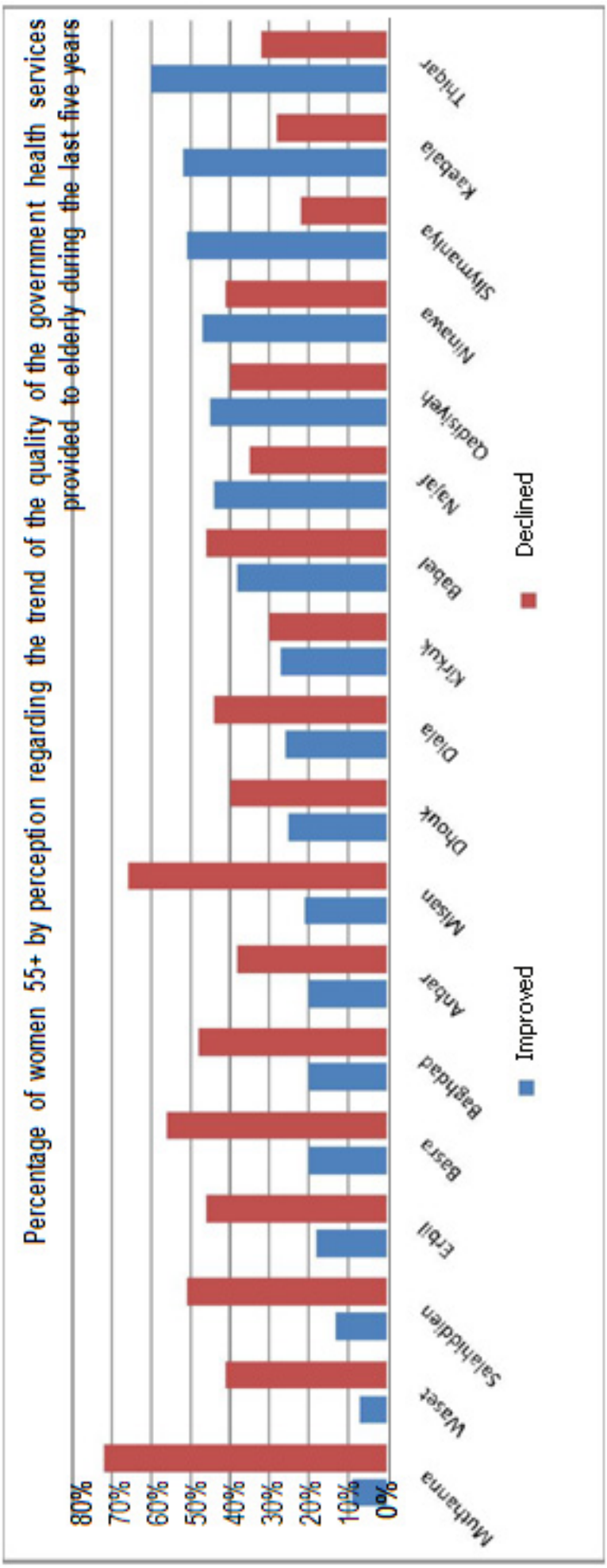
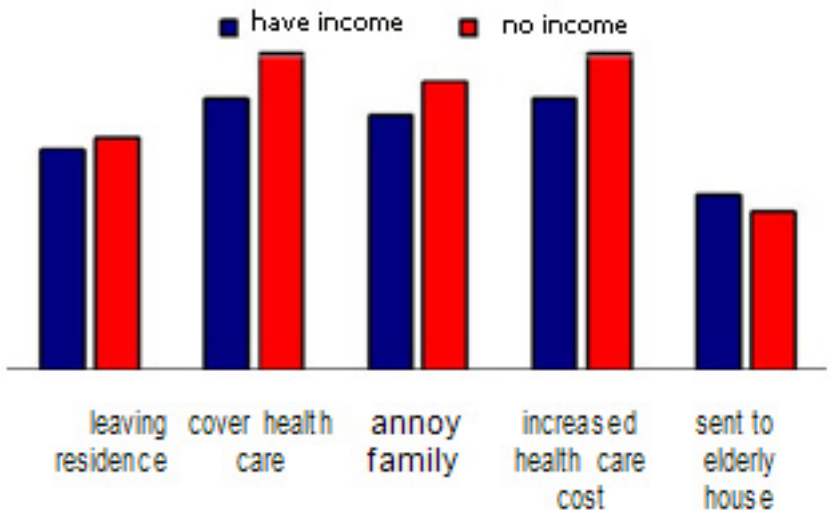
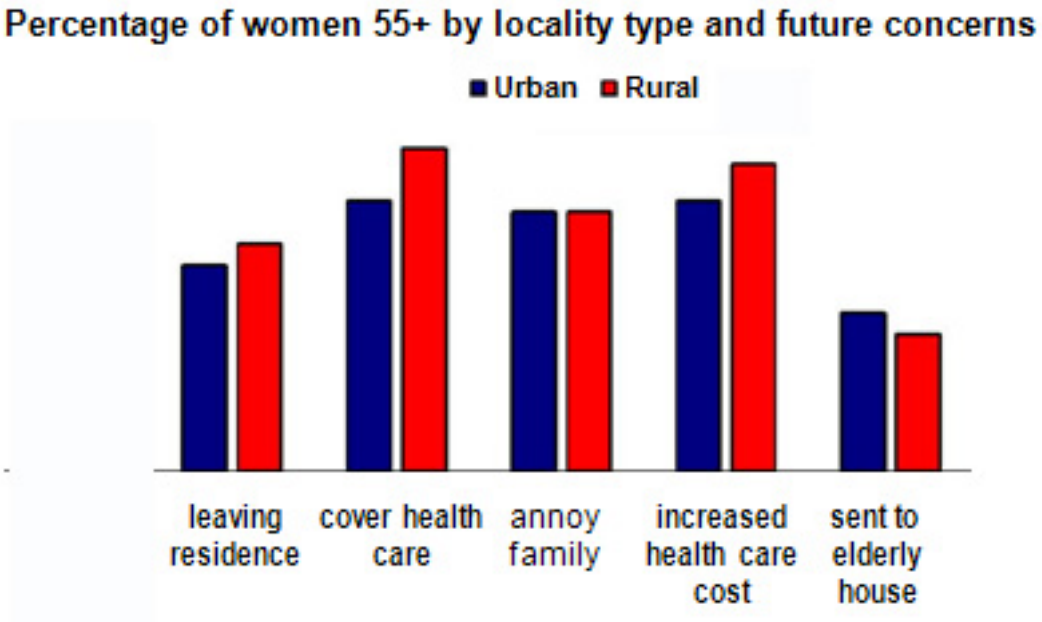


Figure 2: Distribution of elderly population in Iraq based on income and Future concerns



