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THE SPATIAL VARIATION OF FORMAL AND INFORMAL EDUCATION OF RURAL FEMALES IN IRAQ FOR THE ACADEMIC YEARS (2015 & 2018)

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Abstract

The study aims at analyzing and explaining the reasons behind rural female's unjoining in primary and secondary education in the governorates of Iraq, because these reasons are not consistently distributed, but they rather vary spatially and temporally according to governorates within the study area. The problem of the study lies according to geographical facts, which requires a logical explanation to know the spatial and the temporal relationships for those reasons by following a scientific methodology represented by the geographic analysis method and the "descriptive and inferential" statistical analysis approach. More specifically, by using the factor analysis method and the basic components method, to interpret the results of the questionnaire and prove the expected assumptions. It revealed the relationships in the form of factors on which the geographical variables are distributed, and which interpreted and analyzed the variables causes of each factor, in order to reach realistic conclusions and logical assumptions.

Keywords: spatial variability, enrollment in formal and non-formal education, rural females, factor analysis

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Introduction

Education system is a fundamental requirement for all population groups and human societies, since it is regarded as the starting point for human capacity development programs, and this is what national governments and international organizations have emphasized, especially those of the United Nations, and the United Nations educational education and Culture Organization (UNESCO) foremost in all its global conferences and declarations. Education represented the requirement and the fourth goal of the Millennium Development Goals, namely, "a comprehensive and fair guarantee of quality education and the promotion of lifelong education opportunities for all". The fifth goal of the Millennium Development Goals is "achieving gender equality Babel and empowering all women and girls". It calls for empowering women and increasing educational opportunities. There was an international emphasis on the importance of female education as the starting point for the comprehensive development of society came in the International Women's Conference held in Beijing in 1995. This is what called us to study and analyze educational opportunities for rural and informal females and the role of geographical variables in spatial and temporal variations.

Studying the woman's conditions, her family and societal status, and their role in bringing about economic, social and cultural changes is a necessity that cannot be overcome, because it represents the means and solutions to most of the problems that societies are exposed to. This is what has been proven by national and international experiences in the advancement of societies, the expansion and development in the field of female education, especially in the Arab region and many developing countries.

The social, economic and security conditions greatly affected joining levels and rates, especially after the two crises represented in the entry of ISIS and the subsequent population displacement and the collapse of oil prices.

Due to the topic privacy and the requirements of the scientific methodology for the study, the analysis was shown in four axes:

The theoretical framework of the study

Geographical analysis of formal and non-formal education for rural women

Inferential analysis of spatial relationships

Conclusions and suggestions

The theoretical framework of the study

The theoretical framework diagnoses the starting points of the study and its scientific course, through the problem of the study, its basic assumptions, and the approaches compatible with the nature of the study are presented and enable to reach the scientific conclusion approved for the purpose of the study and the presentation of appropriate solutions. The frame can be specified by:

The problem of the study

The specificity of the topic gave broad dimensions that cannot be presented in one problem, but rather in several problems, namely:

The study of the status of women is, in fact, is of the conditions of society as a whole, because it is the basis of population dynamics and the starting point for human development in all its forms. Following up their conditions means following up the population phenomenon in general with its constant change.

- Iraq in general and its countryside in particular suffers from negative fluctuations in all aspects of its educational system over the past decades, such as efficiency and adequacy, which required standing up for them and identifying effective solutions.

- The descriptive data of the subject shows that there is a defect in enrollment and continuation rates among women in rural areas. This is due to fundamental reasons that must be known to develop solutions and treatments.

- Iraq possesses the necessary funds and human capabilities to advance the educational system, but it needs proper direction of funds and management directed at human capabilities and qualifications. This requires identifying the size, distribution and composition of the target groups for human resources development and achieving the required balance.

- The national population policies did not achieve their goals, and the majority of families did not adhere to the policies of developmental advancement and family planning, due to the imbalance in practical implementation on both sides.

The hypothesis of the study

Based on what was stated in the problem, the hypothesis of the study is determined by"

Assuming that there are defects in female joining rates and their continued studies in rural areas have several reasons that need to determine the level of impact according to scientific steps, and it can be determined by

* Reasons related to the public education system, which needs to be restructured.

* Reasons related to the general status of women in the countryside, and they can be identified as (economic, social, cultural, and security)

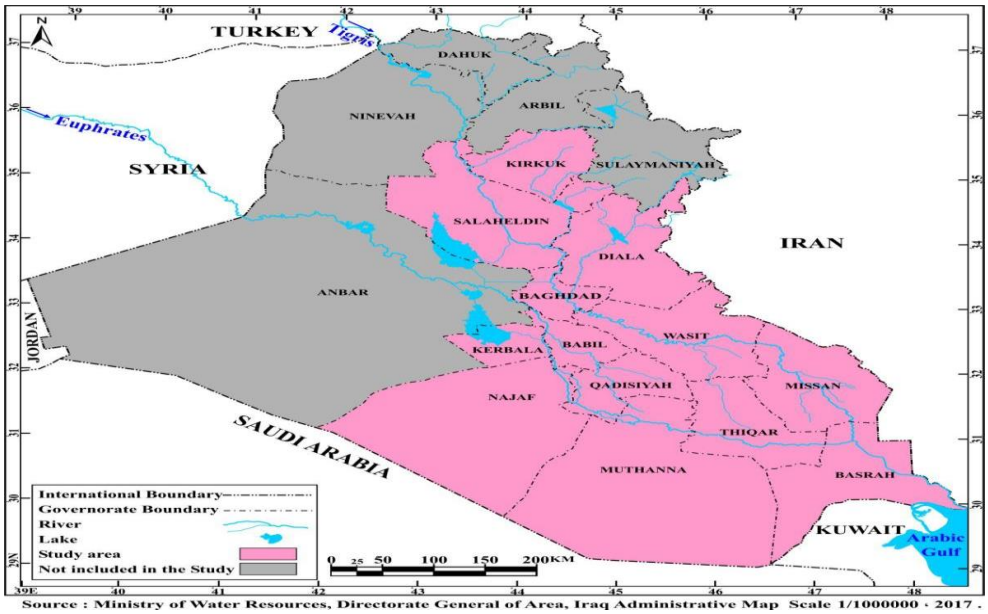
* Biological causes specific to rural females

- Diagnosing the causes enables the creation of population and development policies that are more appropriate to the requirements of developing human capabilities to bring about changes in the overall population situation.

Spatial and temporal boundaries

The study adhered to the data of the Central Bureau of Statistics for the years 2015 and 2018 on the education of rural females, formal and informal, at the level of the governorates of Iraq. The governorates of the Kurdistan region and the two governorates of Anbar and Nineveh were excluded due to lack of data.

