

# The Situation of Egyptian Women in Childbearing and Family Planning and Some Related Factors: A Perspective of Correspondence Analysis

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Received November 8, 2022; Revised December 28, 2022; Accepted January 28, 2023

## Cite This Paper in the Following Citation Styles

(a): [1] Rasha Aly Mohamed Aly, "The Situation of Egyptian Women in Childbearing and Family Planning and Some Related Factors: A Perspective of Correspondence Analysis," *Universal Journal of Public Health*, Vol. 11, No. 1, pp. 14 - 26, 2023. DOI: 10.13189/ujph.2023.110103.

(b): Rasha Aly Mohamed Aly (2023). *The Situation of Egyptian Women in Childbearing and Family Planning and Some Related Factors: A Perspective of Correspondence Analysis*. *Universal Journal of Public Health*, 11(1), 14 - 26. DOI: 10.13189/ujph.2023.110103.

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**Abstract** Fertility levels are generally lower in countries with high rates of using contraceptive methods. One of the aspects that determines the rates of women's use of these methods is their knowledge of them and the issues surrounding the reproductive process and their attitudes towards them, and then, transforming all of those into behavior. This study was conducted to assess the Egyptian women's level of "knowledge, attitudes, and behaviors" towards reproduction and family planning through an index that combines all these aspects (the KABRF Index) and by examining some of the related factors and how they are connected. The study included a sample size of 8293 women in EDHS 2014 and applied the Correspondence Analysis method. It was found that nearly one-third of the sample was rated at the lowest level of the index under study. These women are mostly the uneducated, the least educated, the poorest, the least empowered, the most exposed to spousal violence, residing in the frontier governorates and Upper Egypt, and with five or more children. Improving the position of the Egyptian women in the indicator under study requires the efforts of some state ministries to raise awareness and follow a motivation policy through granting privileges to families committed to having two children at the most and enforcing compulsory education until the completion of the secondary school.

**Keywords** Childbearing, Family Planning, Knowledge, Attitudes, Behavior, Index, Correspondence Analysis, The Egyptian Women

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## 1. Introduction

Population growth is one of the biggest challenges facing the development plans of the Egyptian government [1] since the continuous population increase devours all achievements in various fields. Resources and services, such as housing, jobs, and health care are always described as limited [2]. Therefore, the medium-term sustainable development plan was concerned with including the population dimension in all areas of development due to the seriousness of the population problem in a way that ensures a balance between growth and social justice within the framework of the "growth with equality" strategy on which that plan is based [3].

That situation is what prompted a large number of researchers inside Egypt to reach the reasons that helped this rapid growth to occur and led to it, in addition to putting forward ideas that would mitigate and limit this growth. Studies indicated that fertility levels are generally lower in countries where the rates of family planning methods are high [4, 5]. In such cases, the fertility rate is negatively related to the use of methods [6]. Family planning enables women to control the number of children needed and the intervals between births, with 20% of deliveries occurring within two years of the previous ones [7]. Family planning also facilitates avoiding unplanned

pregnancies [8, 9], which constitute approximately half of all pregnancy cases [10, 11] and seriously affect the children's and mothers' health [12, 13, 11, 14] and might lead to their death.

Moreover, [15] has provided new evidence which proves that the decrease in the proportion of children and adults living in poverty is associated with family planning programs that can improve economic outcomes in the long run. Therefore, the Egyptian government has committed itself to reinforcing the reproductive health and family planning services to reduce the total fertility rate and improve the quality of services provided through the technical assistance and training supplied by the United States Agency for International Development USAID [1].

One of the aspects that determine the rates of women's use of family planning methods is their knowledge of those methods and the matters surrounding the process of childbearing as well as their attitudes towards them and then transforming these into behavior. Studies in this regard have shown that the women who have knowledge of all the methods of family planning [16, 17] and the husbands who received counseling about them [18] had more positive attitudes and scored higher on the scale of women's attitudes towards family planning [19]. The defect in the framework for the optimal use of family planning methods occurs as a result of several factors, such as the difficulty of accessing these methods, the lack of complete availability of them, the lack of knowing the sources of obtaining them or how to use them correctly, the irregular use of those methods, the fear of their side effects, or the lack of sufficient information about them [14, 20].

By researching the factors that control the reasons which impede the optimal use of the methods of family planning, it was found that these reasons always centered around the level of education, the wealth index, and residence [3, 6, 14, 21]. Moreover, the reasons also focused on false beliefs, such as the preference for

conceiving males, the achievement of honor by having as many children as possible, and considering them as a source of safety for their fathers in the old age stages of their lives [22] as well as a source of income for the family. The surrounding factors transform attitudes into behaviors [23, 24].