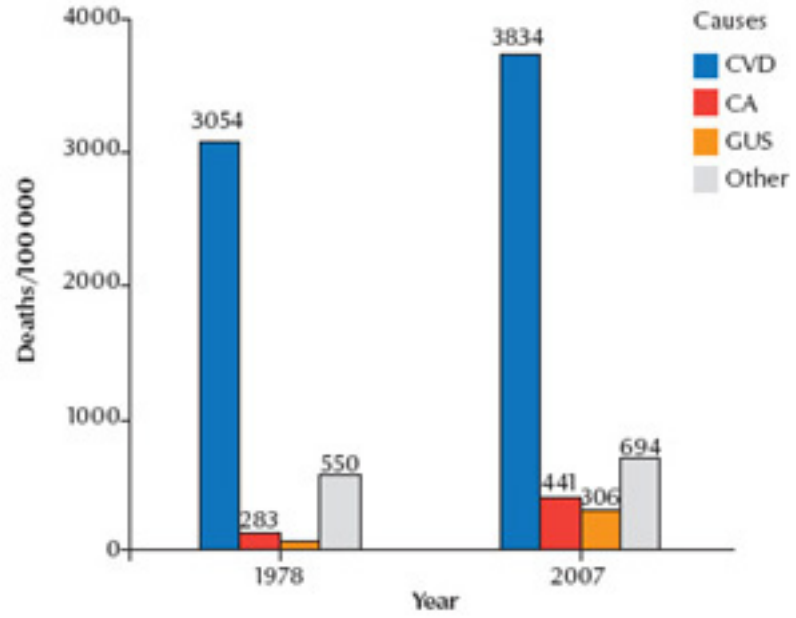
Health Survey- (I-WISH) Iraq Elderly Women)(25)

Figure 3: Distribution of elderly population in Iraq by Urban- Rural and Future concerns



(Health Survey- (I-WISH) Iraq Elderly Women)

Figure 4: Death Rate of selected cause of Death among elderly people above 65 age in Basra governorate (1978 and 2007).(26)



Death rates for selected causes of death among people aged ≥ 65 years in Basra, 1978 and 2007 (CVD = circulatory diseases, CA = neoplasms, GUS = genitourinary diseases)

Discussions

The study revealed that the elderly percentage in Iraq is considerably higher than UAE (20) , but much less than 12.6 percent of the U.S. population and 17 percent in Japan are 65 or older (21). Elderly in Iraq kept suffering multiple burdens, as they are a truly vulnerable and fragile segment, and due to the lagging of response of health care system in Iraq to needs and problems, the violence and the conflicts added major burden to their suffering leaving them victims to shortage of care, illnesses, helplessness, and pushing them to facing their hard fate lonely. Some of the elderly were even left as direct victims to the conflicts and violence widely spread in the country(22).

The hard circumstances that the country faced - the fighting and killings, the displacement - all of these factors have left senior citizens homeless. Aging Iraqis traditionally lived with relatives, but as conditions in the nation have worsened, a new phenomenon has popped up: the old folks' home (23). The elderly in Iraq have been dealt a very bad hand and short of a miracle very little can be done to help them," according to Iraqi Medical Association. "Sometimes they just close the door of the house and wait to die slowly." The most vulnerable senior citizens are in frail health with little or no income and cannot live independently. Many have no children to support them or have never married. Adding to their misery, Iraq's devastated health care system makes it nearly impossible for Baghdad's elderly residents to receive adequate medical treatment. The lack of potable water and electricity here further threatens their welfare during the sweltering summer months. For Iraqis like 87-year-old Mariam Ansari, who have beaten the odds and endured, self-preservation these days is a daily struggle. Mrs. Ansari lives in a single room with cement walls.

Elderly women in Iraq are gone through twofold pressure; on one hand threatened to be more dependent due to their increasing needs for health and social care; but on the other hand they are requested to take care of other members especially disabled, sick and weak family members. About 35 percent of these women reported that theirre physical conditions are either bad or very bad and there are no differences in women situation in Kurdistan and other governorates of Iraq. About 11 percent of these women reported that they are unhappy with their life in general of whom 6.4 percent in Kurdistan and 11. 4 percent in other governorates. Furthermore, 12.9 percent take care of disabled, sick or weak members of the household, amongst 46.5 percent needed help in this task but couldn't find it. The results of the survey showed that 31.1 percent of these women needed help in eating, drinking, wearing clothes, moving around and using the bathroom in the year that preceded the survey. The main source of this help came from family members (88.8%), while 0.5 percent received help from government health care workers. Family forms the main safety net for elderly women in Iraq; about 83.6 percent of women 55+ reported that family members such as sons, daughters, grandsons and others provided them with help regularly when needed. Furthermore, about 66.9 percent provided financial and material assistance, versus about 71.2 percent provided health care, and 68.4 percent provided company when needed.

Some elderly Iraqis have lost all their relatives over the past few years and now have to fend for themselves. Being unable to work because of age or health conditions, some of them have turned to begging in the streets while others are supported by their neighbors. According to local NGOs and doctors, the general health of elderly people has been fast worsening in the past three years. "Limited healthcare access, deteriorating services and deteriorating social support networks are making elderly people more vulnerable to diseases and worsening their current

illnesses,". Many elderly people in Iraq were suffering various heart diseases which were under control before the US-led invasion of 2003 but now, with a dire lack of medicines and equipment in the country, were going untreated. "For those living in displaced camps or improvised tents, the situation is critical as they cannot reach hospitals on time and so might die for lack of medical assistance (24).

Conclusion

The elderly population in Iraq continue to be victims of a non-responding health care system in terms of high numbers of elderly "bed blockers" at the main acute hospitals. (Cost); Lack of Elderly Rehabilitation Centers. (Transitional care); and Lack of Local Geriatricians or physicians trained in geriatrics. There are slowly developing geriatric services but lack of Geriatric teaching in medical school's curriculum. There is an under developed community services model. (Not ideal) The UN needs to provide equal service delivery among the needy sector. There are geographic variations, in accessibility to and quality of services. There is lack of emergency hotlines for older persons, lack of trained geriatric nursing services, and the elderly are directly and indirectly victimised by long term conflicts and never ending violence cycles.

Recommendations

There is a need to formulate a National Strategy for the elderly that will include the following

1. Setting up sustainable national elderly protection
2. Setting up national care program
3. Involving multisectors of the society in the care
4. Developing elderly care policies to address care access, care cost, care quality& other gaps.
5. Recognizing elderly population as fragile, vulnerable victims for the conflict and violence context.
6. Establishing national committee for the care of the elderly.