Map (1) The location of the studied governorates in relation to the rest of Iraq



Source : Ministry of Water Resources, Directorate General of Area, Iraq Administrative Map Scale 1/1000000 . 2017 .

The methodology of the study

The results accuracy depends on the accuracy of the methodology and the correct choice of the appropriate statistical method with the phenomenon studied. It was adopted a geographical analysis method for showing spatial and temporal variations.

- Statistical analysis approach through the use of different statistical methods, including.

* Arithmetic Mean $\bar{X} = \frac{\sum x}{n}$

* Standard Deviation $Sx = \sqrt{\frac{\sum(X-\bar{X})^2}{n}}$

Where: X = data, $\bar{X}$ = arithmetic mean of data, n = number of values for the observation or (years)

* Standard Score $Z = \frac{X-\bar{X}}{SX}$ (Sami Aziz Abbas, 2013, pp. 124-p.126)

* Adjusted Standard Score T_{Score}= 50 + (10) Z (Jonn L. Badgett, 2009: 90).

Factor Analysis with the use of the Statistical Portfolio (SPSS).

Concepts and terminology

Formal education takes place in recognized institutions such as schools, colleges and universities, and which often results in recognized qualifications and certificates. As for non-formal education, it is a wide range of educational initiatives in society, and it tends to target certain disadvantaged groups with limited purposes and is more flexible and effective than formal education (WHO, 2012, pp. 4 and 9).

Geographical analysis of formal and non-formal education for rural women

The Iraqi population growth has accelerated, as the population of Iraq, the study area, exceeded 27312936 in 2018, and the percentage of females constituted about half, reaching 13532993, while the number of females in rural areas reached 44035762. The percentage (29%) of the total number of females in Iraq is shown in Table (1).

Table (1) Population and female rural population in Iraq for the years (2015 and 2018)

Rural Women	Overall Women Population	Overall Iraq Population	Year
3727556	12499464	25227021	2015
44035762	13532993	27312936	2018

Source: the researcher's work by depending upon the Ministry of Planning, the Central Bureau of Statistics, Population Planning, Iraq Population Estimates 2015-2018, unpublished data.

First: The spatial variation of formal education for women in rural Iraq for the years (2015-2018)

It includes two academic stages:

1 - **The primary education stage**: It includes six grades, in which children at the age of (6) years are accepted, and this stage of study in Iraq is mandatory based on Law No. (118) of 1976 Al-Waqi'i Iraq newspaper, 1976, p. 17, Despite compulsory education and the efforts made to achieve equal educational opportunities between urban and rural areas and between females and males. There is still a disparity in the level of primary education, especially in rural

areas, due to several reasons, including the decline in educational expenditures due to the unstable political situation represented in the war on ISIS, which led to a loss of the balance in efficiency and adequacy.

2- **Secondary education stage**: It consists of two stages, the first is the intermediate school stage in which graduates from the primary education stage are accepted and the duration of the study is three years. The second is the preparatory study stage with its scientific and literary branches in which the graduates from the intermediate education stage are accepted and the period of study in it three years too. There is also still a variation in female joining rates and school retention.

Spatial variation of rural female students existing in primary and secondary education for the year 2015

First: The primary stage in rural places of Iraq for the year 2015

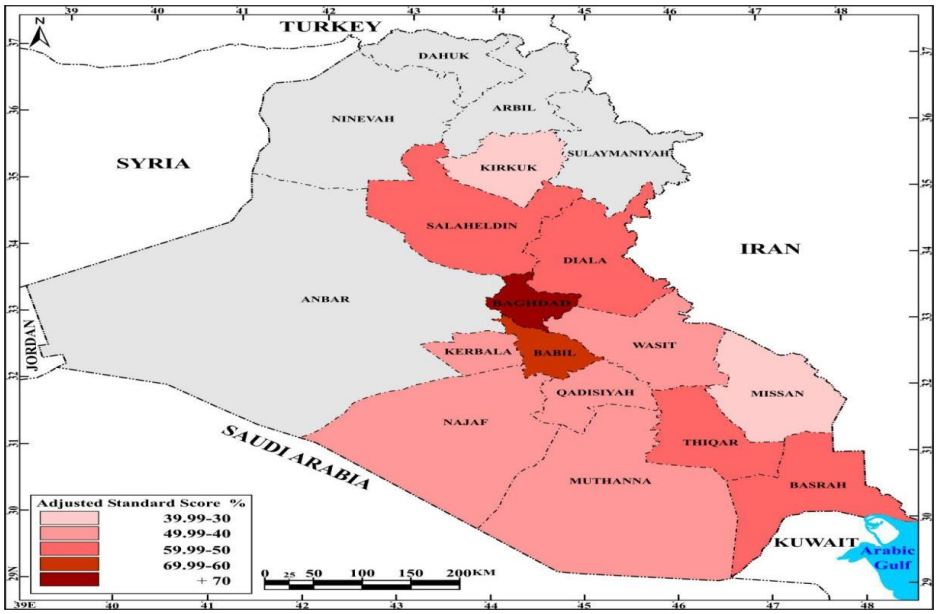
As for the number of female students existing in the primary stage for the year 2015, the statistics were used to convert raw grades into standard grades by extracting the arithmetic mean and the standard deviations to be collected. The standard grades are a tool for determining the relative status of the raw degrees to arrive at an interpretation of these grades and evaluate their results (Abd Aoun, p. 65). Here, the modified standard score 〖T〗 _ Score, created by the two scholars Thorndike and Terman, was used, which is a standard score of (50) where its standard deviation is (10) degrees, and its values range between (20-80). Thus, the negative signals and fractions that appeared in the standard scores can be eliminated, as shown in Table (2). The modified standard scores were divided into levels (weak, acceptable, average, good, and very good) as shown in the map (2).

Table (2) the number of rural students present in primary and secondary education in the governorates of Iraq for the year 2015

Modified standard degree	2015 / secondary stage		Modified standard degree	2015 / primary Stage		Governorates
	Standard degree	Existing female students		Standard degree	Existing female students	
66	1.624626086	28950	58	0.792034747	78996	**Saladin**
40	-1.11735694	2647	34	-1.619957062	11016	**Kirkuk**
62	1.197530148	24853	53	0.348807302	66504	**Diyala**
64	1.417697739	26965	70	2.025315466	113755	**Baghdad**
58	0.763866711	20693	62	1.235829885	91504	**Babel**
48	-0.23116154	11148	45	-0.464521445	43581	**Karbala**
45	-0.52555229	8324	44	-0.630713996	38897	**Najaf**
43	-0.70808707	6573	45	-0.54367934	41350	**Qādisiyyah**
41	-0.86998114	5020	44	-0.620034244	39198	**Muthna**
42	-0.77053044	5974	47	-0.277075833	48864	**Wasit**
52	0.172270555	15018	56	0.59224178	73365	**Dhi-Qar**
37	-1.31896874	713	39	-1.099239325	25692	**Meysan**
54	0.36564692	16873	53	0.260992066	64029	**Basra**
0	0	173751	0	0	736751	**Total**
	13365.46154			56673.15385		**arithmetic medium**
	9592.692493			28184.17532		**Standard deviation**

Source: The researcher's work depending on the Ministry of Planning, the Central Bureau of Statistics, the Directorate of Social and Educational Statistics, Primary and Secondary Education in Iraq, 2015, published data, separate pages.