## 2. Objectives

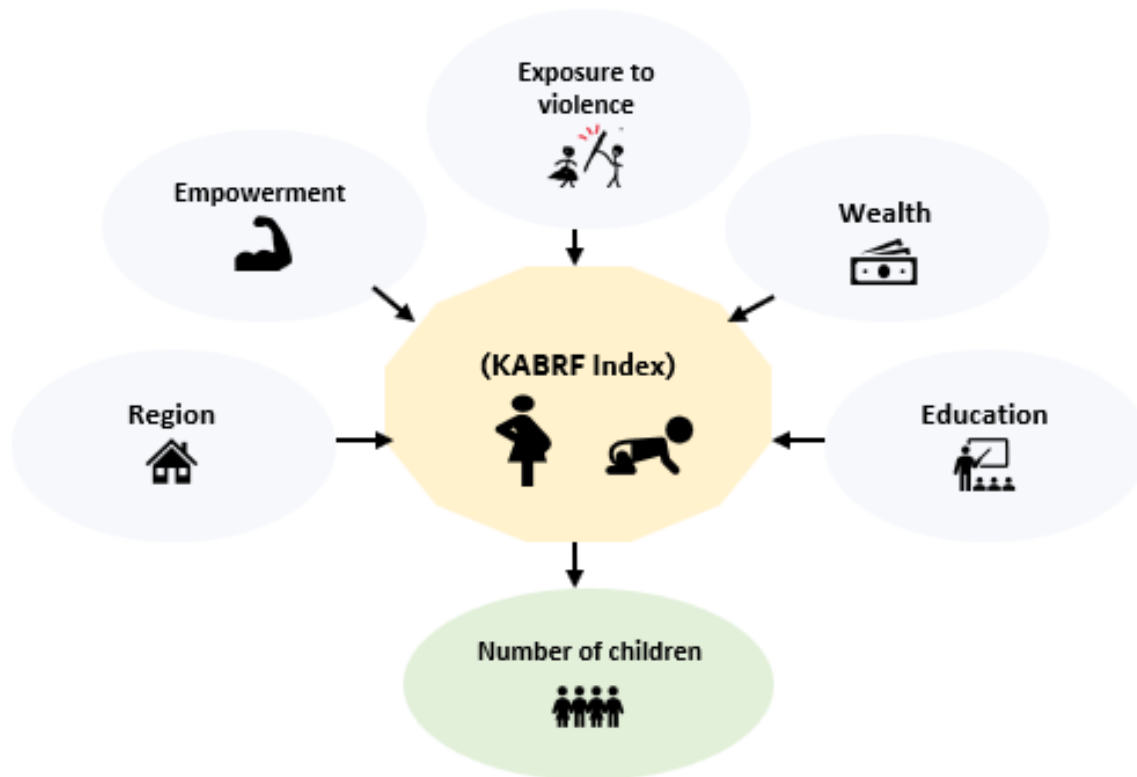
The main goal of this research is to give the whole picture of the situation of Egyptian women in reproduction and family planning, since totalities or seeing the whole picture is the way to know the real goal of it. To achieve this goal, there are two sub-goals:

- 1) Integrate the variables that indicate the knowledge, attitudes, and behaviors of the Egyptian women with regard to reproduction and family planning all into one index. Through that index and its different levels, it is possible to determine the relative distribution of the Egyptian women.
- 2) Study some of the related factors and the extent to which each of them is related.

## 3. Data Source

The study was based on data from the Egypt Demographic and Health Survey (EDHS) for the year 2014. The survey was conducted on a sample of 21,762 married women, aged between 15 and 49 years all around the Arab Republic of Egypt (excluding North and South Sinai governorates). The study sample was limited to the currently married women who had only one marriage experience, were not sterilized, had at least one child, and were married for a period ranging from 5 to 15 years. Therefore, the size of the study sample was reduced to include only 8,293 women.

## 4. Conceptual Framework



Source: Proposed by the author

Figure 1. The Relational Framework for the Study Variables

## 5. Methodology

### 5.1. Description of Variables and Measurements

In this study, the main variable is:

*The demographic variable "women's Knowledge, Attitude, and Behavior regarding Reproduction and Family planning Index" (from now on referred to as KABRF Index).*

This variable was configured based on aggregating the answers of 23 variables, most of which were re-coded so that each of them has two answers either (no=0) or (yes=1). Those variables are: the woman's knowledge of any type of family planning methods, her knowledge of the ovulatory cycle, her use of a method before the first pregnancy, her use of a method after conceiving the first child, her opinion on the optimal number of children (1=2 or less, 0=3+&other), her opinion on the interval between births (1=2+, 0=L.T2), her participation in the decision of using a contraceptive method (1=her single or shared decision, 0=no), ever used a method to delay or avoid getting pregnant, the woman's intention to use a method to delay or avoid pregnancy in the future, her knowledge of a medical source to obtain the method, her reception of information about the side effects of the family planning

methods, her reception of information on how to deal with the side effects, her reception of information about other family planning methods, her reception of information about other family planning methods from health or family planning working staff, her knowledge that breastfeeding can be a family planning method, her knowledge that the child must be under six months for breastfeeding to be an effective method, her knowledge that the child must have absolute or almost absolute breastfeeding for the method to be effective, her knowledge that the child must nurse frequently during daytime and at night for breastfeeding to be an effective method, her knowledge that there is a type of pill that is suitable to take during breastfeeding, her experience of having an undesired pregnancy, her desire to conceive more children (0=has 2 or more children while being pregnant and desires to have more, 1=has 1 child while being pregnant and desires to have more).

