Examining the Most Important Factors Affecting the Egyptian Family's Choice of the Ideal Number of Children in the Light of the 2015 Demographic and Health Survey

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***Purpose** – This study aimed to identify the most important factors affecting the desire of Egyptian families to have ≤ 2 Child as a targeted situation in line with the national and global trends for replacement rates of 2.1 children for each family, and thus can provide various information and results supporting the decision-makers and planners at the demographic and development level in Egypt. Taking in the account that this paper also supports shaping the future populations strategies in preparation for supporting sustainable development opportunities to improve the demographic situation about the concept of ideal number of children in Egypt, as well as providing the suitable recommendations and proposals as points and areas for improvement of the current situation affecting access to achieving the Egyptian desires about targeting two children or less for each family. This study has pursued to support the officials and planners in various areas of comprehensive development, especially in light of what Egypt is facing from the aggravation of the population issue in relevance to the high population growth, as the number of Egypt's population rose from 72.8 million according to the 2006 census, then to 94.8 million in the 2017 census, and to 101.5 million population on 1 January 2021, an increase of 7.1 million people over the last census data, (51.5% males, 48.5% females), and the gender ratio was 106.1 males for every 100 females. So, this represented a direct threat to economic development that Egypt recently started to achieve a qualitative leap in the economy. The average ideal number of children amounted for 3.4 children per woman and slightly differ by family's residence, whereas it was generally higher for Upper Egypt governorates, as well as the urban governorates have somewhat gap to have one child compared to the desire of having two children that it was noticeable in Alexandria governorate in which there was 1.7 wanted births per woman compared to 2.7 mean ideal numbers of children. Thence, the study will aim to present which factors affecting the Egyptian family's choice the ideal number of children (two children per women according to the national objective of Egypt) to become Future-Proof towards supporting the SDGs in Egypt. **Design/methodology/ approach** – The study was adopted a descriptive and analytical approaches which focused on the data collected by the Egyptian Demographic Health Survey (EDHS) survey in 2015. This sample used by the current study is considered an indirect source that is nationally representing the Egyptian households in which were selected using a multistage sampling technique in terms of this survey consisted of 16671 family in which were interviewed randomly. To achieve the planned objectives of this study, the sample of the 2015 EDHS survey of the Egyptian families was divided into two main groups*

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according to the dependent variable (the desire of the family for the ideal number of children) where the first group represents the desire of Egyptian families to have only two children or less, while the second group represents the desire of Egyptian families to have more than two children. Up-on this direction, the first group represents the national strategic objective of Egypt population development. The variables were selected upon supporting the study's purpose and the Chi-square-test (χ2), t-test for independent samples and logistic regression analysis were used. The p-value (Sig.) of the statistical tests applied by this study was considered significant when p ≤0.05. Additionally, the data selected was analyzed using SPSS ver. (26) software. **Findings** *– The results has revealed a set of critical factors which were included in proposed statistical model representing both of making decisions for using money or health care within the family, marital status, ideal marriage age for a girl, and the no. of male children, it has shown that the these factors combined affecting significantly the Egyptian families choices about the ideal number of children in terms of are considered the most important factors determining the chances of the family towards having ≤ 2 Child. It recommended to continue to employ the alternative means and solutions within the awareness programs to control these factors, and this in turn to motivate Egyptian families to control population growth rate at two child per family at the level accepted internationally.* **Originality/value** *– This study confirms that the importance of continuing to further spread public awareness among all members of Egyptian families, in order to reach the ideal target number of two children or less as a strategic goal for the components of the national population policy in Egypt, in addition to implementing strategic initiatives, programs and projects that promote the achievement of Egypt's forward-looking vision in becoming Future-Proof by 2030,and alongside with the progress towards the human and sustainable development goals in Egypt by 2030 for the chances of next Egyptians generations.*

Keywords: *Ideal Number of Children, Egyptian Family, Arab Region (MENA)*

Background

In late, the Family choices about childbearing is fully functional organism and it doesn't just represent an abstract idea without any impact on the quality of life within the community as a result of increasing of trends of fertility rates, so the reproductive behaviors and intentions are important elements to study, especially the dynamics of population vary from country to country depending on a number of internal and external factors, such as legislation, religion, culture, traditions, society and so on (Antic et al. 2013). Thus, this direction should be considered well by policymakers of each country to understand how these factors being exploited for supporting the development opportunities within the country in the right way. For the Arab countries of the Middle East and North Africa (MENA), recently the fertility rates are back on the rise in some Arab countries for 2005-2015 in which there was a slight increase of the fertility rate in both of Tunisia and Morocco while was a continuous increase of the fertility rate in both of Algeria and Egypt. Also, the fertility rates were stable in both Libya, Lebanon, and Oman,

whereas it had decreased in the rest of Arab countries like, Bahrain, Jordan, Kuwait, Qatar, Saudi Arabia, Syrian, United Arab Emirates, and Yemen (United Nations 2019).

According to UN data, Egypt's recent spike in fertility is an unexpected and concerning aberration in the Arab world's most populous country, whose population has doubled since the early 1980s and reached 106,966,158 inhabitants while total population of the world was 7,982,279,739 inhabitants in 2020. As well as, it has indicated that Egypt's share of world population amounted for 1.34%, and thus its global rank is 14th as well as the fertility rate of Egypt was 3.33 compared to 2.47 at the international level (United Nations 2022). In recent years, the atypical fertility has been increased particularly striking in Egypt and the demographic situation of Egypt is still characterized by relatively early marriage, with the preference of couples having their first child soon after marriage directly, and they usually don't like the family composition that has one-child (Samari 2017). As a result, the continuous increase in the Total Fertility Rate (TFR) has negative impact on devouring the chances of economic progress in Egypt and undermining the comprehensive development desired, which leads to greater stressing on Egyptian families continuously in light of the Egypt's already limited resources (Abdel-Tawab et al. 2020).

Indeed, a high rate of growth of Egypt's population is considered one of big obstacles and challenges facing the Egyptian officials and the decisions of policymakers to ensure achieving the sustainable development objectives and goals in the right direction at the long term. The TFR rose extraordinarily during the six-year period 2008-2014, from its lowest level of 3.0 child per woman to 3.5 child per woman according to the statistics of Ministry of Health and Population in Egypt (El-Zanaty et al. 2015). Moreover, the Ministry of National Planning in Egypt declared that the national goal of achieving a TFR of 2.1 by 2017 has not been achieved in terms of access to a target rate of replacement by two children to each family. Further, the ideal number of children is still much higher than the fertility goal at 3.4 children among men while 3.1 children among women (UNDP 2015). Consequently, this goal still doesn't achieve yet where the TFR increased to 3.5 in Egypt's Demographic and Health Survey (EDHS) 2014, compared with 3.0 in the 2008 EDHS, thus reversing a 25-year trend of declining fertility. It has been noted by the recent studies that fertility levels are affected by individuals' choices as a crucial priority and along with social norms, beliefs, and culture (Gehad et al. 2022).

Reducing the fertility rate to 2.4 per family by 2030 is considered a one of the most quantitative objectives stipulated in the new "Egypt National Population Strategy 2015-2030". This new strategy that put in-place to achieve this strategic objective must rise contraceptive prevalence rate (CPR) to 72% in 2030 from 58.5% in 2014, and the proportion of unmet need must decrease from 13% to 6% (National Population Council 2015). However, the targets of achieving these objectives have become elusive, especially the challenges facing currently Egyptian society and families arising from bearing more social and economic pressures in the wake of the 2011 revolution, besides the high cost of living standards due to the instability of global economic systems in light of there is poor

stability in political and security aspects at the global level, which puts continuous pressure on increasing the burden of living on Egyptian families in general.

One of the studies indicated that Egypt witnessed the birth of about 2.6 million births annually for the 2012-2016 according to national statistics (CAPMAS 2018). The trends of fertility rates showed contrasting fluctuations in which the TFR had decreased from 6.6 child per woman in 1990 to 3.0 child per woman in 2008 and then it raised to about 3.5 child per woman in 2014 (Ambrosetti et al. 2019). Besides, the fertility rates in the urban Governorates were lower than the rural Governorates in which the TFR in rural areas in Egypt amounted for 4.1 child per woman in 2014 compared to 3.6 in child per woman 2008 (UNICEF 2015). The mean ideal number of children in Egypt among households in rural governorates was higher that the urban ones, this variable's value among the people whose no education was higher than people educated, and its value among the households in the first wealth quintile layer representing the poorest was the highest compared to the households in other layers of wealth quintile (UNICEF 2017). The average ideal number of children amounted for 3.4 children per woman and slightly differ by family's residence, whereas it was generally higher for Upper Egypt governorates, as well as the urban governorates have somewhat gap to have one child compared to the desire of having two children that it was noticeable in Alexandria governorate in which there was 1.7 wanted births per woman compared to 2.7 mean ideal numbers of children (Egypt National Report 2018). Thence, the study will cover the answer to the following question: Which factors affecting the Egyptian family's choice the ideal number of children (two children per women according to the national objective of Egypt) to become Future-Proof towards supporting the SDGs in Egypt.