Map (2) of the distribution of primary school students in rural Iraq for the year 2015



Source: based on Table (2).

1- The first weak level (30-39.99%) in which the values deviate from the arithmetic mean, represented by the governorates of Kirkuk and Meysan, since they reached (11016) and (25692) respectively, with a standard degree (34) and (39). The reason in Kirkuk governorate is due to the demographic changes that took place in this governorate as a result of the waves of displacement that flowed to it from Nineveh governorate due to the war on ISIS, while in Maysan governorate, the reason was the high rates of poverty in it, which helped the reluctance of rural girls to study due to the family's inability to bear the expenses of education.

2- The second acceptable level (40-49.99%) and its values are below the arithmetic mean. The low percentages of females in primary education include Karbala, Najaf, Qādisiyya, Muthanna, and Wasit with a standard degree ranging Between (44-47). The reason for the scarcity of rural females in primary school is due to the tribal customs, traditions prevailing in these governorates, which prevent girls from going out to school, and the school distance from the villages, and the difficulty of providing transportation in these areas.

3- The third intermediate level (50-59.99%) and its values are close to the arithmetic mean and it is represented by Salah al-Din, Diyala, Dhi Qar, and Basra. Its standard scores range from (53-58) and the reason is due to social and economic factors, including the high financial condition of families in these governorates. Rich families have a greater ability to give their children better educational opportunities, which positively affects the increase in the percentage of females present at the primary stage in these governorates. .

4- The fourth good level (60-69.99%) and its value is higher than the arithmetic average, and it is represented by Babil governorate, where the number of enrollments reached (91504) and with a standard degree (62). The reason for this is due to urban expansion obtaining agricultural lands, as most of the inhabitants of the countryside of Babel Governorate are originally urban residents and have a desire for their daughters to obtain education, reading and writing at an early age.

5- The fifth level is very good (70- and above) representing the highest values of the number of rural female students in the elementary stage, and they appear in the governorate of (Baghdad) as they reached (113755) with a standard degree (70) i.e. Very Good. The reason for this rise is due to the influence of rural areas in the capital, Baghdad, because they are very close to it, or they are originally from the city of Baghdad. They settled in rural areas as a result of the expansion taking place in them, which led to the overlapping of cities in the countryside.

Second: Secondary education in rural areas of Iraqi Governorates for the year 2015

It is noted from Table (3) and Map (3) that the total number of female students in the studied governorates amounted about (173751). They were divided into four levels according to their modified standard degrees, which are:

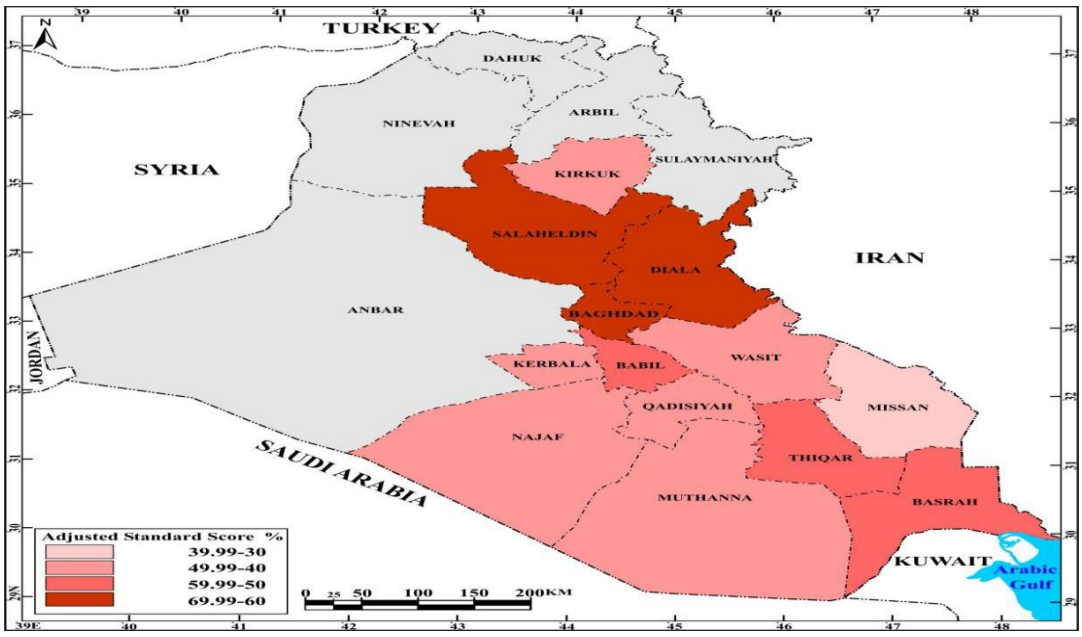
1- The first weak level (30-39.99%) appeared in Maysan governorate, where the number of rural females present in secondary education reached (713) with a modified standard degree (37). The reason is due to this percentage, is the declination in the prevalence of the phenomenon of early marriage from relatives due to social norm and the spread of poverty as the enrollment rates of rural females decrease in school whenever their marriage rates rise.

2- The second acceptable level (40-49.99%) appeared in Kirkuk, Karbala, Najaf, Qādisiyyah, Muthanna, and Wasit, where its modified standard grades ranged between (40-48). This refers to the prevailing tribal customs and traditions in it, which prevent girls from going out to school after completing the primary school and being content with learning to read and write only.

3- The third intermediate level (50-59.99%) appears in each of the governorates of Babel, Dhi Qar, and Basra. The reason behind this level is the scarcity and distance of schools where each school is about 5 Km away the village causing obstacles to provide transportation in those areas.

4- The fourth good level (60-69.99%) found in Salah al-Din, Diyala, and Baghdad due to the parent's improved educational level and the increase in the standard of living or family income.

Map (3) of the distribution of rural females in secondary education in the countryside of the governorates of Iraq for the year 2018



Source: based on Table (3).