The KABRF index was divided into four levels, where 1 indicates the lowest degree while 4 indicates the highest degree. Its grades ranged from 1 to 18, where the maximum limit was 1, whereas the minimum was 18. This variable has been divided based on an average calculation for each woman by dividing her grade in this variable by the number of questions (23), then calculating

the median (Q2), the first quartile (Q1), and third quartile (Q3) of the new variable, which is the average of grades, as follows: (level 1= $\leq$  Q1) (level 2 =  $>$  Q1 to Q2) (level 3 => Q2 to Q3) (level 4 =  $>$  Q3)

The other variables in the study are:

*Demographic variables, such as:* The number of children a woman has, including current pregnancy

*Cultural variables, such as:* Region

*Socio-economic variables, such as:*

- The woman’s educational level
- The wealth index
- The woman’s exposure to some types of violence index (psychological, slight physical, severe physical, and sexual). This variable is divided into five levels (never exposed to any type of violence – exposed to one type – was exposed to two types – was exposed to three types – was exposed to four types).
- The women’s Empowerment Index (EM-Index). This index was generated using 12 variables (to find out the variables through which the indicator was formed, refer to [25]). This index has been divided into four levels, where 1 indicates the lowest degree while 4 signals the highest degree. The division was carried out in the same way that was previously explained in the KABRF index above.

### 5.2. Data Analysis

The study used some methods of data description in order to describe the sample under study. The Correspondence Analysis was used to draw a picture of the places on which the levels of the KABRF index focus as compared to the different divisions of some variables under study as well as the form and the extent to which they are related. The Correspondence Analysis is not limited to showing the existence of a relationship among the variables but rather indicates how those variables are related [26]. The analyses of this study were carried out using SPSS-25.

## 6. Analysis and Results

### 6.1. Women’s Proportional Distribution According to Some Variables

The information presented in Table 1 shows that the education level of more than half of the sample (58%) did not exceed the secondary stage. Moreover, the percentages of both the highly educated and uneducated women are equal (17%). As for the women with primary education, their percentage was very small (8%). Regarding the wealth index, the percentages indicate that the highest was for the richest women who reached a quarter of the sample. The percentage decreases when moving downwards toward the lower levels of wealth until it reaches the lowest value for the poorest women

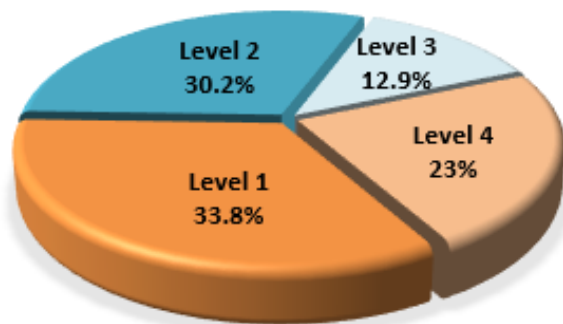
(16%).

**Table 1.** Women’s Proportional Distribution According to Some Variables (N = 8,293)

Characteristic	n	%
<b>Highest education level</b>		
No education	1416	17.1
Primary	675	8.1
Secondary	4814	58.0
Higher	1388	16.7
<b>Wealth index</b>		
Poorest	1338	16.1
Poorer	1503	18.1
Middle	1679	20.2
Richer	1731	20.9
Richest	2042	24.6
<b>Region</b>		
Urban governorates	1395	16.8
LE Urban	969	11.7
LE Rural	2342	28.2
UE Urban	996	12.0
UE Rural	2091	25.2
Frontier governorates	500	6.0
<b>The number of types of spousal violence experienced to (N = 2633)</b>		
Not experienced any violence	1855	70.5
Experienced to one type of violence only	421	16.0
Experienced to two types of violence	236	9.0
Experienced to three types of violence	96	3.6
Experienced to four types of violence	25	.9
<b>Empowerment index</b>		
Level 1	2381	28.7
Level 2	2126	25.6
Level 3	2819	34.0
Level 4	967	11.7
<b>Number of children including pregnancy status</b>		
1 – 2 children	3413	41.2
3 children	3210	38.7
4 children	1287	15.5
5+ children	383	4.6

Concerning region percentages of the women sample, it is noted that more than half of them reside in rural areas. Moreover, the proportions of the women residing in Lower Egypt and those in Upper Egypt are close, each approaching 40%. With regards to the women living in urban governorates and those in the frontier governorates, their percentages did not exceed 16.8% and 6% respectively. As for the levels of empowerment for the women sample, they indicate that the lowest percentage was for those at the highest level of empowerment (12%≈), whereas the highest percentage was for those at the third level of empowerment (34%). Regarding the women at the first level, which is the lowest level of empowerment, and those at the second level, the percentage of each of them reached nearly a quarter of the sample.

Only 2,633 women in the sample were asked questions related to their exposure to spousal violence. The figures indicate that nearly three-quarters of these women were not exposed to any form of violence (70.5%). The highest percentage was for the women who experienced one type of violence (16%), followed by two (9%), then three (4%≈), and finally four (1%≈).



**Figure 2.** Relative Distribution of the Women Sample According to the KABRF Index Levels

Most of the women in the sample (80%) had no more than three children, taking into account current pregnancy, whereas half of them had the optimal number of children, which is two at most. As for the women who had five or more children, their percentage did not exceed (5%≈).

Concerning the levels of the KABRF index, figure 2 indicates that the percentage of the women in each level (the first, which is the lowest level in this index, and the second) approached a third of the study sample 33.8% and 30.2%, respectively. As for the percentage of the women in the fourth level, which is the highest level in this index, it approached a quarter of the sample (23%).

## 6.2. Correspondence Analysis

Figure 3 shows that the correlations between most categories of the women's educational levels and those of

the KABRF index are strong. There is a very strong correlation between the category of the women with higher education and the highest level of the KABRF index levels (L4). It is also clear that the uneducated women and those with primary education are highly prone to be among the lowest KABRF index levels. The secondary-educated women are more likely to be classified in the third KABRF index level.