The Problem of Study

Despite the state's efforts to reduce fertility rates, it has not yet reached the hoped-for or desired rates to support sustainable development opportunities in Egypt optimally compared to the international levels for each family, which Fertility rate has amounted for 2.47 child to each woman in 2020 and will be expected to still at the same rate to reach at 2.62 child to each woman by 2025 (https://www. worldometers.info /world-population). Undoubtedly, the fertility rates are still relatively high within the Egyptian family, and if the trend of these rates is to increase or continues at their current levels, it will devour all development efforts exerted by the state that it is currently undertaking in all fields whether socially, economically and environmentally, as well as this issue may undermine the chances of achieving a decent living and how to access the enjoyment levels of living becoming better in the future for the Egyptian households In light of the governments facing future challenges to support the elements of food and water shortages, combat poverty, climate change, and global peace and stability, and this should be in comparison with the developed countries which in better conditions towards the readiness for the future. Indeed, the coming period is considered one of the crucial periods in the history of demographic

change in Egypt. Rather, it can be said that the coming period represents a challenge for governmental and non-governmental efforts towards their quest to reach the stage of population replacement at the Republic level by an average of 2.1 children/woman. Hence, there was the need to adopt the concept of ideal number of children that support the target level of replacement at (2 child/family) as maximum limit and to encourage these families to adopt this target rate of fertility in favor of refine the levels of human sustainable development for them and for their children as possible. This direction could preserve the happiness and stability of the Egyptian family at desired level and along with providing good chances to ensure a better life for current or future generations towards accelerating support for the SDGs by 2030.

Therefore, this study will seriously seek to identify the most important factors affecting the desire of Egyptian families to have two children or less as a targeted situation by the current study in line with the national and global trends for replacement rates of 2.1 children for each family, and thus can provide various information and results supporting the decision-makers and planners at the demographic and development level in Egypt. Taking in the account that this paper also supports shaping the future populations strategies in preparation for supporting sustainable development opportunities to improve the demographic situation about the concept of ideal number of children in Egypt, as well as providing the suitable recommendations and proposals as points and areas for improvement of the current situation affecting access to achieving the Egyptian desires about targeting two children or less for each family.

Justification

The importance of this study, as follows:

- Lacking studies that have focused on examining the relationship between the Egyptian families' desires of the ideal number of children and the factors can predict significantly with the value of this variable in which it will be two children or less using updated data about this direction of fertility that in line with the national goal of demography policy within Egypt. Especially, the causes of increasing the fertility context within Egypt are still unclear, so there is a need to further studies to test which factors significantly affecting the persistence of a high ideal number of children among Egyptian families, in particular the younger couples' cohorts. Egypt is already considered the biggest populations within MENA area with over around 106 million inhabitants in 2022 and it is expected to increase to access about 120 million by 2030 if the TFR rates continue at the same level of births per women (United Nations 2017).
- It has been confirmed that Egypt is currently witnessing a downhill in long-acting reversible contraception methods (LARCs) and alongside a high rate of unintended pregnancy among families, one of the Socio-cultural barriers causes this issue that there was reluctance to discuss

sexual behaviors and habits with medical staff freely, specific family composition of two or one girl and the desire about the ideal number of children that will be suitable to satisfy the desire of each party of two couples (Gad et al. 2021). Further, it has been referred that there is relationship between fertility behavior and understanding the desire of ideal family-size could be post-hoc rationalization of actual fertility soon (Bongaarts 2013).

- Accordingly, all the efforts to control higher population growth become useless when the household desire larger number of children (Khan and Khadija 2014). As the results have shown that studying the factors affecting the women within the family like woman's education, woman's empowerment through household decision-making, resistance to violence against woman and inter-spousal age difference can reduce the number of desired children (Khan and Khadija 2014). Therefore, this approach will be adopted for highlighting the most important factors affecting the Egyptian family's choice for the ideal number of children.

The Objectives of Study

This paper will address the following objectives:

- To examine the significance of correlation's relation between some variables and the ideal number of children desired by the Egyptian families whether (≤ 2 Children or > 2 Children).
- To determine the significance of the relative differences in the Egyptian family's perception about having the ideal number of children whether (the 1st group: two children and less vs the 2nd group: more than two children) according to the potential impact of a set of qualitative variables that are relevance to the characteristics of the head of household.
- To access the most important factors under the focus of the current study that can predict with the ideal number of children in Egypt according to the EDHS 2015.
- To provide recommendations for more targeted and sustainable interventions to address drivers of adopting the ideal number of children in Egypt optimally.

Literature Review

The problem of increasing fertility levels and the burden of childbearing on the family prompted researchers to address this problem from multiple aspects. This study was preceded by many studies related to the pattern and levels of fertility and its trends and the factors affecting fertility that hinder it to reach the target level. There was a study which focused on examining the effect of some intermediate variables on fertility rate in Egypt using the Bongartz model, which has showed that reducing fertility will be affected by increasing the use of family

planning and the extension of breastfeeding period of women within the Egyptian families (Abdel-Fattah 1983). One study showed that the desire to continue to have children decreases among Egyptian families that have number of males that exceed the number of females (Othman 1990). The programs of family planning and sustainable development in Egypt showed that the rate of family planning methods use in rural areas is two-thirds of the percentage of use in urban areas, and this percentage of use may be affected by the ideal number of children needed (Khalefa 1994).

The results of the National Family Health (NFHS-3) Survey in the state of Meghalaya which is located in Northeastern part of India concluded a significant correlation between the ideal number of children and both of residence, religion, highest educational level, work status, standard of living index and the respondents' age (Khongji 2013). It has pointed to the woman's desire to have more children had significant impact to increase the TFR of Egypt during the period between EDHS2008 and EDHS2014, and it expects to increase among vulnerable groups, and thus to rise TFR as a reason for contraceptive discontinuation (Khalifa et al. 2020). Another cross-sectional study aimed to determine the factors affecting the reproductive desires of the modern Bulgarian families which covered 243 couples were interviewed. Also, this study showed that three two-child model remains the most accepted concept of family and the Bulgarian families have intention and less motivation for children in the future (Hristova et al. 2018).

The factors of effective participation of Egyptian married women in family decisions on reproductive affairs, the region and place of residence are considered highly correlated with adopting the number desired of children for the men and women alike. This result leads to study the social context of couples to understand their desire about the fertility affairs (Ambrosetti et al. 2021). In addition, a comprehensive assessment of childbearing motivations has concluded a great need exists to involve couples who have not yet attained their desired family size in fertility regulation interventions to reduce fertility in the governorate of Beni-Suef (Gehad et al. 2022). The percentage of Egyptian unmarried women 15–34 who desired three children and more has increased from 47% in 2008 to 53% in 2014. This study also showed for Egyptian unmarried youth aged 15–29 that there was an increase in the desire to having more children in terms of this increase among young women was higher than young men, young women who were in the highest wealth level, those who live in Urban Governorates, and those with secondary education (Abdel-Tawab et al. 2020).

There was a bias to the approach involved relying only on a woman's preferences without considering men's preferences about knowing the ideal number of children that she would like to have over her lifetime if she could go back to the time when she did not have children, especially the empirical evidence on the measurement of this variable has shown that a considerable percentage of survey women respondents are either unsure about their desire for the ideal number of children or don't prefer a numeric response to this question without their partner (Karra 2021). Another study has disclosed the negative significance of correlation coefficient between the age of youth Empowerment and ideal number of children in all 10 study countries which covered both Ethiopia, Haiti,

Malawi, Mali, Nepal, Nigeria, Philippines, Senegal, Uganda, and Zambia (Kerry 2021). A Study has also noted that the desire of fertility is main focus for determining the family formation process in all countries over the world, and it is considered a significant factor for the expectation of the change of any population at the long term in increasing fertility rates , particularly the population experts are concerning about the countries that have desire to continue toward increasing two child per household due the passive potential impacts on the sustainable development levels (Yaya et al. 2018).