References

1. Salwa Al Suwiadi.2013, Care-Services-Old-Middle-East-Populations.pdf. http://www.adidubai2013.org/files/pres/Salwa-AlSuwaidi-Health.
2. Irinnnews report.2016. (IRAQ: Elderly most vulnerable to insecurity. http://www.irinnews.org/report/70649/iraq-elderly-most-vulnerable-to-insecurity cited on 04 February 2016.
3. Fatah ahmed.2007, Iraqi Aids association, www.irinnews.org/.../Iraq-elderly-most-vulnerable-to-in.
4. Keruly JC, Conviser R, Moore RD. Association of medical insurance and other factors with receipt of anti-retroviral therapy. Am J Public Health. 2002; 92:852-857. [PMC free article] [PubMed]
5. Ruiz P. Hispanic access to health/mental health services. Psychiatry Q. 2002; 73:85-91. [PubMed]
6. Strzelczyk JJ, Dignan MB. Disparities in adherence to recommended followup on screening mammography: interaction of sociodemographic factors. Ethn Dis. 2002; 12:77-86. [PubMed
7. Janes GR, Blackman DK, Bolen JC, et al. Surveillance for use of preventive health-care services by older adults, 1995-1997. MMWR CDC Surveill Summ. 1999; 48:51-88. [PubMed]
8. Porell FW, Miltiades HB. Access to care and functional status change among aged Medicare beneficiaries. J Gerontol B Psychol Sci Soc Sci. 2001; 56:S69-S83. [PubMed]
9. Hsia J, Kemper E, Sofaer S, et al. Is insurance a more important determinant of healthcare access than perceived health? Evidence from the Women's Health Initiative. J Womens Health Gend Based Med. 2000;9: 881-889. [PubMed]
10. Schneider EC, Zaslavsky AM, Epstein AM. Racial disparities in the quality of care for enrollees in medicare managed care. JAMA. 2002; 287:1288-1294. [PubMed]
11. Porell FW, Miltiades HB. Access to care and functional status change among aged Medicare beneficiaries. J Gerontol B Psychol Sci Soc Sci. 2001; 56:S69-S83. [PubMed]
12. Gornick ME. The association of race/socioeconomic status and use of Medicare services: a little-known failure in access to care. Ann N Y Acad Sci. 1999; 896: 497-500. [PubMed]
13. Janes GR, Blackman DK, Bolen JC, et al. Surveillance for use of preventive health-care services by older adults, 1995-1997. MMWR CDC Surveill Summ. 1999; 48:51-88. [PubMed]
14. Escarce JJ, Epstein KR, Colby DC, Schwartz JS. Racial differences in the elderly's use of medical procedures and diagnostic tests. Am J Public Health. 1993; 83:948-954. [PMC free article] [PubMed
15. Akinci F, Sinay T. Perceived access in a managed care environment: determinants of satisfaction. Health Serv Manage Res. 2003; 16:85-95. [PubMed]
16. Meng YY, Jatulis DE, McDonald JP, Logorrhea AP. Satisfaction with access to and quality of health care among Medicare enrollees in a health maintenance organization. West J Med. 1997; 166:242-247. [PMC free article] [PubMed]
17. Harris LE, Luft FC, Rudy DW, Tierney WM. Correlates of health care satisfaction in inner-city patients with hypertension and chronic renal insufficiency. Soc Sci Med. 1995; 41:1639-1645. [PubMed]
18. Alazri MH, Neal RD. The association between satisfaction with services provided in primary care and outcomes in Type 2 diabetes mellitus. Diabetes Med. 2003; 20:486-490. [PubMed}
19. Abdulraheem IS1 Health needs assessment and determinants of health-seeking behavior among elderly Nigerians: a house-hold survey. Ann Afr Med. 2007 Jun; 6(2):58-63.
20. Aisha Zayed Al Ali* (Aging in the UAE and Services Available for the Elderly: Structured Interviews with Experts in the Field Policy Brief No. 34 February 2013, Dubai school of government
21. WHO | Iraq health situation reports, www.who.int/hac/crises/irq/sitreps/en/
22. The Washington Times, June 27, 2007. , Sick, elderly Iraqis living on edge, Iraq, http://www.globalaging.org/armedconflict/countryreports/middleeast/iraq/ME%20Sick,%20Elderly%20Iraqis_Washington%20Times%20Report%202007.pdf.
23. Los Angeles times, August 06, 2009. (Grim times for the elderly in Iraq, August 06, 2009|Ned Parker and Caesar Ahmed, http://articles.latimes.com/2009/aug/06/world/fg-iraq-old-age6.
24. Iraq Demographics Profile 2014. CIA World Fact book this page was last updated on June 30, 2015http://www.indexmundi.com/iraq/demographics_profile.html.
25. Elderly women in Iraq, survey CSO and UNFP"2011. (Iraq Women Integrated Social and Health Survey- (I-WISH) Iraq Elderly Women; Issues and Statistics. [PDF].
26. H.N. Sadek and N.A.H. Ajeel,East Mediterranean Health Journal, Age-standardized mortality rates by cause in Basra, Iraq: 1978 and 2007

Situation of Elderly in Sultanate of Oman

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Introduction

The Sultanate of Oman is located in the south eastern corner of the Arabian Peninsula. It has an approximate geographical area of 309,500 square kilometers and a population of 2.577 million people (Ministry of Health, 2006). The main language used in the country is Arabic. The largest ethnic group is Arab, and the other ethnic groups are Baluchi, South Asian and African. The largest religious group is Muslim. The country is an upper middle income group country based on World Bank 2006 criteria(1). Oman saw rapid development, triggered by the discovery of oil, which took place under an enlightened new political leadership.

Overview of population ageing; 1950-2050

There is no recorded population census before the 1970s. With regards to the Elderly population in Oman, they constituted 3.0% of the 1993 population which increased to 3.2% in 2003 then to 3.5% in 2010. Projections indicate that the elderly population in Oman will reach 231,975 in 2025 to constitute 5.8% of the total population and will increase further to 821,023 in 2050 to constitute 15.2% of the total population [9, 10]. Such rapid increase in the proportion of old people in Oman is the result of the continuous decline in infant mortality and the increase in life expectancy at birth brought on by the rapid economic and social development, improvement in the standard of living as well as the delivery of quality healthcare services [11, 12]. Infant mortality rate per 1000 live births dropped from 58.3 in 1980 - 1985 to 15.2 in 2000 - 2005 and it is projected to become as low as 6.6 by the year 2050 [11, 12]. Concomitantly life expectancy at birth has gained 11.5 years resulting in an increase from 62.7 years in 1980 - 1985 to 74.2 years in 2000 - 2005 and it is expected to reach 80.9 years by 2050.(2)

Changing percentage of older persons in additions to total population

Oman has undergone a significant demographic transition since the 1970s. Life expectancy has increased from 50 years of age in 1970 to 73.9 years in 2010. With this, infant mortality has significantly decreased from 190 deaths per 1000 live births in 1962 to 7.3 deaths in 2010. Fertility rates have fluctuated from 7.2 births per woman in 1962 to 8.3 in the early 1980s, decreasing significantly thereafter to 2.1 in 2010. Nevertheless, the population in Oman still remains young with 44% of the population below the age of 15 years today, and only 4.2% of the population above age 60. Aging data in Oman shows different trends depending on the index used. Elderly Dependency Ratio EDR, for example decreased from 6.3 in 1970 to 3.6 in 2010 while the Aging Index, which was 6.9 in 1970 dropped to 4.9 in 1990 but started to rise again, reaching 9.3 in 2010. These changes are mainly due to the change in fertility rates in Oman. A tool that may be more useful in showing the aging trends in Oman is the Median Age, which steadily rose from 18.9 years in 2008 to 24.4 in 2010.