Figure 4 shows the different empowerment categories and how they are related to the KABRF index categories on two dimensions. It is found that the women who have the lowest level of empowerment (EM-1) are likely to be classified within the first or the second level of the KABRF index, with a bigger chance within the first. They are too far from being classified within the fourth level of the index. Concerning the women with the highest level of empowerment, they are more likely to be ranked within the highest levels of the KABRF index and less likely within the third. As for the women classified within the third level of empowerment, they are more likely to be classified within the fourth level of the KABRF index than within the third. Lastly, the women within the second level of empowerment have a marginal opportunity of being ranked within the second, third, or fourth levels of the index.

Figure 5 shows that the correlations between the types of exposure to spousal violence and the different levels of the KABRF index are on the whole weak; however, some general trends can be observed. A correlation appears between the exposure to three types of spousal violence and the second and first levels of the KABRF index. The figure also shows a clear correlation between the exposure to two types of violence and the first level of the KABRF index. There is a weak correlation between the exposure to one type of violence and the second level of the KABRF index. Regarding the women who have not been exposed to any kind of spousal violence, they have a marginal opportunity of being classified within the fourth and third levels of the KABRF index.

Figure 6 shows clear and strong correlations between the levels of the KABRF index and those of the wealth index. The figure clearly shows a very strong correlation between the highest level of the wealth index (Richest) and the highest level of the KABRF index. It also shows clearly the strong correlation between the lowest level of the wealth index (Poorest) and the lowest level of the KABRF index. There is also a clear correlation between the (Poorer) level of the wealth index and the second level of the KABRF index. The women in the Middle Wealth Index category are more likely to be classified within the third level of the KABRF index, whereas those in the Richer category are marginally exposed to be classified within the fourth and second KABRF index levels.

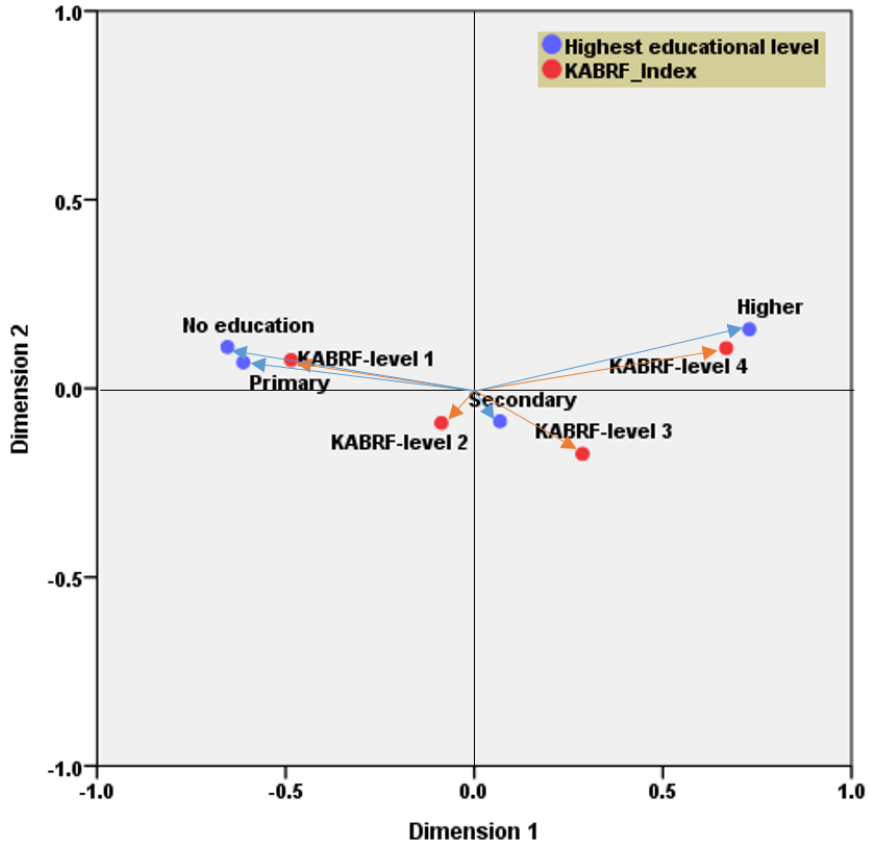


Figure 3. A Biplot Displaying the Levels of the KABRF Index, and How They Relate to the Categories of Women's Educational Levels