Syria was one of rare countries prefer large families in which the ideal number of children was 4.6 children per family which may affect the future of the demographic changes and perspectives at the Southern Mediterranean Region (Courbage 2007). But this concern may back to the civil wars that arose in Syria after 2011, and the Syrian families have still the desire to the ideal number over two children (UNICEF 2015). Cultural barriers of the ideal number of children are considered one of reasons impede accessing or not-using the family planning services optimally due to the bad belief that its impact limiting the intention to have children in the future (Eltomy et al. 2013). The family's preference of about three children is accepted by the authorities in Egypt and this will not encourage the composition of smaller families at the short and mid-term future according to the expectations. Alongside, the ideal number of children may differ according to varies factors like the age of respondent, region, residence, or education in which it is always within ±15% of that three-children value (Al Zalak et al. 2017).

The ideal number of children among never-married women and men focused in the aged 18-29 in Egypt based on the 2004 EDHS in which the results indicated 39% of women and 47% of men interested in having three or more children as ideal number (Casterline and Roushdy 2006). There is a need to examine which factors affecting on both of ideal number of children, the mean of ideal family size, and fertility intentions to ensure the alignment with the national population policies, as planned to reduce the fertility without restrictions (Basten and Baochang 2008). Also, one study concluded that the ideal number of children can predict based on some variables such as the age, education, residence, and wealth index of a woman aged (15-49) in Mizoram state in the Northeast part of India. It also inferred that the women in urban area need children less than the women in rural area, especially the rich women desire having more than two children (Lalvenmawii and Khongji 2019).

Most of these studies focused on the policies imposed or deliberated to reduce fertility and sought to highlight the importance to examine the variables affecting reducing fertility rates, but there are no sufficient studies has focused on the fertility in terms of examining the variations affecting the desire of families themselves to have the ideal number of children according to a set of factors proposed are related directly to this choice. In addition, some studies aimed to examine this issue since a long-term past period not considered the change of the family's desire over the time and conditions surrounding, besides, there was a lack of interest to examining the causal relationship between some potential factors and the ideal number of children for two children or less, as a part of sharing this study in the support of the state's directions to reduce fertility levels to the target level.

Accordingly, this study will try to identify the impact of the most important factors affecting families' choice towards adopting the ideal number of children, as dependent variable which will divided into two main groups, the first group of the families have two children or less while the second group of the families have more than two children. This classification has been a great interest by this study at the first place to shed the light on this aspect in front of the officials and planners in the demographic field over the world.

Methodology

The study was adopted a descriptive and analytical approaches which focused on the data collected by the Egyptian Demographic Health Survey (EDHS) survey in 2015. This sample used by the current study is considered an indirect source that is nationally representing the Egyptian households in which were selected using a multistage sampling technique in terms of this survey consisted of 16671 family in which were interviewed randomly. The sample design of this survey aimed to gather data about various population and health indicators of interest in the Egypt country as a whole and in line with concentrating to have some background characteristics of the responding women in the age group 15-49 years (El-Zanaty et al. 2015). To achieve the planned objectives of this study, the sample of the 2015 EDHS survey of the Egyptian families was divided into two main groups according to the dependent variable (the desire of the family for the ideal number of children) where the first group represents the desire of Egyptian families to have only two children or less, while the second group represents the desire of Egyptian families to have more than two children. Up-on this direction, the first group represents the national strategic objective of Egypt population development.

In general, the current study takes into the account the focus on the first group to support the strategic directions of the new national strategy regarding access to the ideal number of children is 2.4 per women by 2030 in line with the population policies and development levels, as planned, especially, this direction adopted for becoming better Future-Proof towards enabling sustainability the fertility rate growth in Egypt optimally. Therefore, this study sought to examine a group of various variables be available in the 2015 EDHs survey based on the possibility of examining its impact on this dependent variable using some statistical techniques that are compatible with achieving the objectives of this study in an appropriate manner. Egypt is classified geographically into 26 governorates. The data collected and issued formally by EDHS were revised for ensuring the consistency and completeness of the target variables by the current study to include in the statistical methods and analysis that should be appropriate to achieve the objectives of this study. These variables or items selected for the study's purpose were then transferred to Statistical Package of Social Science Software program, version 26 for statistical analysis. Qualitative variables are described using both frequency and percentages while the quantitative variables are described using both the average and standard deviation ($\dot{X}$ and STD). As well as Chi-square-test

(χ2), t-test for independent samples and logistic regression analysis were used. The p-value (Sig.) of the statistical tests applied by this study was considered significant when p $\leq$ 0.05. Additionally, the data selected was analyzed using SPSS ver. (26) software.

Results & Discussion

The Characteristics of the Egyptian Families Sample

The results of the current study as in Table 1 in accordance with the 2015 EDHS survey of Egypt that has revealed the sample background characteristics of the Egyptian families in which representing 51% of these households live in rural areas, while 49% live in urban areas, and 67% Households are still in a marriage relationship that still exist at the time of survey, while 33% of them were separation in the relationship or not married. Also, the low or medium-level education of the head of households represents 69% of the total, while 31% of them are of the high-level education, 10% of the respondents among the head of households locates in the age group 15-17, while 90% of them locates in the age group 18-59. The Egyptian families desire the ideal number of two children or less represents 59%, while the families whose desire a greater number of two children represents 41%. Moreover, there was 54% of Egyptian families did not use contraceptives, while 46% of them use contraceptive methods, and that only 24% of respondents prefer to Internet communications, while 76% did not use social interworking communications, and 12% of these families used media such as daily newspapers, radio and television, while 88% are not interested in using media on a regular basis. As for family decisions related to the use of money to meet the needs of the household, they are concentrated in women side by 85% compared to its concentration by 15% in men side, and it may be almost similarly with regard to making decisions about the access to health care that was concentrated among women side by 84%, compared to its concentration by about 16% among men side, Whilst the percentage of violence against women within the study sample was 30%, while 70% of the respondents showed that there is no violence directed towards the women within the family. Thus, this section has shed the light as a snapshot on the main characteristics of the sample of respondents which the current study relied on it to represent the Egyptian families' desire about the ideal number of children in achieving its objectives.

Table 1. *The Background Characteristics of the Respondents of the Egyptian Families, EDHS 2015*

Respondents Background		#	%
Gender	Female	9209	55.2
	Male	7462	44.8
Residence	Rural	8475	50.8
	Urban	8196	49.2
Marital Status	Terminated	5514	33.1
	Continuous	11157	66.9
Education Level	Low or Medium Level	11572	69.4
	High Level	5099	30.6
Religion	Muslim	15816	94.9
	Non-Muslim	855	5.1
Age Category	Age 15-17 years	1673	10.0
	Age 18-59 years	14998	90.0
Ever attended school	Yes	14203	85.2
	No	2468	14.8
Work Status	Yes	7569	45%
	No	9102	55%
Smoking Status	Yes	614	3.7
	No	16057	96.3
Caesarean Status	Yes	13565	81.4
	No	3106	18.6
Circumcision status	Yes	7433	44.6
	No	9238	55.4
Using Contraceptive method	Yes	7687	46.1
	No	8984	53.9
Partner preference for more children	Woman	1423	8.5
	Man	15248	91.5
Deciding how the use of money	Woman	14181	85.1
	Man	2490	14.9
Makes decisions about health care	Woman	13953	83.7
	Man	2718	16.3
Using Media (Journal, Radio, and TV)	Yes	2059	12.4
	No	14612	87.6
Using Social Networks "Internet communication"	Yes	4014	24.1
	No	12657	75.9
Violence Status against women	Yes	5002	30.0
	No	11669	70.0
Ever had a tattoo	Yes	888	5.3
	No	15783	94.7
Ever have your ears pierced	Yes	9044	54.2
	No	7627	45.8
Going Salon/Beauty center	Yes	11722	70.3
	No	4949	29.7
Ideal Child No. of the Family	≤ 2 Child	9778	58.7
	> 2 Child	6893	41.3

Source: Egypt, DHS Report in 2015.