Feminization of ageing

The national elderly health survey sultanate of Oman (2008) reported that 52.2% of the Omani elders are male, while 58% were in their sixties and 4.4% were aged 85 and more.3

• Household work by older women in particular but also of older men in some outdoor work like transporting grandchildren to school

• The national elderly health survey sultanate of Oman (2008) reported that 27% of the Omani elders never worked to earn a living, while 22% were still working in their sixties. The Female contribution to the workforce was limited based on the then prevailing culture that women are not expected to work to earn a living.

• Role in the bringing up of grandchildren which becomes even more crucial in case of shrinking family size and increased emigration of adults due to globalization

Training programs for the health professional dealing with elderly patients

The Old age psychiatry team at Sultan Qaboos University hospital conducts regular workshops for Primary care physicians and nurses on topics such as Elderly mental health and Dementia. More recently the team launched a dementia awareness course for Community Nurses and Volunteers in Order to provide them with the skills and knowledge to help the Care givers at home.

References

1- http://www.who.int/mental_health/who_aims_oman_report.pdf
2- S. Al Subhi, H Al Sinawi, R. Rahman : Rates and determinants of functional limitation among the elderly population in the Dakhilyia region, Sultanate of Oman. Middle-East Journal of Age & Aging Vol 10 issue 5 of the Journal.
3- Hajjar RR, Atli T, Al-Mandhari Z, Oudrhiri M, Balducci L, Silbermann M. Prevalence of aging population in the Middle East and its implications on cancer incidence and care. Annals of oncology. 2013 Oct 1;24(suppl 7):vii11-24.
4- Directorate of Research and Studies , Ministry of Health , Oman. The national elderly health survey sultanate of Oman (2008)

Measurement Of Health Inequality In India By Computing Gini Coefficient

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ABSTRACT

Introduction: Health inequality refers to the difference in health status of two demographic groups that include both morbidity and mortality.

Objective: This study will measure the disparities in length of life across age, sex, over periods from 1970/71-2005 for India and some of its states, viz. Assam, Kerala, Maharashtra, Orissa, Punjab and Uttar Pradesh using Gini Coefficient. The correlation coefficient between inequality in the length of life and average length of life for all states and age groups is also computed.

Data and Methodology: The data is secondary provided by Sample Registration System (SRS), computed by office of the Registrar General of India and put with fitted arguments.

Results and Conclusion: The variation in the value of this measurement in the work established the amount of health disparities prevailing in this part of the world.

Key words: Correlation coefficient, Gini Coefficient, Health Inequality, length of life.

Introduction

Health inequality refers to the difference in health status of two demographic groups that include both morbidity and mortality. Mortality and age at death are the most reliable and important measures of health and morbidity related to medically defined diseases. (Sermet & Cambois, 2006). Gini coefficient is one such health inequality measure which assesses variation in length of life across people. The Health and Services administration of the United States (2004) define it as the population-specific differences in the presence of disease, health outcomes, or access to health care. (Goldberg et.al 2004). Gakidou et al. (2002), define health inequality to be "variations in health status across individuals in a population which allows us to perform cross- country comparisons and study the determinants of health inequality." (The World Health Report, 2000).

Over the last 50 years of the 20th century many countries including poor countries have made remarkable improvements in health status. (Evans et. al 2001). However India's performance in health is not encouraging over the years since there are gross inequalities within the country, which is viewed as a major public health concern. Though life expectancy at birth for the male population of India increases from 51 in 1970-75 to 62 in 2001-05, yet this improvement is not uniform throughout the country. The female statistics are 49 and 64 respectively i.e. outnumbering males in 2001-05 in life expectancy at birth. This can also be visualised from the interstate variation in life expectancy at birth from 71 in Kerala to 58 of Assam in 2001-05 among its male members. Its counterparts have 76 and 59 respectively. This interstate variation can be marked from all the socio-economic and demographic indicators viz. literacy rate, variation in the percentage of population below the poverty line, TFR, IMR, MMR etc. (National Family Health Survey 3, India: 2005-06). Thus the health inequality determinants are particularly crucial in a developing country like India where health policies and programs are attempting to rectify the communal discrepancies over the past decades. These rigid social disparities in India create hurdles for economic development and social opportunities. Hence the future development of the country will depend

on the pace of reduction of health inequalities within the communities by identifying the unequal health wise groups. The number of studies associated to health inequalities has steadily increased. These studies focused on differences in average health status across groups of people, across income groups, among social classes, among racial or ethnic groups, by educational attainment or occupation, across age, sex etc. (Gakidou et.al op.cit 2002). Lauridsen et.al (2011), Saikia et.al (2011) and many others work on health disparities prevailing among the people of India. This study will also humbly attempt to measure the health inequality of India by computing Gini coefficient for evaluating the distribution of health among different sectors. Gini coefficient is abbreviated as Go.

Objectives

With this backdrop it was imperative to study the disparities in length of life by means of Gini Coefficient across age (0-5, 15-40 and for all ages), sex, over periods from 1970/71-2005 for India and some of its states based on geographic location viz. Assam (North-east), Kerala (South), Maharashtra (West), Orissa (East), Punjab (North) and Uttar Pradesh (Central). Further these states are witnessing different stages of development as Maharashtra and Punjab are considered among the richest states whereas Assam and Orissa are among the poorest states. Though Punjab has the lowest infant mortality rate after Kerala the gender gap is more pronounced in Punjab. Uttar Pradesh is considered as the most populous state and Kerala holds its position as the educationally and socially developed state. Thus it will suffice one to observe the performance of better and worst states in the health inequality scenario. The aforesaid components of age will help in studying the overall variation in degrees of inequality in length of life at different ages. The justification of using the periods from 1970/71-75 to 2001-05 is the non availability of reliable data prior to these periods, since Sample Registration System is the only unique source of information providing representative and the most complete data on mortality in India. (National Population Commission, 2001). This work further studies the relation between inequality in the length of life and average length of life for all states and age groups.

