

Empirical Examination of Current Trends in Sex Ratio in Africa

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Abstract

Given the scholars' conflicting positions on the direction of current trends in sex ratio in Africa, this study used statistical design to ascertain the actual pattern of the changing trend in sex ratio in Africa. It was found that: (1) Africa is more populated by females than males ($F > M$) in the sense that that 4 in every 5 countries (80%) in Africa were more populated by females as compared to just 1 in every 5 (20%) of them that were populated by females. Meaning that only 11 countries; including: Sudan, Somalia, South Sudan, Nigeria, Seychelles, Libya, Gabon, Egypt, Cote d'Ivoire, Congo, and Algeria were more populated by males than females. Others, 43 countries, were all more populated by females than males; and (2) except North Africa, every other region in Africa had more females than males in their population. Breaking it down further: all (100%) countries in South African region had more of females than males in their population structure; closely followed by about 5 in every 6 countries in the West Africa (87.50%) and East Africa (83.33%); with little below 4 in every 5 (77.8%) of countries in Central Africa that were all more female populated. However, it was revealed that about 2 in every 3 (67.0%) of the countries in the North Africa were more male than female (33.3%) populated.

Keywords Africa, Sex ratio, changing trend in sex ratio, more female population, reducing male population

Introduction

This study is a part of the holistic study embarked upon by the researcher to ascertain the actual trends in sex ratio in Africa, its determinant factors; and implications of such trends. The hunch for the study is premised on the ground that there seems to be increasing cases of sex/gender related social ills like lesbianism, prostitution, high rate of divorce and single parenthood, aged-based female infertility, human trafficking, increased rate of spinsterhood, sex-based ill-health like uterine fibroid, family disruption, women subjugation, poverty, religious bigotry, mental health, suicide, aggression, conflict, drug abuse, HIV/AIDS, etc, (Fagbamigbe, Adebayo & Idemudia, 2016; Myles, 2013; Saleem et al., 2015; Sharp & Ganong, 2011; Tatangelo et al., 2017). For the purpose of this study, human sex ratio could simply be described as the proportion, percentage, or even the number of (biological) males as juxtaposed to that of (biological) females in a given population. In most other species of animal, males and females are produced in approximately equal numbers regardless of the mechanism of sex determination (Azeez, Akinboro & Bakare, 2007). In the same vein, sex ratio in humans is expected to be more or less equal because of the 1:1 segregation of X and Y-chromosomes in the male (Mosuro, 1997). For instance, in 2004, males accounted for 50.4% of the global total (this was very close to sex ratio equality) (Hesketh & Xing, 2006). However, most empirical and historical evidences favour skewed sex ratio in the world today. In this sense, symmetric sex ratio hardly exists in reality. Consequently, human secondary sex ratio has always been in favour of the male gender. In fact, it is commonly assumed to be 105-107 male births for per 100 female births (Azeez et al., 2007). In this regard, a range of sex ratios at birth of between 103 to 107 boys per 100 girls has been observed in different societies and among different ethnic and racial groups within a given society. For instance, according to Azeez et al. (2007) as early as 19th Century, Darwin reported a sex ratio of 120 boys to 100 girls for Jewish communities in Livonia, where infanticide is not historically documented and the means for pre-natal sex determination did not exist.

Again, in the United States, the sex ratios at birth over the period 1970-2002 were 105 for the white non-

Hispanic population, 104 for Mexican Americans, 103 for African Americans and Indians and 107 for mothers of Chinese or Filipino ethnicity (Matthews & Hamilton, 2005). Among European countries, the ratios ranged between 104 in Belgium and 107 in Portugal. In the same token, the aggregated results of 56 Demographic and Health Surveys in African countries, showed the ratio of 103; though there was also considerable country-to-country variation (Garenne, 2002).