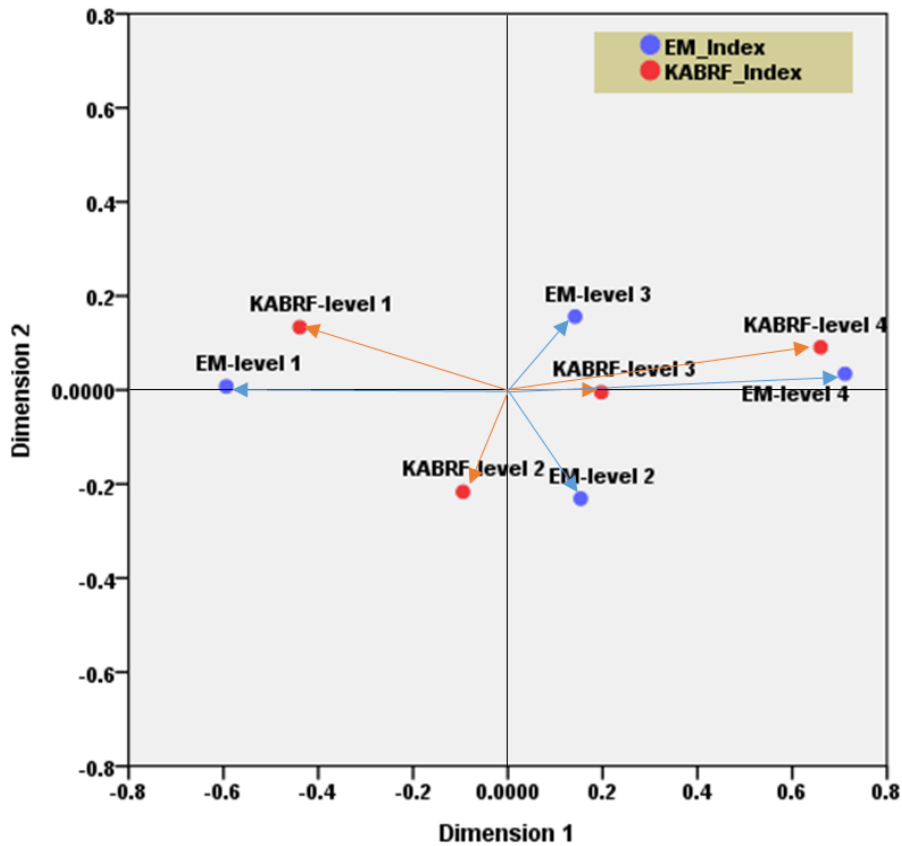


Figure 4. A Biplot Displaying the Levels of the KABRF Index and How They Relate to the Categories of the Empowerment Index

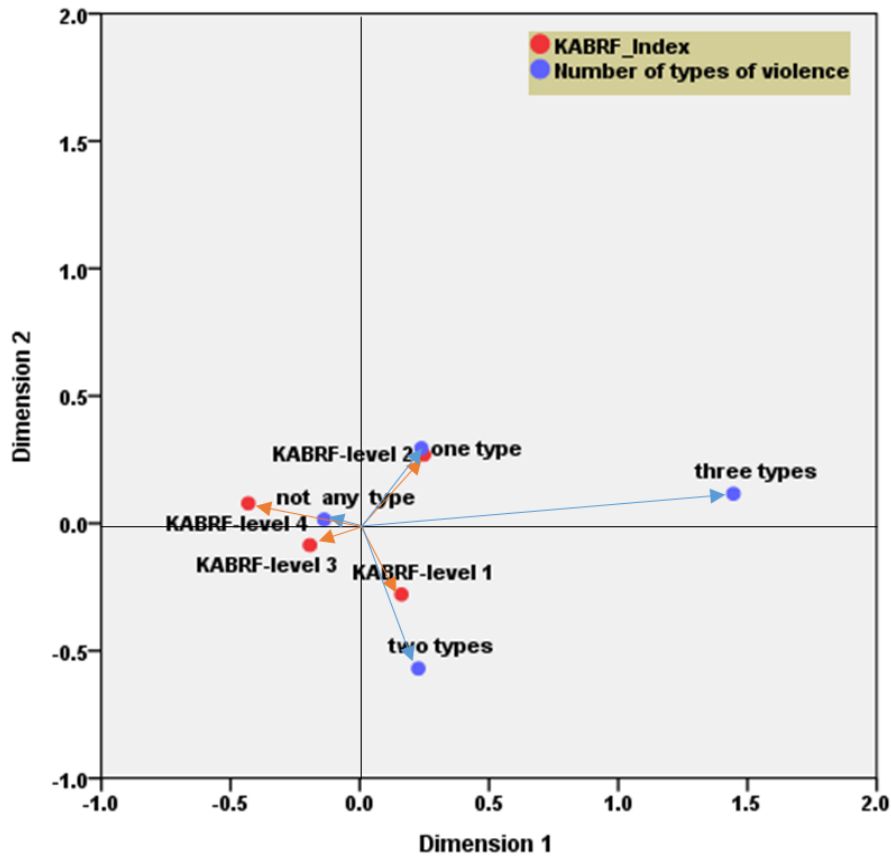


Figure 5. A Biplot Displaying the Levels of KABRF Index and How They Relate to the Categories of the Exposure to Spousal Violence