Modified standard degree	Secondary stage/ countryside / 2018 Standard degree	existing female students	Modified standard degree	Secondary stage/ countryside / 2018 Standard degree	existing female students	Governorates
57	0.747789465	26991	58	0.773658196	87554	**Saladin**
41	-0.89124509	7458	39	-1.065322857	33733	**Kirkuk**
60	0.980390897	29763	53	0.311290503	74022	**Diyala**
65	1.450041047	35360	72	2.239861276	130465	**Baghdad**
65	1.534791209	36370	62	1.241595349	101249	**Bebel**
46	-0.39784811	13338	44	-0.648467562	45933	**Karbala**
42	-0.76361638	8979	41	-0.877430458	39232	**Najaf**
42	-0.78946098	8671	44	-0.630289938	46465	**Qādisiyyah**
41	-0.90785948	7260	44	-0.636269419	46290	**Muthna**
42	-0.76688891	8940	48	-0.241726133	57837	**Wasit**
57	0.702141853	26447	55	0.455959791	78256	**Dhi-Qar**
37	-1.33051944	2223	39	-1.142031065	31488	**Misan**
54	0.432283914	23231	52	0.219172316	71326	**Basra**
0	0	235031	0	0	843850	**Total**
	18079.30769			64911.53846		**arithmatic medium**
	11917.38147			29266.75068		**Standard deviation**

Third: Primary and secondary education in the countryside of the governorates of Iraq for the year 2018

It is noted from Table (3) and Map (4), that the number of rural students present in primary education in the studied governorates for the year 2018 amounted to about (3381,207), and they were divided into five levels according to their modified standard grades, namely:

Table (3) is the number of rural students present in primary and secondary education in the governorates of Iraq for the year 2018

Source: The researcher's work by depending upon the Ministry of Planning, the Central Bureau of Statistics, the Directorate of Social and Educational Statistics, Primary and Secondary Education in Iraq, 2018, published data, separate pages.

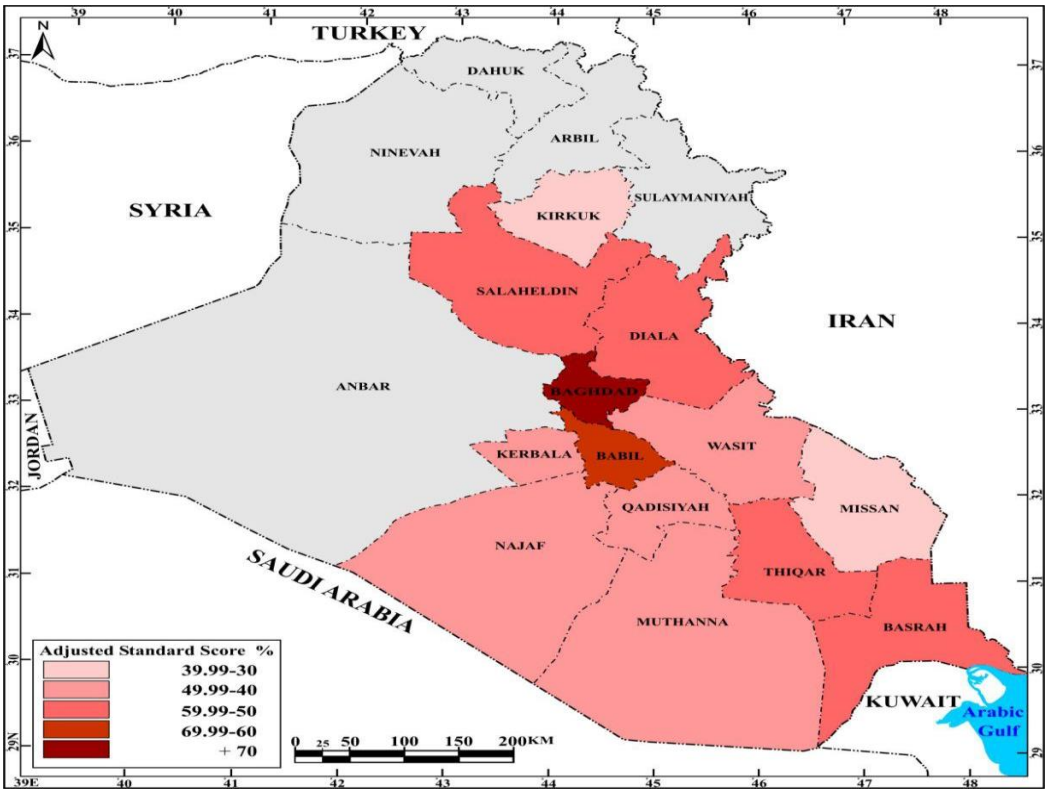
1- The first weak level (30- 39.99%) shows the lowest values and appears in each of Kirkuk and Maysan governorates, with a modified standard degree of (39%). The reason is due to rural girl's involvement in various fields of work as a result of the low standard of living for rural families and the high levels of poverty in them, because the employment rate rises with the increase in poverty.

2- The second acceptable level (40-49.99%) appears in the governorates of Karbala, Qādisiyyah, Muthanna, Wasit, and Maysan with modified standard degrees ranging from (40-48%). The reason is due to the viewpoint social in this countryside.

Governorates that prefer males to continue education over females.

3- The third intermediate level (50-59.99%) appears in each of the governorates of Salah al-Din, Dhi Qar, Basra, and Diyala with standard degrees ranging from (52-58%). The reason is the social viewpoint in the countryside of these governorates favors the continuation of males in education over females.

Map (4) of the distribution of rural females in primary education in the governorates of Iraq for the year 2018.



Source: based on Table (4).

4- The fourth level is good (60-69.99%) appears in Babel Governorate with a standard degree (62%). The reason is due to the proximity of residential areas to schools, and the presence of more than one school in villages and countryside due to the contact between urban and rural areas as a result of urban expansion on agricultural lands, as we mentioned previously.

5- The fifth level is very good (70% - and above) noticed in Baghdad governorate to a standard degree (70%). The reason is the rapid growth of the female population in the governorate, especially the age groups within the educational age, which generates pressure on schools, as most schools in Baghdad governorate work with more than one shift in order to deal with the large numbers of female students joined the primary education.

As for secondary education

From Table (3) and Map (5), it is noted that the number of rural students present in secondary education for the year 2018 amounted to (235031), distributed into four levels according to its modified standard scores as follows:

1- The first level is weak from (30-39.99%) shows the lowest values noticed in Maysan governorate, as the number of rural females present in secondary education reached a total of 2223 with an adjusted standard degree of (37%). The reason for this is due to the phenomenon of female employment registered in schools, as it does not exclude them, if they join the study. As for the most important work, it is related to working at home or in the family institution, in addition to the prevalence of early marriage phenomenon which represents an important barrier to the continuation of rural females in the governorates of Iraq to educate them.