In the case of Africa, the trend is also the same in some countries like Nigeria, Egypt, and others. For instance, since 1970, male population (ranging from 100.02 to 102.64) has been higher than that of female in Nigeria. Also in Egypt, with some fluctuations, male population has been higher than that of female-ranging from 102.65 to 102.24- since 1960 (see, for example, Nigeria population forecast 2019; Egypt population forecast, 2019).

However, there are also some variations in many countries in Africa, like South Africa, Tanzania, Kenya, etc, where female populations are higher than that of male (see, for example, Kenya population forecast, 2019; South Africa population forecast, 2019; Tanzania population forecast, 2019).

Meanwhile, in the recent times, scholars are beginning to suspect changes in human sex ratio trends. In this respect, there seems to be two divides to this argument: one divide advances an increase in sex ratio in favour of the female population, though with some spatiotemporal differences; and the second school advances increased sex ratio in favour of the male population (see, for example, Christophe, 2007; Kaba, 2015. For instance, Christophe (2007), though admitting that there is a diminishing trend in male population across the globe, however posited that there is an exception in the case of Asia which is increasingly "masculinised" (i.e., having more males than females in their population structure).

In Africa, there have been conflicting records on the sex ratio trend. In Nigeria, for instance, though some scholars are of the opinion that there is a changing trend in human sex ratio in the direction of increasing male population, other records contradict such claim. For example, Kaba (2015) posited a rapid increase in Nigeria's sex ratio at birth from 1.03 boys born for every 1 girl born in each year from 1996-2008 to 1.06 in each year from 2009-2014. However, Demographic Statistics Bulletin (2015) reported a drop in the ratio of males per females in the population. The report showed that Nigerian sex ratio dropped from 103 males per 100 females in 2006 to 102 males per 100 females in 2015.

Again, in the case of Kenya, though the male to female ratio fluctuated substantially in recent years; but the ratio of females to males tended to increase through 1970 – 2015. There was also a negative change (-0.12%) of male to female sex ratio in Zimbabwe in 2015- implying a decrease in male population (Zimbabwe population forecast, 2019). In the same token, male to female ratio of South Africa fell gradually from 99.95 males per 100 females in 1970 to 96.47 males per 100 females in 2015 (Yodata, 2019).

It is also important to mention here that apart from the spatiotemporal differences in sex ratio, sex ratio also changes as the age structure of a given population changes. For instance, the report released by CIA World Factbook (2018), cascaded Nigeria sex ratio as follows: sex ratio at birth (1.06 males/females); 0-14 years (1.05 males/females); 15-24 years (1.04 males/females); 25-54 years (1.05 males/females); 55-64 years (0.95 males/females); and 65 years and over (0.91 males/females).

Study Objective

The principal aim of this study is therefore to ascertain the actual trend in sex ratio in Africa in order to provide a background data to other possible studies in sociology of health, crime, migration, profession (occupation or work), education, etc. The specific objectives are as follow:

- 1. To ascertain the overall trend in sex ratio in Africa.**
- 2. To find out regional distribution in African sex ratio**

The study has seven sections, including references and appendixes. The first one is the above introductory part. In the second section, which is the literature review, where some literature and concepts were x-rayed. The third part, which is the methodology, discussed the design and the study limitation. The fourth section dealt with data analysis, finding summary and discussion. Finally, in the fifth section,

conclusion and recommendations were highlighted; then the references and appendixes were presented.

Review Of Relevant Literature

Are there more males than females in human population?

Though sex ratio in humans is expected to be more or less equal because of the 1:1 segregation of X and Y-chromosomes in the male, but the conventional trends in sex ratio have always skewed in favour of the male gender. For instance, as early as 19th Century, Darwin reported a sex ratio of 120 boys to 100 girls for Jewish communities in Livonia, where infanticide is not historically documented and the means for pre-natal sex determination did not exist. Consequently, human secondary sex ratio is generally and commonly assumed to be 105-107 male births for every 100 female births (Mosuro, 1997).