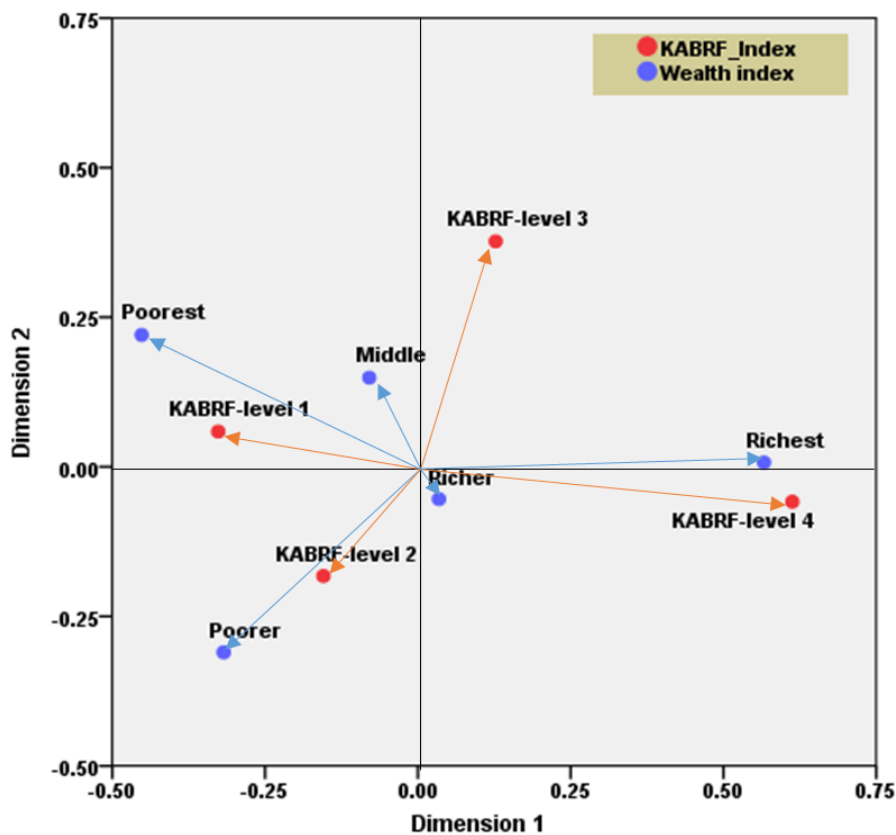


Figure 6. A Biplot Displaying the Levels of KABRF Index and How They Relate to the Categories of the Wealth Index

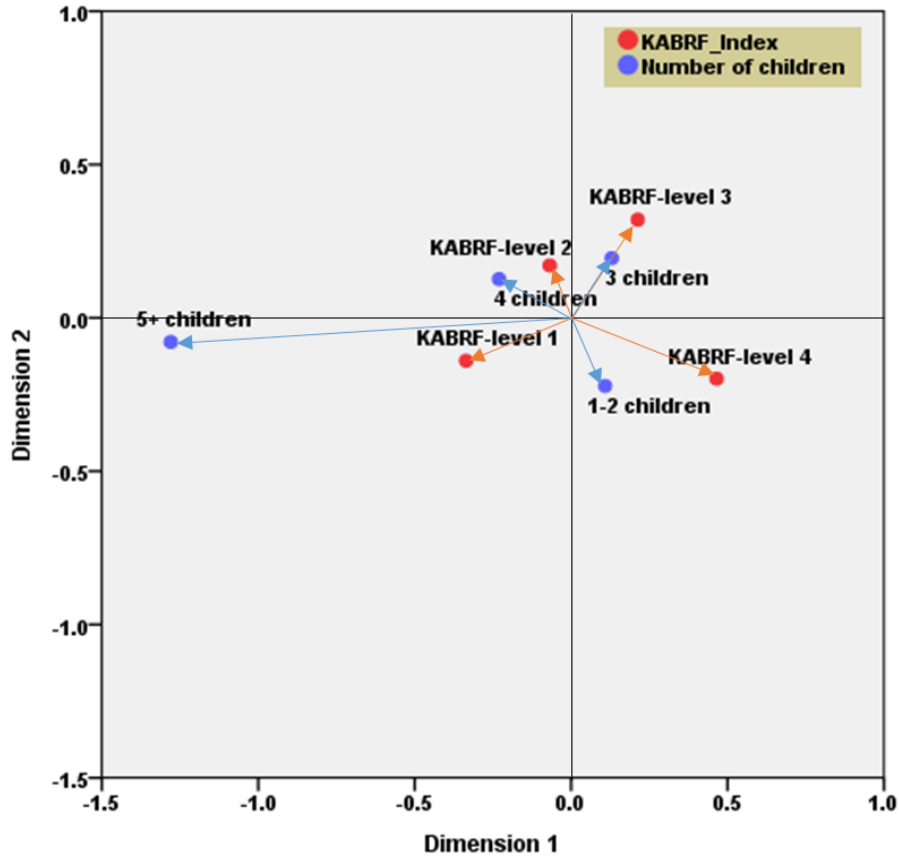


Figure 7. A Biplot Displaying the levels of the KABRF Index and How They Relate to the Categories With the Women’s Different Numbers of Children