Data and methodology

The data used for computing Gini coefficient was secondary provided by Sample Registration System (SRS). The office of the Registrar General of India started the process of sample registration of births and deaths in India in 1964-65 on a pilot basis and on a full scale from 1969-70. This scheme was based on dual record system in India. It provided unswerving estimates of birth rate, death rate and infant mortality rate for rural, urban and combined areas for India and for some of its states and union territories. An abridged life table had been constructed by the office of Registrar General of India for males and females from 1970 -75 to 2001-05 for India and some of its major states using SRS data. However life tables were constructed for 1971-75 instead of 1970-75 for the states Punjab and Kerala. In this study we utilized these life tables to calculate Gini coefficient.

The Gini coefficient was developed by the Italian statistician Corrado Gini and published in his 1912 paper "Variabilità e mutabilità" ("Variability and Mutability"). It is based on the Lorenz curve, a cumulative frequency curve that compares the empirical distribution of a variable with its uniform distribution represented by a diagonal line. The greater the area included between the Lorenz curve and the diagonal, the greater the inequality. A small value of Go indicates equality in income distribution and larger value specifies inequalities. In case of inter individual differences in length of life, it is equal to zero if all individuals die at the same age; and equal to one if all people die at age zero and one individual dies at an infinitely old age. (Shkolnikov, et.al ,2001). Though Gini coefficient reflects the level of inequality it is generally used for comparative purposes. Gini index has many different formulations and interesting interpretations. All of them are equivalent. (Anand, 1983). Hanada (1983) defined Gini coefficient as:

$$G_o = 1 - \{ \int_0^{\infty} [l(x)]^2 dx \} / \{ e(0) * [l(0)]^2 \} \quad ...(2.1)$$

Whereas
l(x) is the number of survivors at the beginning of the interval x.
l(0) is the size of the birth cohort.
e(0) is the life expectancy at birth.

This formula was used to compute Go for full range of ages. However for limited range of ages this formula can be rewritten as

$$G_{x/X} = 1 - \{ \int_x^{X} [l(t)]^2 dt \} / \{ e(x/X) * [l(x)]^2 \} \quad ...(2.2)$$

Where the temporary life expectancy is

$$e(x/X) = \{ \int_x^{X} [l(t)]\, dt \} / [l(x)] \quad \text{(Arriaga, 1984)}$$

$$\text{Or, } e(x/X) = T(x)/l(x) = \sum_n L_x / l(x).$$

(Namboodiri and Suchindran, 1987).

${}_nL_x$ is the number of person years lived by the l(x) persons during the interval (x, x+n).
T(x) is the total number of person years lived during the interval (x, x+n).

$$\text{Now } {}_nL_x = n \{ l_{x+n} + {}_na_x * {}_nd_x \}.$$

${}_nd_x$ denotes the number of deaths during (x,x+n).

${}_na_x$ is the fraction of years lived by those dying in the interval (x,x+n) on the average.

Chiang (1960a) observe that nax is more or less invariant with respect to sex, race, cause of death, geographic location, and other demographic variables. He further remarked that ${}_na_x$

computed for a population for each age group can be used for many populations. For calculating ${}_nL_x$ in our study a set of Chiang's estimates of ${}_na_x$ (Namboodiri and Suchindran, 1987, pg 26) was used. For the extremely old ages nax is taken as 0.5.

The integral part of equation 2.2 is given by

$$\sum_x \int_0^1 [l(x+t)]^2 dt = \sum_x [(l_{x+1})^2 + A_x \hat{} \{(l_x)^2 - (l_{x+1})^2\}] \ldots (2.3)$$

Where $A_x\hat{} = [1-2/3q_x + C_x(2- q_x - 6/5\, C_x)]/[2- q_x] \ldots (2.4)$

q_x is the mortality rate and

$C_x = {}_na_x - 0.5.$

Since for the first year of life l(x) falls more steeply, so the equation (2.4) will not be suitable for finding $A_o\hat{}$.

(Shkolnikov, op.cit, 320). Thus J. Borgois-Pichat (1951) formula

$$A_o\hat{} = a_o(1-q_o * (3+0.831a_o)/(2+q_o)) \ldots (2.5)$$

was used.

The last age group used in the mortality data as given by SRS was 70_+. Hence we apply mortality law

$$l(x) = C * a^{b^x}$$

to extrapolate survivors in a life table beyond the final age as discussed by Preston et.al (2001). Parameters C, a and b can be estimated from the last three values of the life table survival function, l(y), l(y+n) and l(y+2n).(Horiuchi and Coale,1982).

$$b = [\ln\{l(y+2n)/l(y+n)\}/\ln\{l(y+n)/l(y)\}]^{1/n}.$$

$$a = \exp[\ln\{l(y+n)/l(y)\}/\{b^y(b^n-1)\}]$$

$$C = l(y) * \exp(-b^y * \ln(a)).$$

$$\text{Thus } A_{70+}\hat{} = \{1/(l_{70})^2\}[\sum_{70}^{110} \{(l_{x+1})^2 + A_x\hat{}\{(l_x)^2 - (l_{x+1})^2\}\}] \ldots (2.6)$$

was defined to find a solution for open ended interval.

Finally Go was computed by using equation (2.2).

