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FERTILITY BEHAVIORS OF TWO CONSECUTIVE GENERATIONS OF MOTHERS IN MOSUL, IRAQ

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ABSTRACT

Background: Fertility behaviour is a term describes human's attitude regarding age at marriage and parity. Many maternal deaths every year could be avoided in developing countries if women choose to have their children within the safest reproductive years. **Aim**: The current study is aiming for detecting trend of fertility behaviours, if present, over two generations of mothers in Mosul, at the north of Iraq. **Subjects and Methods:** A cross-sectional study was carried out in Mosul based on health-institutions from the 1st of April 2011 to the end of January 2012. It followed a multi-stage stratified sampling technique. Inclusion criteria was "currently married mothers in child-bearing age who consulted one of the selected PHCCs accompanied with her mother or mother-in-law". Verbal consents were to be obtained from them. **Results:** The current study has interviewed 918 mothers of two generations. Almost two thirds of the twosomes (59. 0%) were urban and more than half belonged to 3rd social class. The mean maternal age at marriage has significantly raised from 16.7 years to 18 years (P=0.000). Moreover, the range has stepped forward. Proportion of child marriage has fallen from 30.7% to 18.5%. Parity has halved over the two consecutive generations of mothers (P=0.000). None of mothers of current generation was reported as grand-multipara. **Conclusions:** Fertility behaviour in Mosul has significantly improved over the past few years.

KEYWORDS: fertility, parity, age, mothers, Mosul.

INTRODUCTION

Fertility in any society is just the macro-level result of aggregation of myriad micro-level fertility behaviours made by individuals and couples.[1]

Fertility behaviour is a term describes human's attitude regarding the fertility's elements: exposure to union (age at marriage) and parity (achieved number of children).[2] These elements are regarded as "proximate determinants" of fertility in a community through which many factors play a vital roles such as biological, cultural, demographical, familial and social.[3]

Maternal age is on the top of the list of risk variables affecting pregnancy outcomes as well as prevalence of maternal morbidity and mortality. The poorest pregnancy outcome is at both ends of child bearing spectrum of maternal age.(4) Report of UNICEF in 2008 stated that about 5-6 million infant deaths and 200 000 maternal deaths every year in developing countries could be avoided if women choose to have their children within the safest of reproductive years.[5] The American Society for Reproductive Medicine suggests that the decade between 25 and 35 years of age seems to be ideal for women to get married.[6]

The second risk variable is high parity (i.e. having at least five children).[7] Evidently, high parity is associated with health impairments, low living standards, and low levels of education., it even stress the government welfare.[8] The Middle East has one of the highest rates of natural population increase in the world, second only to Sub-Saharan Africa.[9]

The current study is aiming for detecting trend of fertility behaviours, if present, over two generations of mothers in Mosul, at the north of Iraq.

SUBJECTS AND METHOD

A cross-sectional study was approved to be conducted in Mosul, the largest city at the north of Iraq and all the required administrative and ethical agreements were obtained from Nineveh Health Directorate.

The studied sample was derived from health-institutions following a multi-stage stratified technique in order to confirm representativeness. The city was divided by two crossed lines into four geographical areas: north east, north-west, south east and south west. Three social strata were recognized (urban, peri-urban and rural) in each area according to its closeness to city-center. five primary health care centers (PHCCs) were selected conveniently depending on the highest coverage rate representing 70% of all health centers in Mosul.

Inclusion criteria of the current study were "currently married mothers in child-bearing age who consulted one of the selected PHCCs accompanied with her mother or mother-in-law". Thus the studied sample included two groups of mother represented two consecutive generations. Verbal consents were to be obtained from them.

A special designed questionnaire was constructed to inquired both groups of mothers about their actual fertility behaviours including age at marriage and number of living children. The study lasted from the 1st of April 2011 to the end of January 2012.

Statistical analysis was applied to estimate means of maternal age at marriage and parity of both groups, significance of difference between the two means by t-test and correlation between the studied variable. P-value was considered as significant when it was equal or less than 0.05 throughout the analysis.

RESULTS

The current study has interviewed 918 mothers during time of data collection. The studied sample was divided into two groups:

1. Group-1 (G1) is the group of mothers of the current generation. It included 459 mothers.
2. Group-2 (G2) is the group of mother-in-law who represented the previous generation and included 459 mothers also.

Socio-cultural characteristics of the studied twosomes are shown in table (1). Almost two thirds (59.0%) were urban, had get consanguineous marriage (68.2%) and living within an extended family-structure (73.4%). More than half of twosomes derived from 3rd class according to General Occupational Classification in England and Wales of social classes.[10]

Table 1: Socio-Cultural Characteristics of the Studied Twosomes.