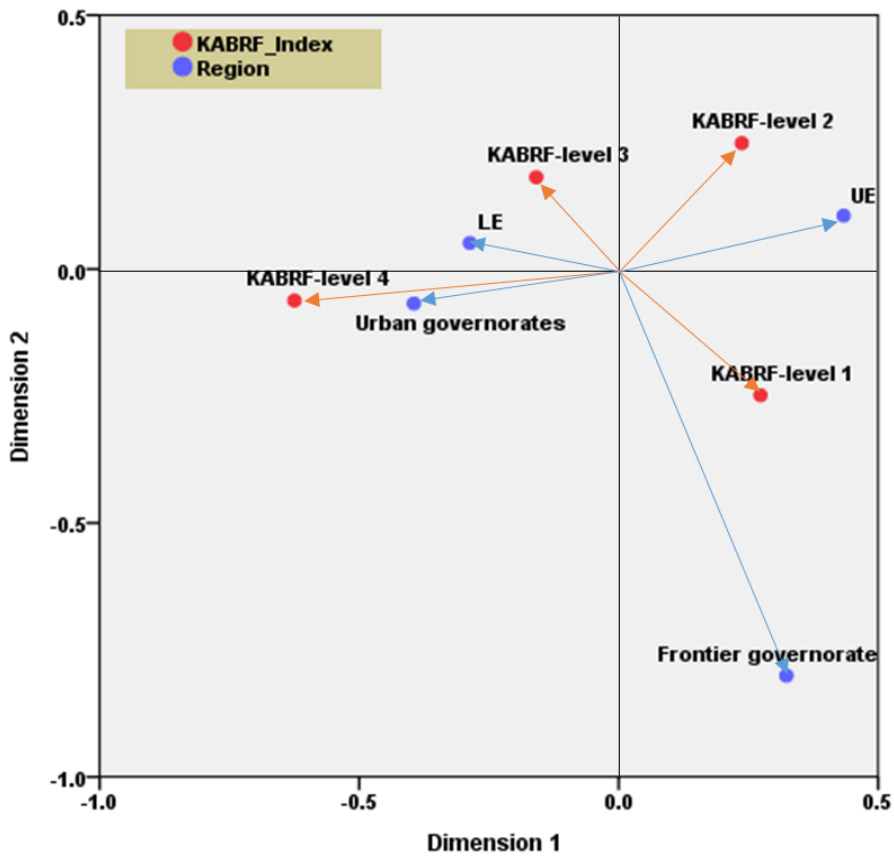


Figure 8. A Biplot Displaying the levels of the KABRF Index and How They Relate to the Categories of the Place of Residence



Figure 7 shows that the correlations between the women's different numbers of children and the different levels of the KABRF index are between weak and medium. They highlight the association between the lowest level of the KABRF index and the woman's conception of five or more children. Moreover, there is a correlation between the highest level of the KABRF index and the woman's conception of two children at most. In addition, there is a correlation between the third level of the KABRF index and the woman's conception of three children. As for the second level of the KABRF index, it appears to have a marginal risk of the woman's conception of four or three children.

Figure 8 shows the clear influence of the residence on the attitudes and behaviors of women towards childbearing and family planning. It shows a strong correlation between residences in the urban governorates (U.G.) and the highest level of the KABRF index. The figure also shows the lowest correlation between residences in the urban governorates (U.G.) and the third level of the KABRF index. The women residing in Lower Egypt (LE) are more likely to be classified within the highest level of the KABRF index levels, but they are less likely to be classified within the third level of the index. As for the women residing in Upper Egypt (UE), they are more likely to be classified within level 2 of the KABRF index while they are less likely to be classified within level 1 of the index. On the other hand, the drawing at the far right shows the clear and strong correlation between residences in the Frontier governorates (F.G.) and the risk of being classified within the lowest level of the KABRF index.

## 7. Discussion

### 7.1. KABRF Index

The index under study, which combines women's knowledge, attitudes, and behaviors in relation to childbearing and family planning, has given a comprehensive picture of this aspect. A large percentage of Egyptian women (about a third of the sample) are classified within the lowest level of the index, whereas another third of the sample is classified within the second level of the index.

The results of the Correspondence Analysis showed clearly that these women are mostly those ranked at the lowest level of the variables under study, namely education, wealth, residence, exposure to violence, empowerment, and the number of children. This requires a pause from the country specialists and work to gradually reduce the percentage of women classified within the lowest level of the KABRF index. They also need to raise the level of that category of women and prevent new generations of women, within the childbearing age range, from being classified within the lowest levels of this

index.

### 7.2. Education

With regard to women's education, these results agreed with the findings of others. They all agreed that the educational status is significantly related to the practice of family planning [27]. They all also found out that the woman with a higher educational level obtains a higher degree on the family planning attitude scale [16], has greater control over the childbearing decision [28], uptakes contraceptives early, and can be predicted to be using family planning methods [29].

These results of women's education may be attributed to several reasons, the most important of which is that when a woman has received a certain educational level, she always aspires for her children to reach higher educational levels than she has reached and to make them qualified for the labor market. This makes her concerned with the quality of her children's caliber and not their number. In addition, the highly educated woman is often the working woman who lacks the time needed to form a large family and seeks self-realization, financial independence, and income that enables her to achieve her goals.

Nowadays, many women who reach a higher level of education (postgraduate degrees) do not have the opportunity to get married in their twenties. They use that long period (from the time of their university graduation until they get married) to provide themselves with additional information and have a higher degree of awareness and consciousness. In addition, for these women, the remaining period of their reproductive age becomes limited. Therefore, they are more careful with the maximum number of children they could conceive which does not exceed two in order to avoid the risk to their health as mothers as well as their fetus' health at the older ages of pregnancy and childbearing. Finally, in general, higher education means higher awareness and knowledge, as supported by [30] [16].

### 7.3. Empowerment and exposure to violence

As for the results of the women's empowerment and their exposure to different types of violence, they were consistent with the results of others on the following points. Empowerment has an important role in childbearing decisions [31]. Women who have a degree of empowerment have greater control over childbearing decisions [28]. Women's empowerment is significantly related to using family planning methods [32]. Empowerment is associated with lower rates of undesired pregnancies, longer spacing periods in between childbirths, and lower fertility rates [33]. Problems in the relationships between spouses are linked to empowering women in childbearing decision-making [34].

Those results can be attributed to the fact that the

woman who is aware of her rights in marriage knows well that she has all the rights that the husband possesses, does not compromise her strong personality or her entitled degree of empowerment, and does not accept living within the cycle of violence or psychological and physical abuse. That kind of woman is the one who has awareness in most aspects of life. She also possesses the ability to search for the required information in all situations within her family life to be always on the right track. Therefore, she can discuss the timing of the first childbearing, the spacing periods, and the type of family planning method used, its source, how to obtain it, and the duration of its use.