Figure 1 showed the relative distribution of households according to the Egyptian governorates, ad Cairo governorate represents the highest percentage of total sample which amounted approximately for 7%, and then was followed by both of Giza and Qena governorates with the same percentage that amounted for

5%, while both of the Red Sea, New Valley and Matrouh governorates have the lowest rate of households' concentration by 1.2 %, 2%, and 2.4%, respectively, This may be due to the nature of those border governorates and their distance from the capital to a large extent compared to the rest of the other governorates, and this may reflect a quick overview of the proportion allocation to the shape of the distribution of population at the level of Egyptian governorates in accordance with the speed pace of development programs accompanying the central governorates compared to the border governorates, and this may push these families to concentrate within the regions or governorates that be close to the capital. In addition, the results of Figure 2 shown the relative distribution of the concentration of households at the level of the governorates of the Republic, and has also showed that Cairo governorate has the highest percentage of households whose have a desire to have an ideal number of children consisting of ($\leq$ 2 Child), as their percentage amounted for 7.2% of the total sample of the target survey by the current study, and this is compared to the rest of the governorates that was followed by the governorates of Qalyubia, Qena and Beheira, where the concentration of families has the same percentage, approximately 5% of the total sample size. While the results of Table 3 showed that the governorates of the Red Sea, New Valley and Matrouh have the lowest rates of concentration for the families consisting of two children or less of the total survey sample, which amounted for 2.1%, 2.3%, and 2.3% respectively. In short, the findings in Table 2 summarized some additional quantitative features of the survey sample in which pointed out to the average of respondents' age of the head of households was 33 old years, the average number of children was 3 per family, the average of ideal age of women to marry was 21years compared to the average of ideal age to marry among men which was 26 years, and finally the average spacing period between births was amounted for 4 years by the Egyptian families.

Figure 1. *The Relative Distribution of Respondents of the Egyptian Families, the EDHS 2015*
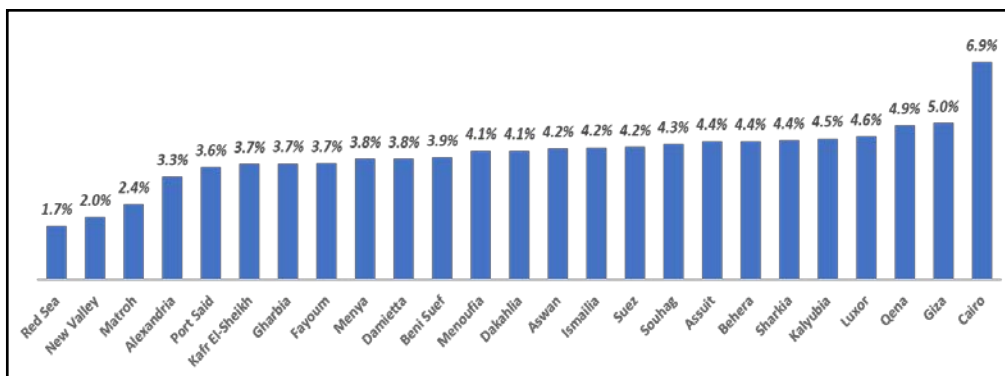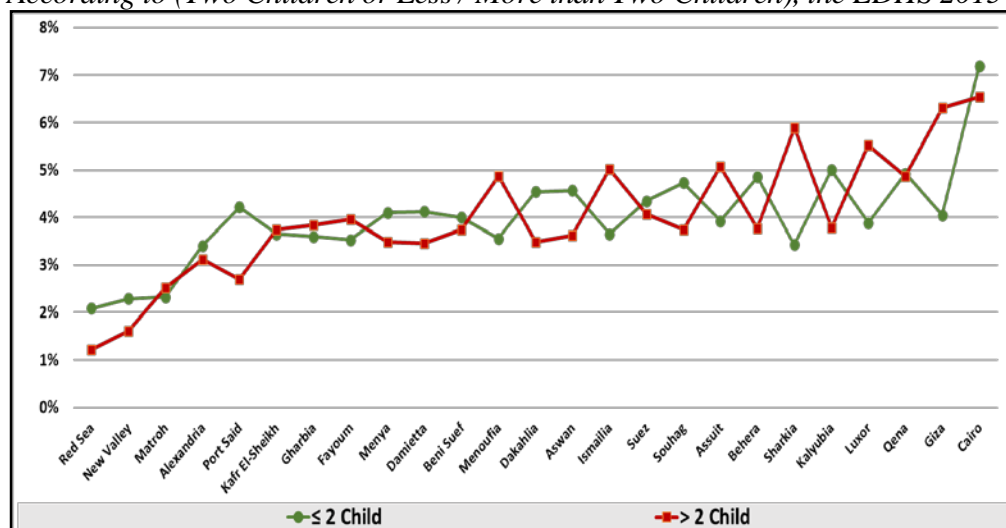
Figure 2. *The Relative Distribution of the Respondents of the Egyptian Families According to (Two Children or Less / More than Two Children), the EDHS 2015*

Table 2. *Descriptive Statistics for the Respondents of Egyptian Families according to Some Quantitative Variables, EDHS 2015*

Key Variables	Mean	Std. Deviation
1. Age of respondent	33.61	12.454
2. No. of education years	4.56	1.853
3. Blood pressure Systolic	127.53	70.945
4. Blood pressure Diastolic	84.59	73.477
5. No. of Sons at home	1.38	1.007
6. No. of Daughters at home	1.19	1.024
7. Total children ever born	3.14	1.953
8. The ideal age for a girl to marry	20.82	7.087
9. The ideal age for a boy to marry	25.67	8.358
10. The ideal length of time between births (in years)	4.79	13.840
11. No. of children to have in family whole life	4.75	11.674
12. Ideal number of boys	1.10	1.378
13. Ideal number of girls	1.0	.926
14. Ideal number of either	1.35	1.898
15. Weight in kilograms	101.879	149.8691
16. Height in centimeters	186.786	136.2889
17. Body mass index for respondent	2881.09	700.988
18. Rohrer's index for respondent	1770.49	521.041
19. No. of births were delivered by Caesarean	1.0	1.103

Source: Egypt, DHS Report in 2015.

Table 3. *The Relative Distribution of the Respondents of the Egyptian Families about the Ideal Number of Children According to Two Main Groups (≤ 2 Child / > 2 Child), the EDHS 2015*

| Key Variables			≤ 2 Child		> 2 Child		Total	
			#	%	#	%	#	%
Governorate	1.	Cairo	704	7.2	451	6.5	1155	6.9
	2.	Alexandria	333	3.4	215	3.1	548	3.3
	3.	Port Said	412	4.2	186	2.7	598	3.6
	4.	Suez	425	4.3	281	4.1	706	4.2
	5.	Damietta	403	4.1	238	3.5	641	3.8
	6.	Dakahlia	444	4.5	240	3.5	684	4.1
	7.	Sharkia	335	3.4	406	5.9	741	4.4
	8.	Kalyubia	489	5.0	261	3.8	750	4.5
	9.	Kafr El-Sheikh	357	3.7	258	3.7	615	3.7
	10.	Gharbia	352	3.6	265	3.8	617	3.7
	11.	Menoufia	348	3.6	336	4.9	684	4.1
	12.	Behera	475	4.9	260	3.8	735	4.4
	13.	Ismailia	357	3.7	346	5.0	703	4.2
	14.	Giza	396	4.0	435	6.3	831	5.0
	15.	Beni Suef	391	4.0	258	3.7	649	3.9
	16.	Fayoum	345	3.5	273	4.0	618	3.7
	17.	Menya	401	4.1	240	3.5	641	3.8
	18.	Assuit	384	3.9	350	5.1	734	4.4
	19.	Souhag	463	4.7	258	3.7	721	4.3
	20.	Qena	482	4.9	336	4.9	818	4.9
	21.	Aswan	447	4.6	250	3.6	697	4.2
	22.	Luxor	380	3.9	381	5.5	761	4.6
	23.	Red Sea	204	2.1	84	1.2	288	1.7
	24.	New Valley	224	2.3	111	1.6	335	2.0
	25.	Matroh	227	2.3	174	2.5	401	2.4
Total			9778	100	6893	100	16671	100

Source: Egypt, DHS Report in 2015.