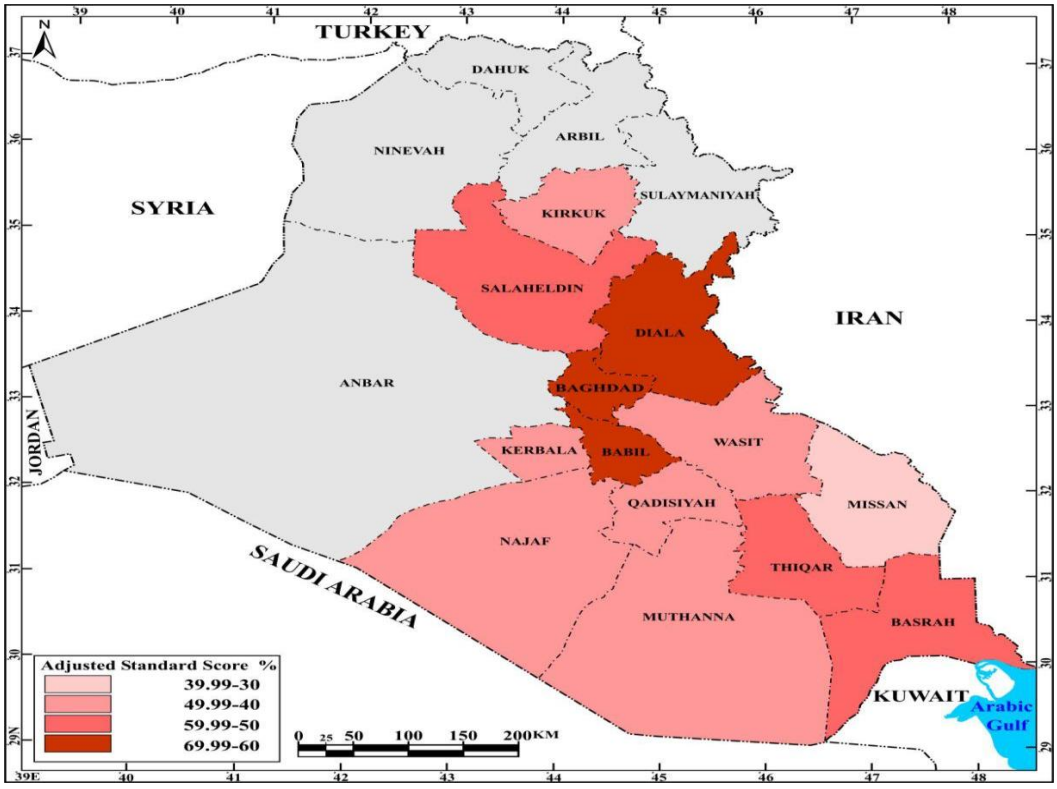
The second acceptable level is from (40-49.99)% is in Karbala, Najaf, Muthanna, Qādisiyyah, Wasit, and Kirkuk with modified standard degrees ranging between (41-46%). The reason for this is attributed to the socio-economic situation in the

countryside of these governorates, which is considered a poverty-generating environment due to the high fertility rates.

3- The third intermediate level (50-59.99%) is concentrated in Salah al-Din, Dhi Qar, and Basra with modified standard degrees ranging between (45-57%). The reason is due to the poor geographical distribution of secondary schools in the countryside, as secondary schools are always located in the center of the suburb or district center. In addition to that, the rural villages are far from the downtown, which forces students to walk long distance to get to school and need more time, effort and money to get there.

4- The fourth good level (60-69.99%) prevails in Diyala, Baghdad, and Babel with modified standard degrees ranging between (60-65%) The reason is due to the decent standard of living that the countryside of these governorates has, as a result of the high rates of production in their countryside, because of their economic activity that focuses on professions and handicrafts that generate income.

Map (5) of the distribution of rural females in secondary education in the governorates of Iraq for the year 2018



Source: based on Table (4).

Third: The spatial variation of informal education (literacy) in the countryside of the governorates of Iraq / 2018

It includes two stages:

1- The first phase is the literacy centers in the countryside of the governorates of Iraq for the year 2018. The Literacy Law (23) of 2011 was enacted, according to which the High Authority for Literacy Eradication was established in the Ministry of Education and the creation of an executive body to eradicate illiteracy, "The Federal Office of Financial Supervision, p. 2". This type of school includes rural females aged (15-45) years who are not allowed by the educational system to be admitted to elementary school and secondary education knowing that it has a curriculum and system that differs from primary and secondary education. The

duration of study is four years, equivalent to four stages which whereby which the graduate is awarded a certificate equivalent to primary education, the number of illiterate rural females in Iraq in 2018 reached 928152, which is equivalent to (23%) of the total number of rural females in Iraq, which is (4035762).

From table (5) and map (6), we note that the illiterate rural females for the year 2018 were (928,152), distributed on four levels according to their modified standard degrees, as follows:

Table (5) The total number of illiterate rural females in the governorates of Iraq for the year 2018 and their adjusted standard degrees.

Rural illiteracy 2018			
Modified standard degree	Standard degree	Female illiterate	Governorates
51	0.77162238	98710	Saladin
34	-1.623633196	13924	Kirkuk
31	-1.85621131	5691	Diyala
50	-0.008027078	71112	Baghdad
62	1.242532236	115379	Babel
42	-0.817041155	42475	Karbala
46	-0.396349116	57367	Najaf
51	0.116727818	75528	Qādisiyyah
55	0.535812766	90363	Muthna
57	0.697368315	96081	Wasit
65	1.457059497	122973	Dhi-Qar
51	0.076166927	74092	Meysan
48	-0.196028085	64457	Basra
0	0	928153	Total
	71396.36946		arithmetic medium
	35397.49656		Standard deviation