#### 7.4. Wealth Index

On the other hand, the results of the study showed a clear and strong correlation between each level of the wealth index and its roughly corresponding level of the KABRF index. This is due to the fact that the higher the standard of living, the keener the spouses are to invest in their children and pay attention to the quality of their children's caliber and not their number. On the contrary, the poorest classes are more concerned with conceiving a large number of children regardless of the quality of life or caliber they are able to offer to them. This has been the case, especially after the spread of international schools in Egypt and the interest in studying foreign languages and making them one of the conditions for recruitment in prestigious jobs in Egypt nowadays. Normally, only the richest classes can pay the expenses of these international schools. Therefore, the spouses are keen to get access to all the information that will aid them in achieving this goal so that all their attitudes and behaviors will have the same focus.

The results of a study of Ethiopian women [32] contradicted the situation in Egypt mentioned above. The wealthier women were less likely to use family planning methods since they had a greater financial ability to support their children. Another reason for that is the fact that in Islamic societies, it is expected that women conceive a larger number of children. It is important to point out that these results contradict those of others [35-37] [32]. Concerning [38], a recent study conducted in 2021 on adolescent girls in Uganda found that women in the middle category of the five wealth index categories are 91% more likely to use family planning methods as compared to those in the lowest category of the index. This can be justified by the poverty of information among the poor women due to low education and the lack of newspapers and devices, such as mobile phones and television and radio sets [39, 48-50] [38]. In addition, the findings of [38] can be attributed to the lack of money necessary to purchase the family planning methods and cover the transportation expenses to the free health centers [39, 40] [38]. This study also supports all of these justifications. According to the results of DHS-2014, nearly half of the women at the lowest level of the wealth

index have never attended school, while more than eight out of ten women have completed secondary school and belong to the highest level of this index [41].

#### 7.5. Number of Children

The Correspondence Analysis results in relation to the number of children a woman has in this study confirm the interpretation of wealth. This is due to the apparent correlation between the highest level of the KABRF index and the woman's conception of two children at most. Another reason is the correlation between the lowest level of the KABRF index and the woman's conception of five or more children, where her concern here is about the number of children she could conceive, which represents the quantity and not the quality. Therefore, there is no need to search for information. Reproductive and family planning behaviors seem random. The goal is to conceive a large number of children to work even in their childhood and to help with living expenses later on.

#### 7.6. The Region

Regarding the region in which women reside and its correlation with the levels of the KABRF index, the results showed that the lower levels of the index were related to residence in the Frontier governorates (FG) and Upper Egypt (UE). On the contrary, the higher levels of the index were associated with residence in the urban governorates (UG) and Lower Egypt (LE). These findings may be attributed to the well-known prevailing features in Upper Egypt (UE) and the Frontier governorates (FG), especially the rural areas, in terms of a decline in living standards, education, health care, and aspects related to women's empowerment, which are linked, as previously mentioned, to being classified within the lower levels of the KABRF index.

## 8. Conclusions and Recommendations

### 8.1. Conclusions

- The results of this study are important preliminaries and further studies are needed to determine the causal relationship with the outcome of interest.
- Based on these preliminary results, we can see that improving the situation of Egyptian women in terms of empowerment, education, the standard of living, and not being exposed to any spousal abuse. Moreover, it is also crucial to eliminate the outdated customs and traditions prevailing in some regions, which always put women in second place, where the husband and childbearing are the most important priorities of women. The aim is to improve the attitudes and behaviors of Egyptian women with regard to childbearing and family planning, bring

them to the highest levels, and then reach the goal of the Egyptian family being satisfied with only two children at most.

## 8.2. Recommendations

Adopting the following points may improve the situation of these women:

- The government could follow a policy of motivation, not intimidation, in limiting population growth by giving privileges to families who are committed to having two children at most.
- The concerted efforts of the Ministry of Health and Population and the Ministry of Information, in directing intensive awareness messages, that family planning methods are safe and effective, and that the idea of having two children equals an ideal family, through all media and social media.
- The Ministry of Health and Population could prepare a handbook that contains all the points that every couple should know in relation to childbearing and family planning. This handbook should present an explanation of all available family planning methods, how to use them, where to find them, the entities responsible for them, and the phone numbers that can provide advice and assistance for free. To ensure that this handbook is delivered to all newly-married couples, their signature when receiving it could be made a condition for the validity of the marriage contract.
- Adopting the simulation system that [42] talked about in his study, could be taken into account for carrying out a significant reduction in fertility levels. He indicated that the behaviors of distinguished individuals are likely to be imitated when they adopt new methods that reduce fertility. This is the same concept that [23] indicated: imitation and social learning are acquired skills that influence individuals' attitudes towards family planning.
- Women should be included in the book series Values and Respect for the Other that began to be taught in the primary stage. This series should be expanded to include all academic stages at school. One of its goals should be to spread awareness about the role of women and their rights within their families and societies. Consciousness should also be raised about the fact that initiating violence in any form in marriage will inevitably lead to its failure.
- The government could toughen the penalty for dropping out of education. It could also compel everyone to receive compulsory education until completing the secondary stage.

## Conflicts of Interest

The author declares that there are no conflicts of

interest.

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