The Features of Egyptian Families' Choices for (≤ 2 Child)

The results of the stratified sample representing the governorates in Figure 3 has indicated that the Red Sea Governorate represents the highest percentage of households having an ideal number of (≤ 2 Child), which amounted for 71%, and followed by Port-Said governorate which amounted for 69%, then the percentage of Al-New-Wadi Governorate which amounted for 67%. On the other hand, the governorates of Sharkia and Giza had the highest percentage of households with an ideal number of (> 2 Child), which amounted for 55% and 52%, respectively. By the way, this section shows some initial indicators that may attract a rearrangement of the priorities of decision-makers at the concerned government parties to reduce the high rates of fertility in those governorates, in particular by the officials in charge of demographic replanning at the next years. Obviously, the use of survey sample of EDHS (i.e., n = 16671 households) by the current study reached to the percentage of families that have two children or less, which represents 59% of the total sample, and was higher than the percentage of families that have more than two children, which represents 41%. It should be noted that this high percentage of the households consisting of (≤ 2 Child) per family could be reinforced to the

directions of the population national policy as a target rate and may be adopted by 2030. Nonetheless, the percentage of families that still their desire to have (> 2 Child), representing critical obstacle for decision makers and population program planners in Egypt to ensure change management of their reproductive behavior in appropriate manner be suitable for the other national strategies as well.

Figure 3. *The Relative Distribution of the Respondents of the Egyptian Families according to Two Main Groups (≤ 2 Child / > 2 Child) in Each Governorate, the EDHS 2015*
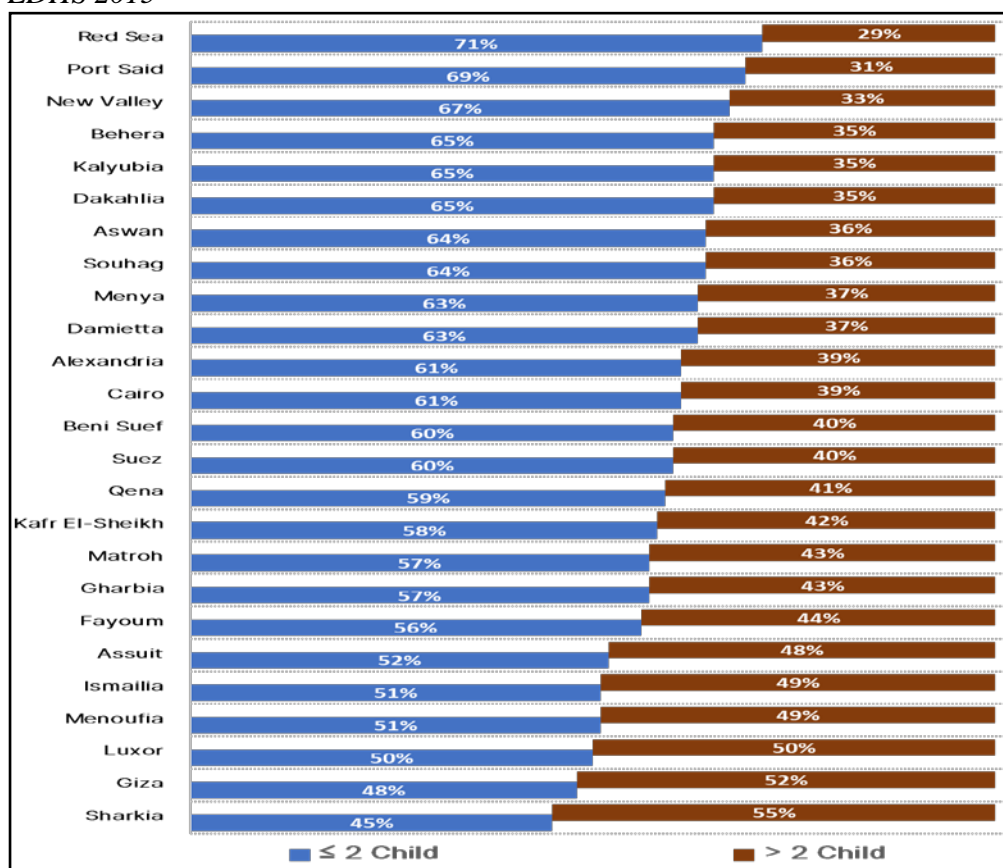
To study the relationship between both of the desire of the Egyptian family and the main variables of interest by the current study, therefore the test of Chi-Square (χ^2) was used as shown in the Table 4, and the results has indicated that there was a significant statistically relationship between the family desire variable and all the variables included in this table except the variable of residence due to the percentages of households consisting of (≤ 2 Child) are almost equal at the level of rural and urban areas alike. For the rest of the variables included in Table 4, the percentages of Egyptian families having (≤ 2 Child) amounted for 60% in case of the head of households of females, and was higher than their percentages in case of the head of these households of males which amounted for 57%. Also, the percentage of having (≤ 2 Child) among the separated couples was high compared to their percentage among the couples whose still in the relationship, and this considers a natural result for the couple still in the relation due to increase

in their chances for having (> 2 Child). As the percentage of having (≤ 2 Child) among respondents with higher education amounted for 61%, and was high compared to their percentage among respondents with low education which amounted for 54%, also this indicator among Muslim families that represents 58% was high compared to their percentage among non-Muslim families, which amounted to 61%. While their percentage among couples in the age group (15-17) years amounted for 73%, and was high compared to their percentage among couples in the age group (18-59) years, which amounted for 57%. As the percentage of this choice about the ideal number of children among the families in which the men are the decision-makers regarding the use of money or health care was high compared to their percentage among families in which the decision-makers are the women.

Table 4. *Examine the Correlation between the Desire of Egyptian Families for the Ideal Number of Children (≤ 2 Child/ > 2 Child) According to the Respondent's Characteristics, the EDHS 2015*

Key Variables		≤ 2 Child		> 2 Child		Total	Chi-Square (χ^2)
		#	%	#	%		
Gender	Female	5528	60.0%	3681	40.0%	9209	16.051**
	Male	4250	57.0%	3212	43.0%	7462	
Residence	Rural	4938	58.3%	3537	41.7%	8475	1.066
	Urban	4840	59.1%	3356	40.9%	8196	
Marital Status	Terminated	3610	65.5%	1904	34.5%	5514	157.880**
	Continuous	6168	55.3%	4989	44.7%	11157	
Education Level	Low Level	7039	60.8%	4533	39.2%	11572	73.810**
	High Level	2739	53.7%	2360	46.3%	5099	
Religion	Muslim	9251	58.5%	6565	41.5%	15816	3.310*
	Not-Muslim	527	61.6%	328	38.4%	855	
Age Category	Age 15-17	1222	73.0%	451	27.0%	1673	158.779**
	Age 18-59	8556	57.0%	6442	43.0%	14998	
Ever attended school	Yes	1060	42.9%	1408	57.1%	2468	294.548**
	No	8718	61.4%	5485	38.6%	14203	
Work Status	Yes	4220	55.8%	3349	44.2%	7569	48.043**
	No	5558	61.1%	3544	38.9%	9102	
Smoking Status	Yes	302	49.2%	312	50.8%	614	23.559**
	No	9476	59.0%	6581	41.0%	16057	
Caesarean Status	Yes	7722	56.9%	5843	43.1%	13565	89.526**
	No	2056	66.2%	1050	33.8%	3106	
Circumcision status	Yes	4232	56.9%	3201	43.1%	7433	16.315**
	No	5546	60.0%	3692	40.0%	9238	
Using Contraceptive method	Yes	5146	66.9%	2541	33.1%	7687	404.365**
	No	4632	51.6%	4352	48.4%	8984	
Partner preference (more children)	Woman	1001	70.3%	422	29.7%	1423	87.693**
	Man	8777	57.6%	6471	42.4%	15248	
Deciding how the use of money	Woman	8132	57.3%	6049	42.7%	14181	67.023**
	Man	1646	66.1%	844	33.9%	2490	

Makes decisions about health care	Woman	8044	57.7%	5909	42.3%	13953	35.435**
	Man	1734	63.8%	984	36.2%	2718	
Using Media (Journal, Radio, and TV)	Yes	1137	55.2%	922	44.8%	2059	11.408**
	No	8641	59.1%	5971	40.9%	14612	
Using Social Networks	Yes	2819	70.2%	1195	29.8%	4014	292.162**
	No	6959	55.0%	5698	45.0%	12657	
Violence Status against women	Yes	2866	57.3%	2136	42.7%	5002	5.416*
	No	6912	59.2%	4757	40.8%	11669	
Ever had a tattoo	Yes	548	61.7%	340	38.3%	888	3.619*
	No	9230	58.5%	6553	41.5%	15783	
Ever have your ears pierced	Yes	5434	60.1%	3610	39.9%	9044	16.699**
	No	4344	57.0%	3283	43.0%	7627	
Going Salon/Beauty center	Yes	7139	60.9%	4583	39.1%	11722	82.415**
	No	2639	53.3%	2310	46.7%	4949	

* Significant at the level less than 0.05. ** Significant at the level less than 0.01.
Source: Egypt, DHS Report in 2015.