In Asia, reports show a substantial increase in the ratio of males to females. According to Christophe (2007), the distinctive dimension of Asia's recent population dynamics has been its unexpected "masculinisation" – the increasing proportion of males in its population. According to them, the proportion of boys in Asia's population of children started to rise during the late 1970s; a trend that was not identified immediately for lack of proper data. They concluded that sex ratio at birth in Asia was tilting towards boys, in a way that had never before been recorded in demographic history.

In corroboration to the above, Kaba (2015) reported an increase in Nigeria's sex ratio at birth from 1.03 boys born for every 1 girl born in each year from 1996-2008 to 1.06 in each year from 2009-2014. He also posited that some of the determinant factors included geography and ethnicity; male preference/chasing a son; age of parents; high death rates of male infants and others. He also revealed some sociological implications of such change in sex ratio trend to include; young and poor men in Nigeria may not be able to find brides and form families due to a potential shortage of females; emigration of young and poor Nigerian men to West (Africa) and elsewhere to seek brides and form families; immigration of marriage age women from West (Africa) and around the world to Nigeria to seek husbands; and others.

Are there more females than males in human population?

Christophe (2007), reported in their study that the ratio trend is now in favour of the female gender (i.e., there are more females than males) all over the world; though concluded that such development deviates from that of Asia continent that is still in favour of the male gender. They also adduced increased life expectancy favourable to women, and improved data collection methods as some of the reasons. In Africa, evidences of sex ratio trend of increased female gender abounds. For instance, the 2015 Demographic Statistics Bulletin report of the National Bureau of Statistics reported that Nigerian sex ratio dropped from 103 males per 100 females in 2006 to 102 males per 100 females in 2015- meaning that 49.5 percent were females; while 50.5 percent were males. What is more, the sex ratio of Nigerians within 15-39 years bracket was projected at 29,872,076 for females; while their male counterpart was projected at 27,479,364 (i.e., 92/100 females) (Annual Abstract of Statistics, 2011).

In the same token, Ghana population and Housing Census (2010) put Ghanaian sex ratio at 95 males to 103 females. What is more, according to Gongnews (2018) the Tanzanian President, Pombe Magufuli, begged men to marry many women in his country in order to reduce prostitution and redundancy among Tanzanian women. The President said according to statistics, out of approximately 70 million Tanzanians, 40 million are women and only 30 million are men (this gives the ratio of 75/100females).

In the same vein, Eshun (2018), in his book titled "Legitimacy of Polygamy, reported that by the year 2020, there will be about 3 million women between the ages of 15 and 25 who will not have husbands if there is nothing done to close the sex ratio gap in favour of the females in Ghana. The phenomenon, according to Eshun, has some negative implications as more abortion, extramarital affairs, increased rate of divorce, sexually transmitted diseases, fibroid, interpersonal conflict/violence, prostitution, proliferation of predatory spiritual and religious houses; and ultimately increased death rate and social disorganization.

Nigel Barber, in his study of 32 countries where polygamy is practiced, titled "the three reasons for polygamy", found that polygamy increased where there was a scarcity of males in the population (Barber, 2015).

Theoretical orientation

The Demographic Transition Theory guided the study. Demographic transition theory was first put forward by Warren Thompson and his associates in 1929. This theory postulates that economic development, which transforms a rural-agrarian society into a more industrialized urban one, results in a reduction in the birth rate on the account of the declining importance of the family as a production unit. The essence of this theory is that population structure is sensitive to socioeconomic development. Such developments start firstly with improvement in health conditions. In this case, improvement in the health conditions of the female population with death rate (of the female) taking a downward turn. For instance, Christophe (2007) recognized that despite the exceptional case in Asia (which is currently masculinised), there is a subsisting trend of diminishing sex ratio globally (in favour of the female gender)- resulting from increased life expectancy favourable to women. More so, reports show that there are currently more incentives (in terms of availability and affordability) for females than males in accessing health care (Eyeh, 2019). The theory summarily holds that a nation (like those of Africa) manifests characteristics types of demographic process depending on the stage of industrialization and by implication, depending on its level of economic development (Nwafor & Madu, 2002).