Results and Conclusions

From column (2) of Table 1 one it is observed that inequality in the length of life among male population of India decreased from 0.3019 in 1970-71 to 0.1673 in 2001-05. On the other hand its female population decrement was from 0.3323 to 0.1826 as portrayed in Table 2. However from the two tables one observed that Gini coefficient was higher among the female population as compared to the male population. The negative correlation coefficient between life expectancy at birth and Gini coefficient for India across periods was -0.74 for men and -1 for women as shown in Table 7. The correlation coefficient -0.74 among men indicated a firm negative linear relationship between the variables. The value -1 for females represented the perfect negative linear relationship as the two variables moved in opposite direction with the same amount. The value of correlation will depend on the mortality levels of the countries and periods. A higher value of correlation coefficient will reflect the divergence in the levels of mortality. (Shkolnikov, et.al, 2003). Column (3) of the same tables gave the computed Gini coefficient values for the male and female populace of Assam. A higher Go value was observed for Assam as compared to Go value of India for both male and female populace. The negative associations between the two indicators for the aforementioned periods for the male and female inhabitants were -1 and -1 respectively. The third state considered here was Kerala, where Go was represented by (4) column of the aforesaid tables. A smaller value of Gini coefficient was observed for both male and female population of Kerala as compared to other states including India. The variability in the length of life declined from 0.1860 in 1971-75 to 0.0918 in 2001-05 among males of Kerala. It could be deduced from column (4) that Go value for female populace for all ages reduced from 0.1742 in 1971-75 to 0.0478 in 2001-05. Thus among Kerala populace one observed that inequality in the age of death was small among females as compared to the male people. The correlation coefficients swung from -0.99 to -1 between male to female inhabitants of Kerala across the periods. Maharashtra, being a wealthy and developed state its Gini coefficient value ranged from 0.2687 to 0.1419 among male members and its female counterparts ranged from 0.2697 to 0.1216 across the aforesaid periods. Thus the inequality was higher as compared to its fellow state Kerala. The correlation was -0.99 both for males and females of Maharashtra. The next state Orissa, experienced highest Gini value as compared to all the states and India among its male members. In 1970-75 Gini coefficient for male populace was 0.3407 and it reduced to 0.2135 in 2001-05. A higher Gini value of 0.3525 was observed for women of Orissa in 1970-75 and lessened to 0.2187 in 2001-05. The correlation value ranged from -0.92 to -1 among males and females of Orissa. Gini coefficient for the male and female population of Punjab for the period 1971-75 were 0.2257 and 0.2509 which reduced to 0.1392 and 0.1307 in 2001-05 respectively. Though Punjab was an economically developed state of India a contrast higher value of Gini coefficient was visualized among the female population as compared to its male populace except for the periods 1986-90, 1991-95 and 1996-2000. This explained the gender inequality in the age at death. The negative association between life expectancy at birth and Gini coefficient for all ages across the periods were -0.99 and -1 among men and women of Punjab. From column (8) we inferred that Go value decreased from 0.3000 in 1970-75 to 0.2018 in 2001-05 among male inhabitants of Uttar Pradesh. However for female population the same column depicted that these values decreased from 0.3484 in 1970-75 to 0.2220 in 2001-05 for all ages. Thus one deduced that inequality in the age of death was more among female inhabitants of Uttar Pradesh in comparison to males of Uttar Pradesh The last entry of columns ((8) were 0.2018 and 0.2220 respectively for the period 2001-05 of male and female population of Uttar Pradesh, which was larger as compared to 0.1860 and 0.1742 for both male and female population of Kerala for the period 1971-75. Though Go value decreased across periods for male and female population of Uttar Pradesh a larger Go was observed for this populace as compared to other states including India and this leads to larger inequality in the length of life. The correlation coefficient between eo and Go among the male and female population of Uttar Pradesh were -0.92 and -0.91 respectively.

The inequality among individuals depends on many factors. One such factor was age, since some age groups would have more tendency of dying as compared to other age groups. Choudhury et.al. (2007) viewed that probability of an individual afflicted by various chronic diseases differed across ages. Ho et.al (2009) studied the characterization of international variation in mortality rates by age in 2005 in the United States and observed that death rates rank poorly between ages 40-75 among males and females of US. Further Caselli (2010) proved that mortality pattern by cause diverges as one moved from infant to adult age and from adult to old age. This incites one to obtain inequality in the length of life among age groups 0-5 and 15-40 for all states by computing Go.

Tables 3 and 4 measured the Gini coefficient across different periods, among different states, for both male and female populace irrespective of region for age group 0-5. A similar pattern of diminishing inequality in the length of life was observed across the periods. However all Go values of Tables 3 and 4 were smaller than Gini coefficient of Tables 1 and 2. The same trend of larger Go value for Orissa and Uttar Pradesh and smaller for Kerala, was seen. The same mode of smaller Go was perceived among males as compared to females for all states except Kerala. Further, the association regarding Gini coefficient and average length of life can be elucidated similarly as discussed earlier.

Tables 5 and 6 portrayed G_{15} values for age group 15-40 for population across all periods and for different states as discussed earlier. The G_{15} values for the male population of India decreased from 0.0349 in 1970-75 to 0.0183 in 2001-05. And for its females it was from 0.0502 in 1970-75 to 0.0261 in 2001-05. The correlation coefficient between inequality in the length of life and expectation of life at age 15 among male and female inhabitants of India were -0.94 and -0.99. Columns 3 of Tables 5 and 6 presented the G_{15} value for the male and female people of Assam. Gini coefficients for the male and female inhabitants of this place for the period 1971-75 were 0.0387 and 0.0727 reduced to 0.0324 and 0.0391 in 2001-05 respectively. The correlation between the two measurements of life is -0.86 and -0.97 among men and women of this place. A similar pattern of diminishing inequality was observed from column 4 across the periods among the populace of Kerala. The female inequality in the length of life diminished from 0.0211 to 0.0097, while for

males it decreased from 0.0232 to 0.0153 across the periods. The correlation coefficients varied from -0.90 to -0.93 between male to female inhabitants of Kerala across the periods. The arguments regarding smaller G_{15} value among the female members of Kerala as compared to its males would be same. The state Maharashtra experienced Gini value 0.0319 in 1970-75 whereas it reduced to 0.0242 in 2001-05 among the male members. A slightly higher Gini value was observed among the female members as depicted in Table 6. In this age group the state Orissa has larger Gini coefficient among all the states both for male and female population. The correlation coefficients are -0.72 and -0.09 among the male inhabitants of Maharashtra and Orissa respectively. The female counterparts had -0.26 and -0.98 correlation coefficients of the aforesaid states. The next state is Punjab, represented by the 7th column of the same table. The Gini coefficient value for the period 2001-05 among men and women of Punjab were 0.0266 and 0.0168 while G_{15} of 0.0283 and 0.0297 were observed for the period 1971-75. The same table indicated that Gini coefficient for all the periods except 1970-75 among males of Punjab was larger as compared to its female counterparts. Thus this showed the favourable change among the female populace of Punjab as less inequality in the length of life was observed. The correlation coefficients were 0.02 and -0.92 among male and female populace. A contrast positive correlation coefficient of 0.02 among males of Punjab might be due to the amount of change in G_{15} and e_{15} across the periods, which was not uniform. The correlation coefficient 0.02 indicated a very weak positive unstable linear relationship. Also the correlation would be weaker if life expectancy continued to increase while the decline in the inequality in the length of life had slowed down or stopped. Thus the correlation coefficient will be weaker if the comparable levels of mortality are selected. (Shkolnikov, et.al, 2003). The Gini coefficient values for the male and female inhabitants of Uttar Pradesh were 0.0289 and 0.0363 in 2001-05, which was larger as compared to 0.0232 and 0.0211 in 1971-75 of Kerala. Thus inequality in the length of life was more significant among the members of Uttar Pradesh. The association between expectation of life at age 15 and Gini coefficient among men and women of Uttar Pradesh across the periods were -0.91 and -0.86. The explanation regarding the value of this association would be same as above.