Moreover, the percentage of having ($\leq$ 2 Child) among the families using the methods of family planning reached at 67% and was high compared to their percentage among they do not use contraceptive methods, which reached almost to 52%. And also, this percentage among the families that suffer from violence against women reached to 59%, and was high compared to its percentage among the families that do not have violence against women, which reached to 57%. Subsequently, this violence may be a reason for women's unwillingness to have more children resulting from not feeling enough family and security stability. Also, this percentage among the families that use the Internet and social media reaching 70%, and was high compared to its percentage among the families that do not use the Internet communications in general, which reached to 55%. Also, this percentage increases among the families in which the partner is a woman who wants to have more children, reaching 70%, compared to its percentage which amounted for 57% among the families that the partner is the man who wants more children. In the same way, the rest of the variables listed in Table 4 has been reached that the desire to have the ideal number of ($\leq$ 2 Child) for each family is almost closely similar between the categories of each one of these variables separately.

Importantly, the results of Table 5 showed that there is a statistically significant relationship between the variable of Egyptian families' desire for an ideal number of ($\leq$ 2 Child) and the variable of governorate in which these families reside. There were three governorates had the highest percentage of households that have desire for ($\leq$ 2 Child), which representing the Red Sea Governorate, Port-Said Governorate, and the New-Valley Governorate that reached to 71%, 69%, and 67% respectively, and it was high compared to discovering this percentage over the rest of the republic's governorates level in-

separately. On the other hand, the highest concentration of the percentage of households that have a desire for an ideal number of more than two children, which are representing Sharkia Governorate, Giza Governorate and Luxor Governorate in which their percentages reached to 55%, 52%, and 50% respectively. Therefore, this finding confirms what has previously referred to in more than one place in this study about the importance of attracting the attention of officials to these governorates that have the high levels fertility as one of priorities aimed to reducing the population growth, as well as the need to determine risks and the root causes of this reproductive behavior and understanding its justifications according to each area or governorate, thus this may support the dimensions of addressing the risk of increase population issue in Egypt by planning realistic scenarios controlling the fertility rates at the acceptable level of the state, and for enabling sustainability of the development efforts in an optimal way.

Table 5. *Examine the Correlation between the Desires of Egyptian Families for the Ideal Number of Children (≤ 2 Child/ > 2 Child) According to the Governments, the EDHS 2015*

Key Variables		≤ 2 Child		> 2 Child		Total		Chi-Square (χ^2)
		#	%	#	%	#	%	
Governorate	1. Cairo	704	61%	451	39%	1155	100%	
	2. Alexandria	333	61%	215	39%	548	100%	
	3. Port Said	412	69%	186	31%	598	100%	
	4. Suez	425	60%	281	40%	706	100%	
	5. Damietta	403	63%	238	37%	641	100%	
	6. Dakahlia	444	65%	240	35%	684	100%	
	7. Sharkia	335	45%	406	55%	741	100%	
	8. Kalyubia	489	65%	261	35%	750	100%	
	9. Kafr El-Sheikh	357	58%	258	42%	615	100%	
	10. Gharbia	352	57%	265	43%	617	100%	
	11. Menoufia	348	51%	336	49%	684	100%	
	12. Behera	475	65%	260	35%	735	100%	
	13. Ismailia	357	51%	346	49%	703	100%	290.593**
	14. Giza	396	48%	435	52%	831	100%	
	15. Beni Suef	391	60%	258	40%	649	100%	
	16. Fayoum	345	56%	273	44%	618	100%	
	17. Menya	401	63%	240	37%	641	100%	
	18. Assuit	384	52%	350	48%	734	100%	
	19. Souhag	463	64%	258	36%	721	100%	
	20. Qena	482	59%	336	41%	818	100%	
	21. Aswan	447	64%	250	36%	697	100%	
	22. Luxor	380	50%	381	50%	761	100%	
	23. Red Sea	204	71%	84	29%	288	100%	
	24. New Valley	224	67%	111	33%	335	100%	
	25. Matroh	227	57%	174	43%	401	100%	
Total		9778	59%	6893	41%	16671	100%	

* Significant at the level less than 0.05. ** Significant at the level less than 0.01.

In addition, the study pursued for examining the impact of significant differences of the variable of Egyptian families' desire to reach an ideal number of children after re-categorizing them into two main groups, the 1st group represents the households having (≤ 2 Child), while the 2nd group represents the households having (> 2 Child), and this was achieved by using a t-test for independent

samples according to examining the list of quantitative variables in Table 6 regarding the sample of respondents. The results of t-test analysis showed statistically significant differences between two main groups at the level less than 0.05 in terms of the following variables: (Respondent's age, number of years of education, number of males within the family, systolic blood pressure, total children born in the family, weight of the respondent, body mass index, and Rohrer's index for respondent). As this difference between the two main groups was in favor of the average of households group that their desire to have (> 2 Child). Even so, there were differences that statistically significant between the two main groups regarding some variables about adopting the ideal number of males or females in favor of the average of households group that their desire only to have an ideal number of (≤ 2 Child).

Table 6. *Examination of the Relative Differences in the Family's Desire to Have the Ideal Number of Children According to the Impact of Some Quantitative Variables of the Egyptian Households*

Test Variable	Grouping Variable	N	Mean	STD	T-test
Age of respondent	≤ 2 Child	9778	29.60	9.704	-53.635**
	> 2 Child	6893	39.30	13.651	
No. of education years	≤ 2 Child	8715	4.51	1.878	-4.326**
	> 2 Child	5483	4.64	1.811	
Blood pressure Systolic	≤ 2 Child	9762	126.32	76.486	-2.631**
	> 2 Child	6875	129.26	62.200	
Blood pressure Diastolic	≤ 2 Child	9762	84.52	79.523	-.141
	> 2 Child	6875	84.69	63.925	
No. of Sons at home	≤ 2 Child	5858	1.36	0.983	-2.742**
	> 2 Child	4889	1.41	1.034	
No. of Daughters at home	≤ 2 Child	5858	1.20	1.012	.789
	> 2 Child	4889	1.18	1.038	
Total children ever born	≤ 2 Child	6485	2.68	1.638	-28.917**
	> 2 Child	5598	3.68	2.143	
The ideal age for a girl to marry	≤ 2 Child	9778	20.90	7.449	1.632
	> 2 Child	6893	20.71	6.538	
The ideal age for a boy to marry	≤ 2 Child	9778	25.75	8.719	1.433
	> 2 Child	6893	25.56	7.815	
The ideal length of time between births	≤ 2 Child	9778	5.25	15.201	5.182**
	> 2 Child	6892	4.12	11.609	
No. of children to have in family whole life	≤ 2 Child	9778	3.06	1.609	-26.309**
	> 2 Child	4442	8.48	20.258	
Ideal number of boys	≤ 2 Child	9778	1.56	1.407	71.574**
	> 2 Child	4170	0.00	0.071	
Ideal number of girls	≤ 2 Child	9778	1.18	0.898	84.906**
	> 2 Child	4170	0.00	0.041	
Ideal number of either	≤ 2 Child	9778	0.31	0.710	-185.794**
	> 2 Child	4170	3.81	1.511	
Weight in kilograms	≤ 2 Child	9778	98.401	143.9859	-3.570**
	> 2 Child	6893	106.812	157.7181	
Height in centimeters	≤ 2 Child	9778	185.161	130.8728	-1.834

	> 2 Child	6893	189.092	143.6001	
Body mass index for respondent	≤ 2 Child	9531	2813.81	651.708	-14.689**
	> 2 Child	6684	2977.01	755.552	
Rohrer's index for respondent	≤ 2 Child	9531	1723.86	457.084	-13.687**
	> 2 Child	6684	1836.98	594.314	
No. of births were delivered by Caesarean	≤ 2 Child	3768	0.83	1.097	1.586
	> 2 Child	1784	0.78	1.115	

*Significant at the level less than 0.05. **Significant at the level less than 0.01.