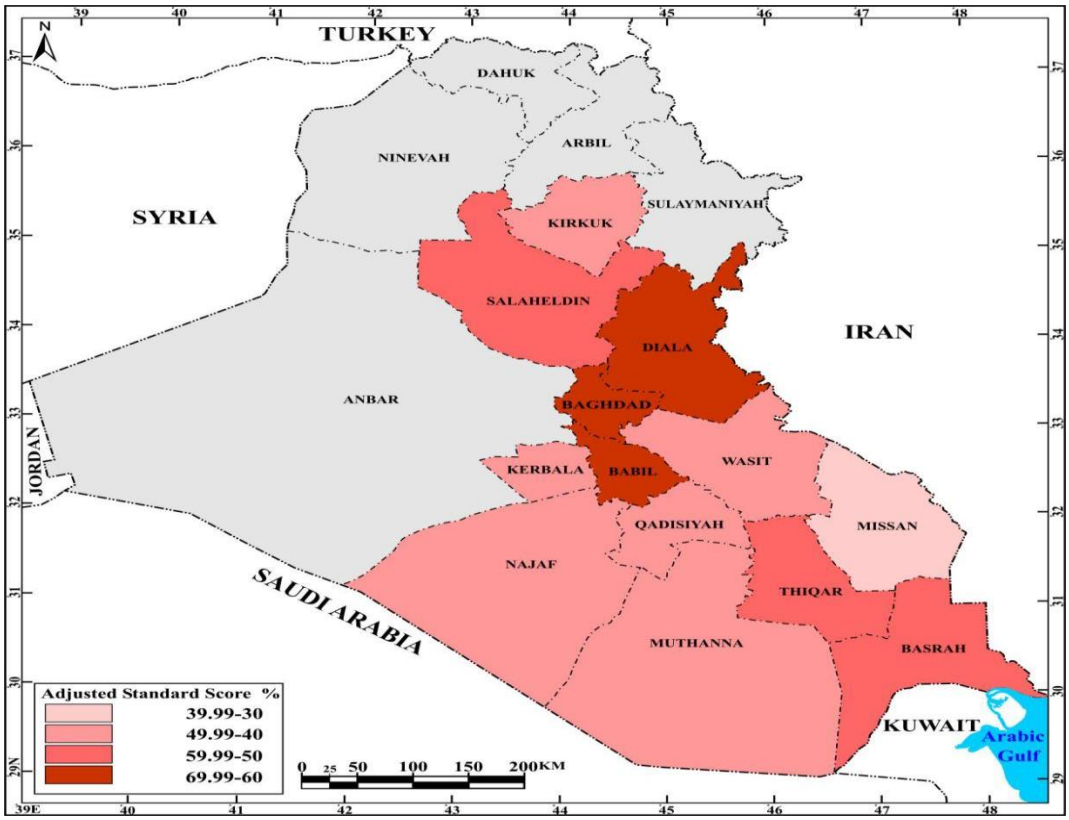
Source: The researcher's work depending on the Ministry of Planning, the Central Bureau of Statistics, unpublished data.

1- The first weak level (30-39.99%) shows the lowest values and appears in both Kirkuk and Diyala with modified standard degrees ranging between (31-34 %). The reason is that most of the rural females in these two governorates are those who have completed primary school, and left it for social or economic reasons, meaning that they know how to read and write.

2- The second acceptable level (40-49.99%) appears in the governorates of Karbala, Najaf, and Basra with modified standard grades ranging between (42-48%). The reason is due to the tribal customs and traditions prevailing in the countryside of these governorates, which prevent females from going out to school after completing the primary stage and only learning to read and write, as we mentioned earlier.

3 - The third intermediate level (50-59.99%) noticed in Baghdad, Salah al-Din, Qādisiyyah, Maysan, Muthanna, and Wasit with modified standard degrees ranging from (50-57%). The reason is that a high percentage of rural females of educational age are outside the education system in order to work and meet the requirements of living, in addition to the absence of adequate schools or literacy centers in these governorates. .

Map (6) of the distribution of illiterate females in rural Iraq for the year 2018.



Source: Based on Table (5) data.

4- The fourth good level (60-69.99%) shown in the governorates of Babel and Dhi Qar with modified standard grades ranging between (62-65%). The reason in Babel governorate is the deterioration of the security situation in its countryside, which affected the decline of the educational level due to the remoteness of schools from the villages and led to the reluctance of families and rural families to join their daughters in education. Consequently, the illiteracy rate among rural females increased. Whereas in Dhi-Qar, which is characterized by its social clan structure, which prevents females from mixing with males and going out to school, especially since most of the primary schools in its countryside are of the mixed type.

Training and extension centers for the empowerment of rural women

It is the preparation of organized programs outside school education, where there are no such programs, at the moment, specifically targeted at rural females within this type of education, except for the programs of the Ministry of Agriculture / Agricultural Extension and Training Department / Rural Women and Girl Development Department, which develop the knowledge and skills of women and encourage them to adopt scientific methods in agricultural work. It contributes to increasing production and improving its quality by paying attention to craft industries, and establishing small productive agricultural projects for women, by developing and developing environmental and health awareness and investing agricultural crops and animal products in the food industries to raise the level of rural family income,

However, the participation of rural women is almost non-existent in these activities due to the social conditions and customs that prevent them from participating with men, especially since those involved in them are mostly men or agricultural extension workers. It is noted from Table (6) and the figure (1) that there is few numbers of participants at the level of the governorates studied in the

extension activities, as the total number of rural females participating in extension activities in Iraq reached (1751) for the year 2018. The highest percentage of the number of participants was the share of Karbala Governorate reached (14.2%), or about (249) females, while the lowest percentage of the number of participants was in Diyala Governorate, which was (4.6%), about (81) females.

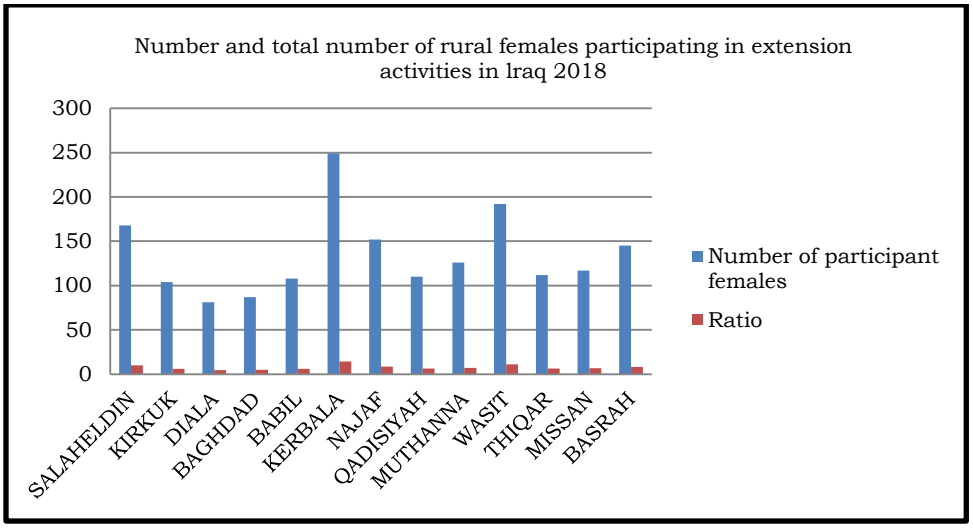
Table (6) Total number of rural females participating in extension activities in the governorates of Iraq for the year 2018

Ratio	**Number of participant females**	Provinces
10	168	Saladin
6	104	Kirkuk
4.6	81	Diyala
5	87	Baghdad
6.1	108	Babel
14.2	249	Karbala
8.6	152	Najaf
6.2	110	Qādisiyyah
7.2	126	Muthna
11	192	Wasit
6.3	112	Dhi-Qar
6.6	117	Maysan
8.2	145	Basra
100	1751	Total

Source: The researcher's work, by depending on Ministry of Agriculture, Annual Report, 2018.