From the tables one might conclude that inequality in the length of life was more apparent among children of age group 0-5 as compared to its adult populace. Further a larger Gini value was observed for the female population of India and its states except for Kerala as compared to males. In all the tables we viewed that inequality is least in Kerala and Assam got a higher rank in disparity in length of life followed by Orissa, Uttar Pradesh, Maharashtra and Punjab in 2001-05. Similarly in other periods 1970/71-75 to 1996-2000 the states Uttar Pradesh, Assam and Orissa are considered as the most health inequality states according to their Gini figures. The inhabitants of India and its states also experience the same kind of variation in age specific mortality rate as observed in case of inequality in the length of life. Hence the notion presented by Shkolnikov, et.al. (2003) that inequality in the length of life is influenced by the difference in the age specific mortality rate is substantiated by the present study too. In India these variations in the age specific mortality rate is due to the epidemiological transition from the communicable diseases to AIDS. The infectious, chronic diseases and rise in injuries/ accidents accelerates these disparities among the people. The HIV prevalence rate is more prevalent among the male adults of age group 15-49. (National Family Health Survey 3, 2005-06). Further data from SRS depict that Crude Death Rate (CDR) of India has been declining from 14.9 in 1971 to 7.6 in 2005 in the last three decades. It has also been observed that the crude death rate is higher than the national average in Orissa (9.2), Assam (8.6) and Uttar Pradesh (8.5) whereas Kerala (6.8), Maharashtra (6.6) and Punjab (7) have lower CDR as compared to India. (SRS, 2007). An identical pattern has also been observed in case of maternal mortality rate. A higher value of maternal mortality rate is seen for the states Assam (390), Uttar Pradesh (359), and Orissa (258) i.e. above the national average of 212. (SRS, 2011). However the states Kerala (81), Maharashtra (104) and Punjab (172) have done better in maternal mortality indicators than India. A similar trend is noticed for neonatal, infant and under 5 mortality rates. ((National Family Health Survey 3, 2005-06). Bhat (1987) also observed that pace of mortality reduction is not uniform among the states of India. Hence in our study we observed a smaller value of Gini for the states whose infant mortality rate is lower. Thus the view of Shkolnikov, et.al. (2003) that reduction of infant mortality rates caused equalization of age at death is also observed in this study.

The foregoing discussion leads this study to the conclusion that in India, disparity in health was found according to geographical region, gender, age groups and among the periods. This was catalysed by the variation in assessing health services due to socio-economic, gender and geographical distance in a populous country like India. Thus health inequalities were marked from the start of life and continue into death. (Graham, 2004). These unfair and avoidable differences in health status could be bridged by accompanying growth with more equitable access to the benefits of development to cease the unacceptable threat to human well being and security. This kind of analysis might help in identifying the pace of improvement among the states, across time periods and to check the benefitting index of population from the existing social arrangement.

Different tables have been provided in this section following.

Tables

Table 1: Go for Male Population of All Ages

State / Periods	India	Assam	Kerala	Maharashtra	Orissa	Punjab	Uttar Pradesh
1970/71-75	0.3019	0.3318	0.1860	0.2687	0.3407	0.2257	0.3000
1976-80	0.2822	0.2749	0.1562	0.2430	0.3041	0.2029	0.3379
1981-85	0.1458	0.2737	0.1366	0.2003	0.2760	0.1781	0.3000
1986-90	0.2372	0.2553	0.1147	0.1759	0.2679	0.1673	0.2657
1991-95	0.2017	0.2389	0.0966	0.1740	0.2628	0.1604	0.2282
1996-2000	0.1873	0.2175	0.0913	0.1463	0.2235	0.1462	0.2075
2001-05	0.1673	0.2181	0.0918	0.1419	0.2135	0.1392	0.2018

Table 2: Go for Female Population of All Ages

State / Periods	India	Assam	Kerala	Maharashtra	Orissa	Punjab	Uttar Pradesh
1970/71-75	0.3323	0.3482	0.1742	0.2697	0.3525	0.2509	0.3484
1976-80	0.3057	0.2919	0.1299	0.2436	0.3293	0.2258	0.4143
1981-85	0.2649	0.2844	0.0942	0. 1956	0.2833	0.1871	0.3484
1986-90	0.2326	0.2630	0.0769	0.1667	0.2736	0.1513	0.3011
1991-95	0.2048	0.2468	0.0556	0.1611	0.2501	0.1448	0.2551
1996-2000	0.1875	0.2261	0.0497	0.1293	0.2242	0.1378	0.2357
2001-05	0.1826	0.2249	0.0478	0.1264	0.2187	0.1307	0.2220

Table 3: Go or Male Population Aged 0-5

State / Periods	India	Assam	Kerala	Maharashtra	Orissa	Punjab	Uttar Pradesh
1970/71-75	0.1604	0.1767	0.0753	0.1333	0.1754	0.1197	0.1691
1976-80	0.1485	0.1347	0.0588	0.1098	0.1614	0.1135	0.1948
1981-85	0.1262	0.1302	0.0436	0.0895	0.1514	0.0882	0.1691
1986-90	0.1052	0.1213	0.0294	0.0760	0.1487	0.0699	0.1410
1991-95	0.0933	0.1140	0.0196	0.0665	0.1249	0.0609	0.1113
1996-2000	0.0818	0.0903	0.0170	0.0527	0.1069	0.0551	0.0977
2001-05	0.0765	0.0943	0.019	0.0479	0.1003	0.0524	0.0959

Table 4: Go for Female Population Aged 0-5

State / Periods	India	Assam	Kerala	Maharashtra	Orissa	Punjab	Uttar Pradesh
1970/71-75	0.1765	0.1629	0.0756	0.1327	0.1811	0.1448	0.1972
1976-80	0.1637	0.1358	0.0548	0.1170	0.1738	0.1349	0.2449
1981-85	0.1346	0.1285	0.0364	0.0919	0.1516	0.0947	0.1972
1986-90	0.1129	0.1170	0.0277	0.0748	0.1424	0.0835	0.1603
1991-95	0.0974	0.1112	0.0154	0.0647	0.1296	0.0718	0.1279
1996-2000	0.0886	0.0931	0.0113	0.0550	0.1056	0.067	0.1162
2001-05	0.0893	0.0998	0.0127	0.0533	0.1048	0.0687	0.1102

Table 5: G_{15} for Male Population Aged 15-40

State / Periods	India	Assam	Kerala	Maharashtra	Orissa	Punjab	Uttar Pradesh
1970/71-75	0.0349	0.0387	0.0232	0.0319	0.0463	0.0283	0.0336
1976-80	0.0321	0.0376	0.0197	0.0301	0.0380	0.0267	0.0321
1981-85	0.0300	0.0342	0.0204	0.0356	0.2225	0.0291	0.0336
1986-90	0.0279	0.0311	0.0171	0.0288	0.0330	0.0331	0.0298
1991-95	0.0273	0.0299	0.0164	0.0207	0.0324	0.0364	0.0302
1996-2000	0.0271	0.0316	0.0153	0.0238	0.0354	0.0294	0.0291
2001-05	0.0183	0.0324	0.0153	0.0242	0.0305	0.0266	0.0289