Methodology

Statistical design was adopted in the study; this is to allow the researchers to have an unobtrusive observation of the pattern of changing trends in sex ratio. In using statistical design, the study relied on data from World Data Atlas as retrieved from

<https://knoema.com/atlas/topics/Demographics/Population/Male-to-female-ratio>, June 21, 2020. The information from world data atlas was juxtaposed with data from other sources like Statistics Division of United Nations Department of Economic and Social Affairs as retrieved from <https://unstats.un.org/unsd/demographic/products/indwm/> in June 23, 2020; and Population Estimates and Projections as retrieved from Knoema Demographic forecast on male to female ratio of the total population of each country; and other official records like census records, voters' information, and others. It was quantitatively analyzed using version 23 SPSS Software.

The area of the study, Africa, is both the world second largest and most populous black continent in the world after Asia. Its population is put at about 1,225,080,510. It houses about 54 countries divided into 5 regions of Central, East, North, South, and West Africa. Most of its countries are characterized as developing or underdeveloped countries of the world- hence it is characterized by various kinds of social problems; not the least uncontrollable population, inter-communal crises, hunger, crime, etc (All-about Africa, n.d.).

Results

Objective one: To ascertain the overall trend in sex ratio in Africa. Data from CIA Factbook (2020) was extracted and analyzed using SPSS version '23'.

Table 1: Descriptive statistics for overall trend in sex ratio in Africa

Trend in Sex Ratio	N	%
More Males	11	20.4
More Females	43	79.6
Total	54	100%

Extracted from CIA Factbook (2020).

The table above shows that 4 in every 5 countries (80%) in Africa were more populated by females as compared to just 1 in every 5 (20%) of them that were populated by males, χ^2 (2-tailed) = 11.000, $p = .000$. This means that Africa is more populated by females than males. In this sense, just about 11

countries; including: Sudan, Somalia, South Sudan, Nigeria, Seychelles, Libya, Gabon, Egypt, Cote d'Ivoire, Congo, and Algeria were more populated by males than females. Others, 43 countries, were all more populated by females than males.

We can therefore conclude that African countries are more female populated. This is represented by the figure 1.1 below.