Spatial variation of the reasons for not joining rural females in primary and secondary school in Iraq for the year 2018

The research is based on the results of the field study (questionnaire form) distributed to rural females in the studied governorates of Iraq, and in this research the reasons for the non-enrollment of rural females in primary and secondary studies in the studied governorates will be studied in terms of the size of the phenomenon distributed among the causes that have been identified. According to the questionnaire form, there are seven reasons explained in the following table



Source: based on Table (6).

Table (7) Independent geographical variables related to spatial relation behind rural women's unjoining the primary and secondary education for the academic year 2018-2019

Name of variable	Symbol
Number of rural females joined in primary and secondary education for the academic year (2018-2019)	**y**
There is no school easily accessible in the village	**X1**
I have to work to support my family	**X2**
The family cannot meet the school expenses	**X3**
Poor security situation in the province	**X4**
Early marriage	**X5**
Home business assistance	**X6**
Social reasons	**X7**

Source: The researcher's work based on the results of the 2018 field study.

Here we try to uncover the relationship between the explained independent variables with the dependent variable y representing the number of rural females joined in primary and secondary education for the academic year 2018-2019.

Factor analysis

A statistical method that has expanded its use in the social sciences, because it is a statistical method for analyzing multiple data that are related to each other with different degrees of correlation in the form of independent classifications based on the qualitative foundations of classification. The researcher examines the classification foundations and discovers the common characteristics between them according to the theoretical framework and logic. (Fayed, 2016, p.1).

The concept of factor analysis

A statistical method aimed at explaining the positive correlation coefficients that have a statistical significance between the various variables, i.e. studying the phenomena with the aim of returning them to the factors affecting them (Al-Azzawi, 2019, p. 292). One of the methods of factor analysis was chosen in this research, namely:

The principal components method for analyzing and drawing conclusions

It is one of the most used factor analysis methods, for the accuracy of its results compared to other methods. This method depends on converting the variables into basic orthogonal components, and these components are the best linear groupings of the variables that explain the largest amount of total variance of the data (Basilevsky, 1994: 101)).

The first factor component has the greatest variance explaining largest proportion of the variance structure of the response variables, while the second factor component is the second best linear grouping to explain a part of the variance that is not explained by the first factor, and so on (Murad, 2011, P. 484).

Figure (1) The number and total of rural females participating in extension activities in Iraq for the year 2018.

Results

In the beginning, seven unit matrices presented in Table (7) were inserted, and here the SPSS statistical package was used for this purpose and we analyzed the final results. The test results for this method showed that we have obtained the value of the KMO measurement, as this value reached (0.637), which is greater than (0.50). As the results indicate in Appendix (1) This indicates an increase in the reliability of the factors that we obtain in the factor analysis, i.e. the adequacy of the sample size for the factor analysis. As for the Barlett circular test, which showed that the value of the significance level is equal to (0.012), which is less than the approved level of significance of (0.05), indicates that this matrix represents the unit matrix. After that, the appropriate options for the analysis

were selected. Rotation of the factors was chosen by one of the rotation methods, which is the Quartimax method. It reduces the number of factors we need to account for each variable.

Two factors reached due to the fact that their sample values, latent root, are greater than one true, and the ratios of interpretation of variances were obtained from the total variance of each factor. These factors are interpreted towards 69.36% of the total variances, because the first major factor has the largest latent root and is equal to (3.265) of the total variances, explained (46.645%). As for the second factor, which explained (22.719%) of the total variances, the program neglected the rest of the components due to the fact that the values of the underlying roots that they showed are less than the correct one and thus represent weak correlations less than 50% and from Table (8) the following becomes clear:

Table (8) Matrix of geographical factors for the reasons of unjoining rural females in primary and secondary education in the governorates of Iraq for the academic year (2018-2019).

Factor	Components	
	1	2
X6	0.90	
X2	0.83	
X5	0.74	
X3	0.52	
X7		0.89

Source: The researcher's work, based on Appendix No. (1).

1- The first factor “the socio-economic status of rural females” comes first in terms of its importance and the percentage of its interpretation of variance, and included in most of its components a set of geographical variables with high saturation. The saturation of the variable X6 helps in household chores. As for the variable X2, I have to work to support my family (0.83) and the variable X5, early marriage (0.74), while the saturation of the variable X3 was unable to cover school expenses (0.52). From our observation of this group of independent geographical variables that rural females are not joined in primary and secondary education, we can call this factor (the socio-economic status of rural females).

2- - The second factor “the social status of rural females”, which included only one variable of high saturation, which is X7 social reasons (0.89), called “the social status of rural females”. Appendix (1) found that there are two factors: X1 there is no easy-access school, and X4, the poor security situation in the governorate. For the academic year (2018-2019), they did not appear in either component due to their weak association with the components.

Conclusions and suggestions

The research has come up with a set of conclusions as following:

1- It was found that the highest number of rural females joined in primary school for the year 2015 was (113755) in Baghdad governorate, while the lowest number in the same year was (11016) in Kirkuk governorate.

2- It was also found that the highest number of rural females joined in secondary school for the year 2015 was (28,950) in Salah al-Din Governorate, while the lowest number for the same year was (713) in Maysan Governorate.

3- The research also revealed that the highest number of rural females joined in primary school for the year 2018 was (130,465) in Baghdad governorate, while the

lowest number for the same year was (31488 and 33,733) respectively in Maysan and Kirkuk.

4- The highest number of rural females joined in secondary education for the year 2018 was (35,360 and 36,370), respectively, in Baghdad and Babel, while the lowest number for the same year was (2,223) in Maysan.

5- As for the total number of illiterate rural females for the year 2018, as the highest total for them was (122973) in Dhi Qar Governorate, while the lowest total for the same year was (5691) in Diyala.

6- The highest number of rural females participating in extension activities for the year 2018 was (249) in Karbala, while the lowest was (81) in Diyala.

The highest reasons for the rural female's unjoining the primary and secondary education in the governorates of Iraq for the year 2018 were for X6 (help with housework), after which it was X2 (I should work without a problem) (My family) and (followed by the reason) early marriage (X5) then because the family cannot meet school expenses (X3.

8- The results of the global analysis of the group of reasons for not joining rural females in primary and secondary education for the year 2018 resulted in the emergence of two main factors, explaining a rate of (69.36%) of the total variances, since the first factor was explained "The socio-economic status of rural females" 46.645% of the total disparities, while the second factor, "the social status of rural females", explains 22.719% of the total disparities.

9- The first factor, the socio-economic status of rural females, included a set of variables with high saturation, because the saturation of X6 was (help in household (0.90) and the variable X2 that (I had to work to support my family (0.83), variable X5, (early marriage (0.74) and variable X3, (the family cannot meet school expenses (0.52), While the second facto, the social status of rural females, included one variable with high saturation, which is X7 for social reasons (0.89).

The suggestions

1- The need to address the causes of rural females not joining in primary and secondary education, through concerted efforts of the Ministry of Education on the need to educate families, especially in rural and remote areas, of the importance of education through audio-visual media.