Socio demographic characteristics	no.=459	%
Residence		
Urban	271	59.0
Suburban and rural	188	41.0
Urbanization		
Present	53	11.5
Absent	406	88.5
Consanguineous marriage		
Present	313	68.2
Absent	146	31.8
Family structure		
Nuclear	122	26.6
Extended	337	73.4
Social class		
1st and 2nd	176	38.3
3rd	242	52.7
4th and 5th	9	2.0
Unemployed	32	7.0

Table (2) displays the demographic features of the studied mothers by their generation. The mean age of G1-mothers was 25 years younger than mean age of G2-mothers. More than half of mothers (56.1%) were 20-39 years old. Illiteracy has fallen, as shown in the table, from 61.7% among G2 to 25.3% in G1; and proportion of working mothers started to be reported among G1 (5.9%).

Table 2: Demographic Features of the Studied Mothers.

Demographic Features	G1 (N=459)		G2 (N=459)		Total	
	no.	%	no.	%	no.	%
Age group (years)						
< 20	63	13.7	--	--	63	6.9
20-29	197	42.9	--	--	197	21.5
30-39	158	34.4	13	2.8	171	18.6
40-49	41	8.9	106	23.1	147	16.0
50-59	--	--	249	54.2	249	27.1
60-69	--	--	57	12.4	57	6.2
≥ 70	--	--	34	7.4	34	3.7
Range	15-47		34-97		0.000*	
Mean	28.6		53.8			
Formal education (years of schooling)						
Illiterate	116	25.3	283	61.7	399	43.5
6-12	318	69.3	165	35.9	483	52.6
≥ 12	25	5.4	11	2.4	36	3.9
Occupation						
Housewives	432	94.1	459	100	891	97.1
Working	27	5.9	--	--	27	2.9

T-test of two means

Fertility behaviours of the studied mothers are displayed in table (3). The mean maternal age at marriage has significantly raised from 16.7 years to 18 years (P=0.000). Moreover, the range has stepped forward. Percent of teenage marriage was convergent between the two generations of mothers (69.5% in G1 and 75.4% in G2). However, proportion of child marriage (marriage before completing the fifteenth birthday)[11] has fallen from 30.7% in G2 to become 18.5% in G1.

Same table shows that mean parity has halved over the two studied generations of mothers (P=0.000). Prevalence of high parity (having 5-9 living children)[12] has fallen from 66.7% among G2 to 26.8% among G1. None of G1 was reported as grand-multipara i.e. having at least ten living children.

Table 3: Fertility Behaviours of the Studied Sample.

Fertility behaviours	G1 (N=459)		G2 (N=459)		P-value*
	no.	%	no.	%	
Maternal age at marriage (years)					
< 15	85	18.5	141	30.7	0.000
15-19	234	51.0	205	44.7	
20-24	88	19.2	87	19.0	
25-29	41	8.9	22	4.8	
30-34	8	1.7	4	0.8	
35-39	3	0.7	--	---	
Range	12-37		11-30		
Mean	18.0		16.7		
Parity					
≤ 4	336	73.2	61	13.3	0.000
5-9	123	26.8	306	66.7	
≥ 10	--	--	92	20.0	
Range	2-10		2-15		
Mean	4		8		

* T-test of two means

Figure (1) and (2) show the correlation between fertility behaviours of both groups. It indicates that age at marriage of the current generation is independent (p=0.5). While, there is a significant positive correlation between parity of G1 and G2 (r=0.7, p=0.000).

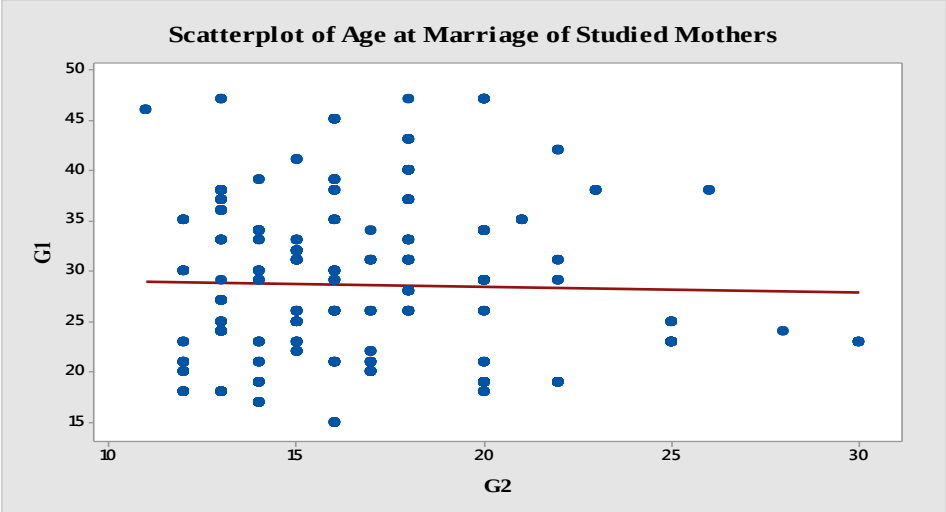

Figure (1): Correlation of Maternal Age At Marriage between two Generations of Mothers.