The Factors Affecting the Ideal Number (≤ 2 Child) per Egyptian Family

The logistic regression model has been used by including all variables involved by the current study to determine the most important factors classifying the level of the Egyptian household's desire about the ideal number of children whether (≤ 2 Child) or (> 2 Child) as dependent variable. Also, this analysis aimed to building a statistical model based on entering all the proposed explanatory factors for the characteristics of Egyptian households according to the EDHS 2015 survey as independent variables at once in the proposed model of logistic regression, which includes extracting the Odds Ratios to each variable will statistically significant, and to determine which variables has the greatest impact on the adopting the ideal number of children of the household that should be considered by the planners of comprehensive development programs and makers of policies and population strategies in Egypt. Logistic regression analysis has been used because it is suitable for the nature of the dependent variable, so that the expected event value is classified for the dependent variable [the desire of the family for the ideal number of children] into two levels: the 1st group (≤ 2 Child) denotes to the value (0), while the 2nd group (> 2 Child) denotes to the value (1), that is: $P = P (Y = 1)$ which is equivalent to [the probability that the desire of the Egyptian household consists of ≤ 2 Child] P, thus using the characteristics of the logistic distribution, and the estimated probability is as follows (Neter, John, 1996):

$$\hat{P}(y = 1/x) = \frac{1}{1 + Exp^{(-\hat{B}_1 X)}}$$

As the parameters of model were estimated by the Maximum Likelihood Method in terms of it doesn't not require that the independent variables included in the model following the normality distribution, nor the condition of the linearity relationship between these variables and the dependent variable Linearity. This proposed model can estimate the probabilities of occurrence for any of the cases of the dependent variable in addition to estimating the classification efficiency. The logistic regression based on the Stepwise method to find out the most important factors influencing and deleting the non-significant variables from the estimated model equation in determining the desire of the Egyptian family about the ideal number of children as a dependent variable, and the valued of Chi-Square test was significant at the level less than 0.01, and then the null hypothesis (H0: Bi = 0) was rejected, while the alternative hypothesis (Ha: Bi ≠ 0) was accepted, which

indicates the fitness of this model to the logistic regression analysis, as a result this model is correct to represent the relationship between the target variables under-examining. In addition the table of classification showed the overall percentage of classification of the proposed model was 71% which is considered a measure of the model's efficiency in classifying the values of the dependent variable, and this means that the ability of the variables included in the model combined for classifying the observations into two values in which the value (1) indicates the desire of the Egyptian family to have an ideal number of ≤ 2 Child, while the value (0) indicates the family's desire Egyptian to give birth to an ideal number of > 2 Child.

The Logistic regression results has showed the significance of the coefficients of the following independent variables: [*making decisions about how to use money within the family*, *making health care decisions for the family*, *marital status*, *ideal marriage age for a girl*, *No. of male children within the family*] where its coefficients were significant at the level less than 0.05, thus this means that each one of these variables has significant impact on the change in the logarithm of the preference or odds ratio for the desire of the Egyptian family about the ideal number of children (the dependent variable). Whereas the coefficients of the rest of the independent variables were not significant to be included in the proposed model in the next section directly, as follows:

Using Logistic regression model of the most important variables affecting the classification of the desire of Egyptian household by (≤ 2 Child) or (> 2 Child)

Key Variables	Coding of Variable (0/1)	B	S.E (B)	Sig.	Odds Ratio	Prob.
Make decisions for using money	(Woman/ Man)	0.533	0.183	0.004	1.703	0.630
Make decisions for health care	(Woman / Man)	-0.352	0.086	0.000	0.704	0.413
Marital Status	(Terminate/ Still Married)	0.397	0.154	0.010	1.488	0.598
Ideal age for a girl to marry	N/A	0.049	0.016	0.002	0.952	0.488
No. of male children	N/A	0.459	0.030	0.000	0.632	0.387
Constant	N/A	3.039	0.375	0.000	20.879	0.954
Chi- square test = 484.143	**Sig. = (0.000)**		**Model classification efficiency = (71%)**			

* Significant at the level less than 0.05 according to Wald's test. ** Significant at the level less than 0.01 according to Wald's test.
Source: Outputs of SPSS program Ver. 26.

For the influencing variables according to the results of logistic regression model which their coefficients are statistically significant. It has reached that the variable of decision-makers regarding the uses of money within the Egyptian family so that P [Y =1/man] in which means the husband has a chance of 1.703 times approximately compared to the wife's chance about the possibility of increasing the desire of Egyptian families to have an ideal number of ≤ 2 Child, so the probability that (the husband where Y = 1) has significant impact in achieving

the policy of reaching the ideal number of ≤ 2 Child = 63%. Besides, the variable of decision-makers regarding the health care within the Egyptian family, where the probability of P [Y =1/man] so that this variable has an inverse impact on the desire to have an ideal number of ≤ 2 Child, with a probability = 41%, so the probability that (the wife where Y=0) has significant impact in achieving the Egyptian national policy by achieving the ideal number of ≤ 2 Child. Thus, this finding could assert on the natural role of women in maintaining good health care in favor her family compared to the role of men.

For the marital status variable, it has indicated that there was a significant impact on the possibility of increasing the desire of Egyptian families for the ideal target number of ≤ 2 Child so that P[Y=1/currently married , i.e. this marriage is still continuous], and this means that the couples still married have an significant impact of 1.5 times to access meeting the desire of the ideal number of children by having only ≤ 2 Child, with a probability =59% compared to the chances of currently separated couples about achieving that desire. Thus, this finding also means that the separation of spouses is one of the obstacles in front of these families to have the ideal number of children, and this motivates them thinking about remarrying for having more children, and this also has an adverse impact on increasing fertility rates due to the problem of multiple marriages of one person. In addition to the probability of increase in both of the ideal age to marry a girl to marry and the number of male children within the family were 49% and 39%, respectively, in the negative impact on increasing the chances of achieving the desire of Egyptian families to have the ideal target number of two children or less, and considering the nature of these variables that their measurement is quantitative not qualitative, so the high of ideal age for the girl to marry or the high number of male children within the family will increase the chances of meeting the desire of Egyptian families to have the ideal number of children targeted for two children or less.

Further this finding may reflect the demographic situation in Egypt somewhat, as the delay in the age of marriage among females may support the access to the decision of only ≤ 2 Child, especially this result also suitable to the natural conditions of the reproductive health woman, whereas the high age of females at marriage, it will reduce the chances of her to have more children through the rest of their life cycle of childbearing (15-49) age. Similarly, the increase in the births of male children within the family could lead to meeting the family's desire for being satisfied by the ideal number of two children or less without having more than two children, so this indication is likely to show that the Egyptian families' preference to have males' births instead of females. Thus, this matter may be achieved by the birth of the first child male only within the family or by the second child male without the need to have more children later, as this culture regarding the reproductive behavior pushes them to satisfy their desire of ideal number of ≤ 2 Child in case of, they have only children from male births. Consequently, this behavior or culture should call the importance of continuing the efforts of state institutions in order to raise Egyptian families awareness about the urgent need of meeting national policy goals by being satisfied with only ≤ 2 Child, as well as the joint institutional work to show the expected benefits of reducing the population

growth rates at the acceptable level that will compatible with the opportunities for escalating economic and development developments that Egypt is witnessing at the present time. Also for supporting the strategic directions of the state that pursues to ensure a decent life enjoyed for all family members in education, health, housing, medical insurance, and the other areas of the standard of living, especially among the people with low incomes in Egypt, as well as for supporting the efforts of accelerating the increase in human development opportunities in conjunction with Egypt's vision 2030 based on achieving social justice and comprehensive sustainable development with a competitive and diversified economy system that improves the quality of life and the happiness of Egyptians at the same time, whether for current or future generations.

Recommendations

Obviously, the results of the current study have revealed the most important trends that must be considered by further studies and future paths to support comprehensive and sustainable development opportunities in Egypt. Therefore, the realistic recommendations should be closely provided in front of the decision-makers, planners, and policy makers in Egypt to become more future-proof in the coming decades in conjunction with the pace of global trends and accelerations demographically considering the escalation of the international economic crisis, high unemployment rates, inflation, international conflicts, climate change, energy efficiency, the digital technological revolution, and the epidemic viruses. As well as, the importance of ensuring the sustainability of the components of water and food security at the global level and other global population issues that have become real challenges in facing of the high population growth in many countries over the world, including Egypt, especially that the population increase issue in Egypt will hinder the solution of many problems, including unemployment, illiteracy, housing, covering the insurance health, food and water sufficiency and other population problems that will have negative impacts on achieving a decent quality of life for citizens in Egypt, which may make it a clear threat to Egyptian national security.