2- Work to reduce illiteracy rates, especially among rural females, by adopting a strategy to eliminate this dangerous phenomenon that threatens them in all economic and social fields.

3- Increasing the number of school buildings in the rural areas, increasing the number of classes within the school, and resolving the problem of double school hours.

4- Providing mass transportation for female students, especially in poor and remote rural areas.

5- Expanding the group covered by compulsory education to include the age group (5-14) years, especially for females in remote rural areas.

6- Encouraging teachers and teachers to teach in villages and remote suburbs to fill the shortage in them.

7- Taking into account and reconsidering the distribution of primary and secondary school sites in villages according to the size of the population to ensure that education reaches all remote rural areas.

8- Preparing comprehensive strategic plans to improve the efficiency of the education system in all governorates of Iraq.

References:

1- Al-Atabi, Sami Aziz Abbas, and Iyad Ashour Al-Tai. (2013). Statistics and Modeling in Geography, Akram Press, Baghdad.

2- Qamash, Faisal and et. Al (2014). Rural Geography and Rural Planning. University of Damascus, Syria.

3- Al-Kanani, Ayed Karim Abd Aoun. (2014). Introduction to Statistics and Applications of spss, Dar Al-Yazouri, Amman.

4- Abu Fayed, Ahmad. (20116). The Factor Analysis: Its Concept, Objectives, Conditions, Types, and Steps, Al-Azhar University, Gaza.

5- Al-Azzawi, Ali Abd Abbas. (2019). Statistical Methods in Geography, Dar Al-Yazuri, Amman.

6- Murad, Salah Ahmad. (2011). Statistical Methods in Psychological, Educational and Social Sciences, the Anglo-Egyptian Library, Egypt.

7- World Health Organization. (2012). Regional Office for the Eastern Mediterranean, Community Rehabilitation - Guidelines for Community Rehabilitation.

8- Republic of Iraq / Federal Office of Financial Supervision. (2015). Evaluating the Performance of the Ministry of Education's Policy in Activating the Literacy Eradication Initiative for Empowerment.

9- United Nations, UNESCO Educational, Scientific and Cultural Organization. (2006). Education For All Global Monitoring Report, Literacy for Life.

10- Kazem and Diaa Awwad. (2002). Measuring the difference in enrollment or absorption ratios in the primary education stage, Directorate of Social and Educational Statistics.

11- Al-Waqi'i Iraqi Newspaper. (1976). No. 2552, Part Two.

12- Ministry of Agriculture. (2018). Annual Statistics Report.

13- Ministry of Planning, Central Bureau of Statistics, Population Planning, Iraq Population Estimates (2015-2018).

14- Ministry of Planning, Central Bureau of Statistics, Directorate of Social and Educational Statistics, Primary and Secondary Education in Iraq for 2015 and 2018.

15- Alexander Basilevsky. (1994). Statistical Factor Analysis and Applications, Wiley- Intersience Publication, University of Winnipeg, Manitoba, Canada, p.101.

16- Jonn L. Badgett, Edwin P. Christmann. (2009). Interpreting Assessment Data: Statistical Techniques You Can Use, N-press, p.90.

Factor Analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.637
Bartlett's Test of Sphericity	Approx. Chi-Square	38.319
	Df	21
	Sig.	.012

Communalities

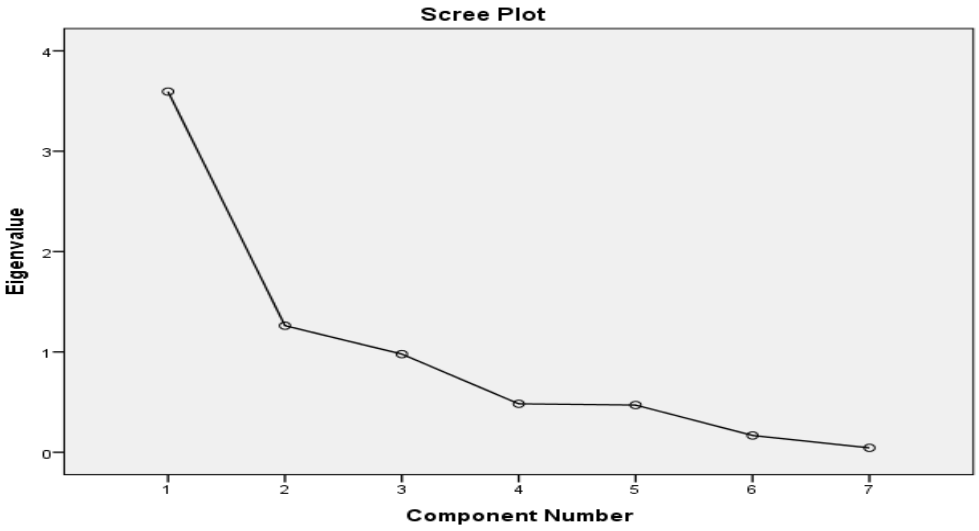
	Initial	Extraction
X1	1.000	.845
X2	1.000	.795
X3	1.000	.267
X4	1.000	.599
X5	1.000	.692
X6	1.000	.869
X7	1.000	.789

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.594	51.342	51.342	3.594	51.342	51.342	3.265	46.645	46.645
2	1.261	18.021	69.363	1.261	18.021	69.363	1.590	22.719	69.363
3	.978	13.978	83.341						
4	.483	6.905	90.246						
5	.471	6.726	96.972						
6	.168	2.394	99.366						
7	.044	.634	100.000						

Extraction Method: Principal Component Analysis.



Component Matrix[a]

	Component	
	1	2
X1	-.919	.030
X2	.891	.013
X3	.480	.190
X4	-.682	.367
X5	.543	.630
X6	.925	.113
X7	.330	-.824

Extraction Method: Principal Component Analysis.[a]
a. 2 components extracted.

Rotated Component Matrix[a]

	Component	
	1	2
X1	-.840	-.373
X2	.831	.322
X3	.516	.005
X4	-.494	-.596
X5	.740	-.380
X6	.900	.243
X7	-.003	.888

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	.927	.375
2	.375	-.927

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

No. (2)
Questionnaire form
Peace be upon you and Allah let mercy and blessings upon
Please answer this questionnaire to help the researcher in obtaining the required data for the purposes of completing her scientific research ..... with thanks
1. The province----------
2. Age----------
3. Marital status..... Married .....single
4. What kind of government education? Elementary--------- secondary------- literacy classes---------
5. Which of the following reasons prevents you from joining the study?
1. Is not there any school easily accessible in the village?
2. Should I work to support my family?
3. The family is unable to meet the school expenses?

4. Security exacerbation in the province?
5. Early marriage?
6. Help with housework?
7. Social reasons?