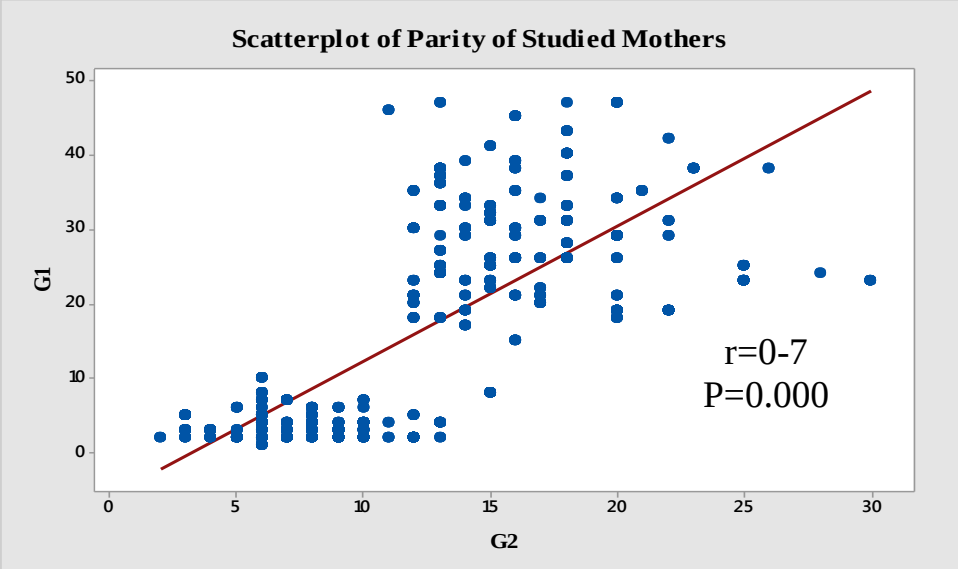

Figure (2): Correlation of Parity between two Generations of Mothers.

DISCUSSION

Researches in fertility behaviours have received considerable attention in recent years because of its relationship with the complex family building processes.[13] The unit of analysis in alike study is mothers rather than births. While a birth-based analysis is useful in assessing infant and child health and survival, a woman-based analysis is most relevant to policies and programs targeting women, such as birth spacing and reproductive health programs.[14]

The cross-section study design that was adopted by the current study is relatively quick and easy to perform and less expensive.[15,16] Nevertheless, it can't be free of recall biases which may alter the conclusions.[17] However, the adopted questionnaire of the present study was constructed in a design to minimize such bias.

Maternal age at marriage

Although Iraq had legislated eighteen years as the minimum age for females' marriage,[18] early marriage, as found in the present study, remains the norm as many young girls are expected to marry in the second decade of their lives with formal registration, and under civil, religious or customary laws. Seven among ten mothers had got married before completing their twentieth birthday. The good-looking matter is that the mean females' age at marriage has raised from 16.7 years to 18 years over the past few years (p=0.000) and the phenomena of child marriage (marriage before completing 15 years old) was reported among just two of out of 10 among mothers of the new generation instead of four out of ten among mothers of previous generation.

Across-sectional study by Al-Kandaly[19] in 1989 of primigravida ladies who attended the two Maternity Hospitals in Mosul for delivery, had found that the mean females' age at marriage was 19.4 years and ranged between 12-36 years and mean maternal age at first

pregnancy was 27.4 years and ranged between 14-45 years age. She added that 14.3% of her sample were not completing twenty years old and tenth of such mothers (10.7%) had got married before completing 15 years.

The difference between results of Al-Kandaly and the present studies may be attributed to the War and the resulting unstable social state and insecurity that Iraq witnessed during the preceding decades. Social and Economic Development Group in World Bank, MENA in 2011[20] reported that approximately 40% of Palestinian women had their first birth at the age of 18 or less, 66.4% had their first birth before they turned 20 and only 7% of ever-married women had their first birth at the age of 25 and above. The main reason for early marriage in Palestine as stated by World Bank,[21] in 2009 is the war since families wish to increase the generations to free their country and help them face life hardship in the region as well as to assure girls' security.