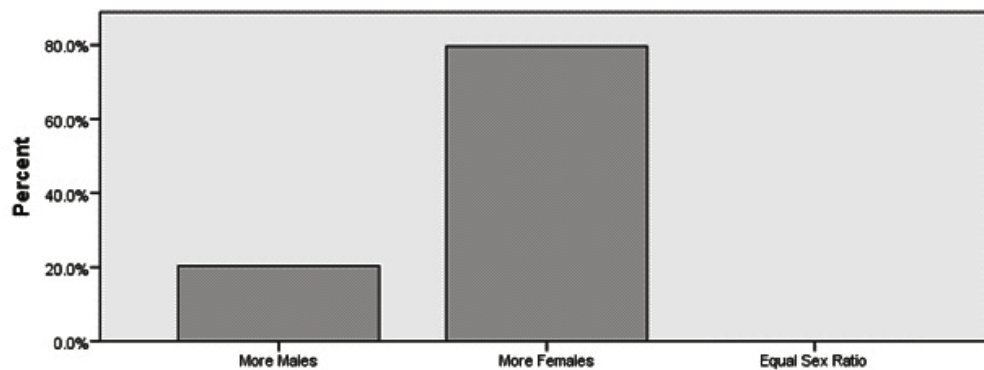


Figure 1.1. Distribution of the Total Sex Ratio in Africa

4.2 Objective two: To find out the regional distribution in African sex ratio

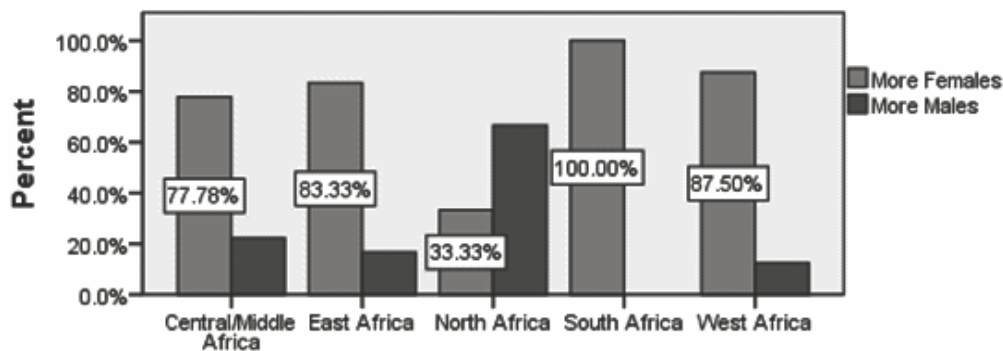


Figure 1.2. Distribution of African Regions by Sex Ratio

Figure 1.2 above shows that, except North Africa, every other region in Africa had more females than males in their population. Breaking it down further: all (100%) countries in South African region had more of females than males in their population structure; closely followed by about 5 in every 6 countries in the WestAfrica (87.50%) and EastAfrica (83.33%); with little below 4 in every 5 (77.8%) of countries in Central Africa that were all more female populated. However, it was revealed that about 2 in every 3 (67.0%) of the countries in the North Africa were more male than female (33.3%) populated.

Discussion of Findings

Whereas evidence shows that there is change in the sex ratio trends and this has had effects on other social realities like crime, health, family life, immigration, etc; what is more scholars do not agree on the directions of such changing sex ratio trend; this study therefore evaluated the exact direction of the changing trend in sex ratio in Africa in order to reconcile the contradiction in the literature. Several revealing findings emerged from this study as follows

In ascertaining the actual trend in sex ratio in Africa, the result shows that 4 in every 5 countries (80%) in Africa were more populated by females as compared to just 1 in every 5 (20%) of them that were populated by females. This means that Africa is more populated by females than males. In this sense, just about 11

countries; including: Sudan, Somalia, South Sudan, Nigeria, Seychelles, Libya, Gabon, Egypt, Cote d'Ivoire, Congo, and Algeria were more populated by males than females. Others, 43 countries, were all more populated by females than males. We can therefore conclude that African countries are more female populated. The finding, while in congruence with other findings like Christophe (2007) who reported that the ratio trend is now in favour of the female gender all over the world; though concluded that such development deviates from that of Asia continent that is still favours male gender; and Ghana population and Housing Census (2010) that puts Ghanaian sex ratio at 95 males to 103 females. It however contradicts with other findings like that of Mosuro (1997) who concluded that human secondary sex ratio is generally and commonly assumed to be 105-107 male births for every 100 female births.

What is more, even the few countries in Africa like Nigeria, Egypt, and others that recorded more males than females in their sex ratio, evidence shows that they are currently experiencing declining male population. For instance, Male to female ratio of Egypt fell gradually from 102.65 males per 100 females in 1970 to 102.24 males per 100 females in 2015 (Egypt population forecast, 2019). Again, in Nigeria, for instance, evidences show a steady declining male to female ratio in their population structure. For example, during the 2019 General Election in Nigeria, the Independent National Electoral Commission (INEC) Confirmed that more females than males- over 1 million- registered for permanent voters card (PVC). According to INEC, as at August 26, 2018, a total of 13,634,414 people have participated in the fresh registration exercise; female registration figure stood at 7,386,583, while the registration figure for males stood at 6,247,831 (Independent National Electoral Commission, 2018). In this, among the possible factors to the sex ratio gap in the voters registration could be more female eligible voters than male eligible voters in the population.