Table 6: G_{15} for Female Population Aged 15-40

State / Periods	India	Assam	Kerala	Maharashtra	Orissa	Punjab	Uttar Pradesh
1970/71-75	0.0502	0.0727	0.0211	0.0372	0.0632	0.0297	0.0504
1976-80	0.0438	0.0548	0.0147	0. 0357	0.0542	0.0247	0.0559
1981-85	0.0381	0.0503	0.0150	0.0293	0.0408	0.0277	0.0504
1986-90	0.0354	0.0455	0.0112	0.0247	0.0463	0.0234	0.0435
1991-95	0.0331	0.0429	0.0104	0.0374	0.0345	0.0198	0.0400
1996-2000	0.0283	0.0443	0.0104	0.0220	0.0391	0.019	0.0364
2001-05	0.0261	0.0391	0.0097	0.0215	0.0340	0.0168	0.0363

Table 7: Correlation Coefficient between Gini Coefficient and Expectation of Life

Place	G_0e_0(m)	G_0e_0(f)	$G_{15}e_{15}$(f)	G_0e_0(m)(for all ages)	G_0e_0(f)(for all ages)
(1)	(2)	(3)	(4)	(5)	(6)
India	-1	-0.99	-0.99	-0.74	-1
Assam	-0.99	-0.99	-0.97	-1	-1
Kerala	-0.98	-1	-0.93	-0.99	-1
Maharashtra	-0.99	-1	-0.26	-0.99	-0.99
Orissa	-0.92	-0.98	-0.98	-0.92	-1
Punjab	-0.99	-0.98	-0.92	-0.99	-1
Uttar Pradesh	-0.92	-0.91	-0.86	-0.92	-0.91

References

Anand, S. (1983): Inequality and Poverty in Malaysia: Measurement and Decomposition, Oxford University Press, New York.

Arriaga, E. (1984): Measuring and explaining the change in life expectancies, Demography 21(1):83-96.

Bhat, M.P. (1987): Mortality in India: levels, trends, and patterns, A dissertation in demography, Ann Arbor, Michigan: UMI.

Bourgeois-Pichat, J. (1951): La mesure de la mortalite infantile. Principes et methodes. Population, 2: 233-248.

Caselli, G., Marsili, M. (2010): Increasing longevity and decreasing gender mortality differentials: new perspectives from a study on Italian cohorts, European Population Conference, Vienna, Austria.

Choudhury, L., Deka, M. and Choudhury, A. (2007): A Study on Prevalence of Chronic Diseases in Guwahati City', Assam Statistical Review, vol-21, No. 2, September, 144-169.

Das Gupta, M. (1987): Selective discrimination against female children in rural Punjab, India, Population and Development Review 13(1), 77-100.

Dreze, Jean and Gazdar, H. (1996): Uttar Pradesh: The Burden of inertia, in Dreze and Sen.

Evans, T. Peters, F. (2001): Ethical dimensions of health equity, In: Evans T et al., eds. Challenging inequities in health: from ethics to action', New York, Oxford University Press.

Gakidou E.E. King, G. (2002): Measuring total health inequality: Adding individual variation to group-level differences, International Journal for Equity in Health, 1(3).

Goldberg, J., Hayes, W., and Huntley, J. (2004): Understanding Health Disparities, Health Policy Institute of Ohio.

Government of India. (2002): Tenth Five Year Plan, 2002-2007 Volume II, Sectoral Policies and Programmes, Planning Commission, New Delhi.

Graham, H. (2004): Socioeconomic Inequalities In Health In The UK: Evidence On Patterns And Determinants, A Short Report For The Disability Rights Commission, Institute for Health Research Lancaster University.

Hanada, K. (1983): A formula of Gini's concentration ratio and its application to life tables, Journal of Japan Statistical Society, 13:95-98.

Ho, Jessica Y. and Samuel H. Preston. (2009): US Mortality in an International Context: Age Variations, PSC Working Paper Series PSC 09-04.

Horiuchi, Sh., Coale, A.J. (1982): A simple equation for estimating the expectation of life at old ages, Population Studies, Vol. 36(2), pp. 317-326.

International Institute for Population Sciences (IIPS). (2007): National Family Health Survey 2005-2006, India. Mumbai, India: International Institute for Population Sciences (IIPS) /ORC Macro International.

Lauridsen, J. and Pradhan, J. (2011): Socio-economic inequality of immunization coverage in India, Health Economics Review, 1:11.

Maternal & Child Mortality and Total Fertility Rates. (2011): Sample Registration System (SRS); (2011) Office of Registrar General, India.

Namboodiri, K., Suchindran, C.M. (1987): Life table techniques and their applications, Academic Press, INC, Harcourt Brace Jovanovich, Publishers.

National Human Development Report. (2001): planningcommission.nic.in/reports/ genrep/ nhdrep/nhdch2.pdf

National Commission on Population. (2001): Report of the Working Group on registration of births, deaths, and marriages, New Delhi: National Commission on Population.

Office of the Registrar General and Census Commissioner. (2001): Census of India, 2001. New Delhi: Office of the Registrar General.

Office of the Registrar General and Census Commissioner. (2011): Provisional census Results, 2011. New Delhi: Office of the Registrar General.

Pal, P., Ghosh, J. (2007): Inequality in India: A survey of recent trends, Economic and Social Affairs DESA Working Paper No. 45: ST/ESA/2007/DWP/45.

Saikia, N., Jasilionis, D., Ram, F., Shkolnikov, V. M. (2011): Trends and geographic differentials in mortality under age 60 in India, Population Studies 65:1, 73-89.

Sermet, C. Cambois, E. Caselli, G., Vallin, J. Wunch, G. (2006): Measuring the state of health: Demography: Analysis and Synthesis. A treatise in population, Academic Press.

SRS based Abridged Life Tables. (1970-75): Vital Statistics Division, Office of the Registrar General, India Ministry of Home Affairs, New Delhi.

SRS based Abridged Life Tables. (1976-80): Vital Statistics Division, Office of the Registrar General, India Ministry of Home Affairs, New Delhi.

SRS based Abridged Life Tables. (1981-85): Vital Statistics Division, Office of the Registrar General, India Ministry of Home Affairs, New Delhi.

SRS based Abridged Life Tables. (1986-90): Vital Statistics Division, Office of the Registrar General, India Ministry of Home Affairs, New Delhi.

SRS based Abridged Life Tables. (1991-95): Registrar General, India New Delhi.

SRS based Abridged Life Tables. (1996-2000 and 1997-2001): Registrar General, India New Delhi.

SRS based Abridged Life Tables. (2001-05): Office of the Registrar General, India New Delhi.

SRS, Bulletin Sample Registration System, Registrar General, India. (2006): Volume 40 No.1

Shkolnikov, V. Valkonen, T., A. and Andreev, E. (2001): Measuring inter group inequalities in length of life, Genus, LVII(3-4):33-62.

The world health report. (2000): Geneva: WHO; 2000.World Bank. (1996): Improving Women's Health in India. Washington, D.C

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