Population Reference Bureau, 2011,[22] stated that trend of early marriage and early motherhood is decreasing in many Arab countries throughout the last decades and the average age at marriage for both men and women is generally rising. Such trend is part of a general global phenomenon introducing new issues into the Arab societies that would confront deeply rooted cultural values and raise legal and policy challenges. Moreover, it revealed that according to the Demographic and Health Surveys (DHS) in Arab regions during the previous years, the most notable decline of maternal age at marriage in the region was witnessed in Kuwait, Libya, and the United Arab Emirates. In the early 1970s, around 40% of women aged 15 to 19 were married in Kuwait and Libya, but these figures dropped by the mid-1990s to 5% and 1%, respectively. The pace of decline has been even faster in the United Arab Emirates, where the percentage of women's ages 15 to 19 who were married dropped from 57% in 1975 to 8% by 1995. In Tunisia, Algeria, and Lebanon, only 1% to 4% of women aged 15 to 19 are married. In addition, the highest rates of teenage pregnancy in the region are found among Mauritanian, Yemeni and Palestinians mothers, where one in every 10 women aged 15 to 19 gives birth every year.

In Jordan, the legal age of females' marriage is 18 years. But, it may be lowered to 15 years if early marriage is deemed to be in the best interest of the young bride and groom. Data of Jordanian DHS-2007 showed that 5.7% of girls aged 15 to 19 were married, divorced or widowed at the time of data collection.[22] In Yemen, the legal age of females' marriage is 13. But United Nation in 2010[23] cleared that one-third of women aged 20 to 24 had got married by the age of eighteen. In Egypt, where the legal age for females' marriage is 16 years, DHS-2005[24] showed reported that the mean age at first marriage among ever married women (15-49) reached 19.5 years.

Clearly there is a disparity of teenage marriage prevalence between the findings of the present study and what had been reported in the MENA region. It may be explained by the dissimilarity of research techniques. Data of UN is usually derived from official archives and international statistics. Meanwhile, many families arrange for their daughters to marry in religious wedding ceremonies, postponing the official registration until the bride reaches the legal age.[22] Therefore, the current study adopted direct interviews, a design that helped to disclose such mystery.

Parity

Parity has been reported by counting number of living children. In general, it can be said that the mean parity has been halved over the past few years (P=0.000). Moreover, none of the current generation has been recorded as "grand-multipara" i.e. having at least ten living children.

The mean number of living children that estimated in the present study was almost one child more than that stated by Al-Kandaly in 1989[19] when she found that the mean parity was 3 children per mother and 27.4% of her studied sample recorded parity of five children or more as same as the result of the current study. Later on, in 1992, another cross-sectional study was conducted by Alnemo[25] in Mosul had found that 49.1% of mothers attending one of the PHCCs in the west bank of Mosul city had $\geq$ 5 living children. An approximate result was also recorded a decade ago by Al-Fadhel.[26] on 2003 when he achieved a cross- sectional study of mothers who consulted a family planning centers in Mosul. Al-Fadhel.[26] had found that the mean parity of the studied mothers was 4 living children per mother and 47.3% of mothers had at least five living children. The disparity with the present study is unreliable because of the different sample derivation.

The estimated parity coincides with that in Arab Region during the period 2005-2010 since United Nations in 2010.[27] reported that the total fertility as 3.6 children per woman. The same report also cleared that more than 50% fertility decline has been witnessed by Iraq as well as Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Qatar, Saudi Arabia, Syria, Tunisia and the United Arab Emirates during the period 1970-1975 to 2005-2010. The sharpest fertility decline in the Arab Region and perhaps the world was experienced by Algeria, where fertility fell from 7.4 to 2.4 children per woman during the same period. However, fertility remains above 4 children per woman in the Occupied Palestinian Territory, Yemen, Oman, and Somalia. The later has the highest total fertility in the Region (6.4 children per woman).

Parity, as estimated by the current study, seemed to be still lagging beyond replacement level which is the level of fertility at which women in the same cohort have exactly enough daughters (on average) to replace themselves in the population. Once replacement-level

fertility has been reached, birth will gradually reach equilibrium with death; and in absence of immigration and emigration, a population ultimately will stop growing and become stationary.[28] Replacement level was recorded in Iran where total fertility rate fell sharply from 7.0 children per woman during the period of Iraq-Iran's War to 2.17 in 2000.[29] Similarly, Turkey has experienced a remarkable fertility decline since the substantial social and economic changes in the mid-twentieth century. The 2003-Turkey DHS.[30] detected a fertility decline from 7 children per woman to almost replacement level by 2003 and even less in three out of the five included regions, namely the West, the Central and the North Anatolia regions.

The current study concluded that fertility behaviour in Mosul has significantly improved over the past few years. Parity is halved and the maternal age at marriage has been stepped forward.

All efforts is recommended to be continued in order to achieve the standard fertility level and construct healthy fertility behaviours that are consistent with religious and social contexts. Health education process should embrace on the risks of teenage marriage and having high parity.

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