As a result, this study is a real catalyst to sharpen the state's capabilities of Egypt by directing the change management towards the highest priorities during facing the huge challenges caused by high population growth that appear on the surface with confidence and steadfastness compared to global levels in managing crises and demographic changes. In addition, this direction will enhance its competitiveness at the levels desired internationally in all development fields, especially Egypt is recently considered one of the countries is re-starting to have emerging markets and newly rising economies in accordance with the indicators of the high rates of economic growth that Egypt is currently witnessing annually. Consequently, facing the high population growth becomes a one of the main obstacles that may hinder this economic progress in Egypt resulting from the continuous pressure on the state's resources without taking into account the prior national planning to how the population growth that meet their reproductive needs

and studying their desires about the ideal number of children in the first place, and this matter inevitable by the State's efforts to adopting long-term forward-looking visions for shaping the future to ensure the continuation of economic and human development levels optimally.

Further, this study emphasizes the importance of continuing to further spread public awareness among all members of Egyptian families, in order to reach the ideal target number of two children or less as a strategic goal for the components of the national population policy in Egypt, in addition to implementing strategic initiatives, programs and projects that promote the achievement of Egypt's forward-looking vision in becoming Future-Proof by 2030, and through diversified expansion in supporting sustainable development opportunities of Egypt, especially the economic dimension. Alongside, this study pursues to re-refine the orientations of the Good Life Project which Egypt launched entitled in the "Project of the Century" at a cost of 700 billion Egyptian pounds in twenty-two governorates to make a qualitative leap in improving the quality-of-life of 60 million Egyptian citizens, and this will be by attracting the attention of Egyptian officials by putting a set of priorities reached by the results of the current study, including focusing on Governorates with a tendency to have more than two children, such as Sharkia, Giza and Luxor, where the Egyptian families' desire to have more than two children tends to reach the ideal number of children that satisfies their choices and reproductive behavior. Also, the head of households with low education, families in which women make decisions about the use of money within the family or health care, families do not use family planning, those do not use the Internet and social media channels, families where reproduction depends on natural births and not caesarean sections, they have behaviors about smoking, households where the partner in the marital relationship is the woman who prefers to have more children.

Besides, the importance of focusing primarily on the factors most impact on classifying the families' desire to have two children or less by focusing on the following 1) the partner concerned with making decisions about the use of money or health care within the family, 2) the couples whose marital relationship still exists and there is no separation between them, 3) the ideal age of marriage for the girl, and 4) the gender's type of children of the family. Furthermore these given factors are statistically significant in the ability to predict the level of classification of the family's desire if they have ($\leq$ 2 Child) or they have ($>$ 2 Child), and thus this direction can be used in any proactive actions or effective treatments or intervention programs that aimed to publish the early awareness in order to limit the high rates of fertility within Egypt and in line with directing the reproductive behavior of Egyptian families to ensure the alignment with the goal of the national population policy as much as possible.

References

Abdel-Fattah MN (1983) *Studying some intermediate variables and their impact on fertility in Egypt using the Bongartz model.* Master's Thesis. Egypt: Faculty of Graduate Studies for Statistical Research, Cairo University.

Abdel-Tawab N, Attia S, Bader N, Roushdy R, El-Nakib S, Oraby D (2020) *Fertility preferences and behaviors among younger cohorts in Egypt: trends, correlates, and prospects for change.* Research Report. Washington, DC: Population Council, The Evidence Project.

Al Zalak Z, Goujon A (2017) Exploring the fertility trend in Egypt. *Demographic Research* 37(32): 995–1030.

Ambrosetti E, Angeli A, Novelli M (2019) *Ideal family size and fertility in Egypt: an overview of recent trends.* Available at: https://www.researchgate.net/ publication/ 349732876.

Ambrosetti E, Novelli M, Angeli A (2021) Childbearing intentions among Egyptian men and women: the role of gender-equitable attitudes and women's empowerment. *Journal of Population Science, Demographic Research* 44(51): 1229–1270.

Antic L, Djikanovic B, Vukovic D (2013) *Family planning among women in urban and rural areas in Serbia.* Srpski Archives for Full-Body Medicine, volume (141), Bulgaria.

Basten S, Baochang G (2008) *National and regional trends in ideal family size in China.* Center for Population & Development Studies, Renmin University of China.

Bongaarts (2013) The implementation of preferences for male offspring. *Population and Development Review* 39(2): 185–208.

CAPMAS (2018) *Statistical yearbook.* Technical Report. Egypt: Central Agency for Public Mobilization and Statistics (CAPMAS).

Casterline J, Roushdy R (2006) *Achieving replacement-level fertility in Egypt: challenges and potential opportunities.* The U.S. Agency for International Development (USAID).

Courbage Y (2007) *Demographic changes and perspectives in the Southern Mediterranean region.* Paris: African Migrations and Mediterranean Strategy, Institut National d'Etudes Démographiques (INED).

Egypt National Report (2018) *Addis Ababa declaration on population and development in Africa beyond 2014 -AADPD +5.* Egypt: Ministry of Planning.

El-Zanaty and Associates and ICF International (2015) *Egypt demographic and health survey.* Egypt: Ministry of Health and Population.

Eltomy E, Saboula N, Hussein A (2013) Barriers affecting utilization of family planning services among rural Egyptian women. *Eastern Mediterranean Health Journal* 19(5): 400–408.

Gad A, Heeba M, Abd El Monem M, Salim H (2021) The current barriers and management strategy to increase the use of long-acting reversible contraception methods. *Assiut Scientific Nursing Journal* 9(24): 56–65.

Gehad SA, Lamiaa S, Heba RA, Ekram M, Rasha S (2022) Effects of sociodemographic background on fertility motivation patterns in the Beni-Suef governorate, Upper Egypt. *Journal of Taibah University Medical Sciences* 17(5): 853–860.

Hristova E, Iskrov G, Stefanov R (2018) Ideal and planned number of children of the Bulgarian family. *Trakia Journal of Sciences* 16(Suppl 1): 63–66.

Karra M (2021) *Measurement of unmet need for family planning: a counterfactual approach.* Global Development Policy Center, HCI Working Paper 15, Pardee School of Global Studies, Boston University.

Kerry LD (2021) Does Young Women's Empowerment Influence Fertility Intentions? In *The DHS Program and Avenir Health, Paper # 210990, IUSSP 2021 International Population Conference*, 5-10 December, Hyderabad, India.

Khalefa M (1994) *Family planning and sustainable development in Egypt*. Working Paper No. 5. Egypt: The Demographic Center in Cairo.

Khalifa M, Hussein A, Metwally S (2020) Contraceptive discontinuation in Egypt as fertility returns to its 2000 level. *Journal of Humanities and Applied Social Sciences* 2(1): 19–32.

Khan R, Bari K (2014) Revealing ideal number of children by women: a socioeconomic analysis using Pakistan demographic and health survey. *Pakistan Journal of Commerce and Social Sciences* 8(3): 887–899.

Khongji P (2013) Determinants and trends of an Ideal family size in a Matrilineal set up. *NEHU Journal* 11(2).

Lalvenmawii M, Khongji P (2019) Study of ideal family size among women in the State OFMIZORAM. *International Journal of Research and Analytical Reviews* 6(2).

National Population Council (2015) *National strategic population plan 2015-2030*. Cairo, Egypt: National Population Council.

Neter J et al. (1996) *Applied linear statistical models*. Fourth Edition. USA: Times Mirror Higher Education Group, Inc., Library of Congress Cataloging-in-Publication Data.

Othman MI (1990) *Male preference in Egypt and its effect on procreation*. The Demographic Center in Cairo, Egypt.

UNICEF (2015) Children in Egypt: a statistical digest. Cairo, Egypt: UNICEF.

UNICEF (2017) *Children in Egypt 2016, a statistical digest*. Available at: https://www.unicef.org/egypt.

United Nations (2017) *World population prospects: the 2017 revision*. New York: UN Department of Economic and Social Affairs.

United Nations (2022) *Egypt population*. Available at: https://www.worldometers.info/worldpopulation/egypt-population.

United Nations Development Program – UNDP (2015) Egypt's progress towards millennium development goals (MDGs), background paper. UNDP, the Ministry of National Planning in Egypt.

Samari G (2017) First birth and the trajectory of women's empowerment in Egypt. *BMC Pregnancy and Childbirth* 17(2): 362–374.

United Nations, Department of Economic and Social Affairs, Population Division (2019) *World population prospects 2019*. Custom data acquired via website.

Yaya O, Osanyintupin O, Akintande O (2018) Determinants of desired and actual number of children and the risk of having more than two children in Ghana and Nigeria. *African Journal of Applied Statistics* 5(2): 403–418.