Still on the Nigerian example, against the backdrop of the Kaba (2015)'s finding that there was more males than females in Nigeria- where the researcher revealed some of the sociological implications of such trend to include: "young and poor men in Nigeria may not be able to find brides and form families due to a potential shortage of females; emigration of young and poor Nigerian men to West (Africa) and elsewhere to seek brides and form families; immigration of marriage age women from West (Africa) and around the world to Nigeria to seek husbands; and others"- Some statistical and empirical evidences in Nigeria do not align with this finding. In migration, for instance, the 2015 report on men and women in Nigeria, by the National Bureau of Statistics, reported that there were more migrant females, 51.5 percent compared to males, 48.5 percent (National Bureau of Statistics, 2015). In the same token, some marital and family reports (though beyond the scope of this work) contradict the position that "young and poor men in Nigeria may not be able to find brides and form families due to a potential shortage of females".

For instance, according to Gongnews (2018), the Tanzanian President, Pombe Magufuli, begged men to marry many women in his country in order to reduce prostitution and redundancy among Tanzanian women. The President said according to statistics, out of approximately 70 million Tanzanians, 40 million are women and only 30 million are men (this gives the ratio of 75/100females). Again, Eshun (2018), in his book titled "Legitimacy of Polygamy, reported that by the year 2020, there will be about 3 million women between the ages of 15 and 25 who will not have husbands if there is nothing done to close the sex ratio gap in favour of the females in Ghana.

Again, in finding out the regional distribution in African sex ratio, the result shows that except North Africa, every other region in Africa had more females than males in their population. Breaking it down further: all (100%) countries in South African region had more of females than males in their population structure; closely followed by about 5 in every 6 countries in the West Africa (87.50%) and East Africa (83.33%); with little below 4 in every 5 (77.8%) of countries in Central Africa that were all more female populated. However, it was revealed that about 2 in every 3 (67.0%) of the countries in the North Africa were more male than female (33.3%) populated.

Relationship of the findings to the theoretical orientation

The findings confirm demographic transition theory, which advocates that population structure is sensitive or selective to socioeconomic development. The essence of this theory is that population structure correlates with socio-economic development like globalization. Such developments, in information economy/society, start firstly with improvement in health conditions. In this case, there are improvements in the health conditions of the female population; with death rate (of the female) taking a downward turn.

For instance, Christophe (2007) recognized that despite the exceptional case in Asia (which is currently masculinised), there is a subsisting trend of diminishing sex ratio globally (in favour of the female gender)-resulting from increased life expectancy favourable to women. More so, reports show that there are currently more incentives (in terms of availability and affordability) for females than males in accessing health care (Eyeh, 2019).

Conclusion

The findings of this study have actually confirmed the suspicion that there is actually a change in sex ration trend in Africa. It has also pointed to the direction (i.e., there is more females than males in African population structure) of such changing trend. This therefore has implication on family life, number of spinsterhood, gender based ill-health, conflict, and crime, migration, education, and the general socioeconomic wellbeing of African continent.

Contribution to knowledge

Through this study, we aim to contribute to the better understanding of the sex ratio pattern or rend in Africa. It is our belief that by discovering the actual pattern of sex ratio in Africa, interventions can be implemented towards improving the quality of life and healthcare, especially for the male population as a way of maintaining and sustaining the existing male population. Other interventions in the area of leveraging the existing scientific breakthroughs in biomedical and genetic research as regards to pre-sex selection should be appropriate.

Future directions

From the developments of the current study regarding the changing trend in sex ratio in Africa, furthers studies are necessary in the following areas: comparative sex ratio trends both within and outside Africa; determinants factors to this changing trend; what are the sociological implications of this changing trend in areas of crime, family life, migration, violence, conflict, gender based ill-health, etc?

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