Title
Gender gap in enrollment into primary healthcare professionals’ education in Nigeria

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Abstract
This paper examined the gender gap in enrollment of students into two departments of the College of Health Sciences and Technology, Ekiti-State, Nigeria. This study adopted quantitative and qualitative methods. Secondary data on the admission of students into Dental Health Technicians (DHT) and Community Health Extension Workers (CHEW) were obtained from the institution for five years (2013-2018) and analyzed using an independent t-test at a 95% confidence level. Qualitative data were gathered through key informant interviews (KII) from two (2) senior administrators in the departments. The statistical mean enrollment of males in the DHT program was 7.2, while female statistical mean enrollment was 60.4. The statistical mean enrollment of males and females in the CHEW program was 3.60 and 54.2, respectively. The result further showed that male enrollment into the DHT program decline by 90.2% and by 3.64% for CHEW between the 2013/14 and 2017/18 academic period. The KII results established a gender gap in enrollment into intermediate health professions in Nigeria; the bias was due to individual, family, and societal problems. This study has a policy implication for postsecondary school education improvement in bridging the gender gap in intermediate health training in Nigeria. There is an urgent need to concentrate research efforts on gender equality, be sensitive to cultural norms that can affect development, and implement policies that can stimulate the interest of boys and girls into health sciences, sciences and technology, engineering and mathematics from the early age.

Key words
stereotyping; enrolment; community health extension workers; dental health technician; education; Nigeria
Introduction

Professional gender stereotyping is a generational phenomenon, and it cuts across many sectors, including medical professions (Olaniran et al., 2017; Wahl et al., 2020). In Nigeria, gender discrimination exists in the educational system and the medical sector (Adebayo and Akanle, 2014). Gender discrimination or bias, ‘means any one of a variety of stereotypical beliefs about individuals based on their sex, particularly as related to the differential treatment of females and males’ (VandenBos, 2007, p450). Women were believed not to be as capable as men when it comes to the art of science and engineering (Adeusi, Sunmola, Ojo and Ifuku-Ayoola, 2018). The impacts of gender stereotyping include the social and psychological barriers reflected in the progress and learning outcome among students in general. This study determined the difference between male and female enrollment into the department of Dental Health Technician (DHT) and Community Health Extension Workers (CHEW) in the College of Health Sciences in Ekiti-State, Nigeria. This is because of the existing stereotypical belief that courses offered in these institutions were majorly for women. The author will first give some background information, then a literature review before discussing the methodology. Results will be presented, discussed and conclusions reached.

Background

Background

Studies have reported that many of the choices of career young people made were rooted in culture and gender stereotypes. The culture portrayed some jobs as ‘men jobs’ and some ‘women jobs’ (Gberevbie, Oshianjo, Adeniji and Oludayo 2014, p102). Even though gender issues had been a focal point of discussions at national, regional, and international levels, there still exist gender discrimination and stereotyped belief in Nigeria’s educational and health system.

This problem is compounded by the fact that there has been neglect of research on gender participation and enrollment into different disciplines in Nigeria and, most notably, primary healthcare professionals’ education programs ran by the College/School of Health Sciences and Technology despite the institutions being the producer of 90 percent of the primary healthcare workforce in rural communities. Many emphases were placed on women’s emancipation in politics, gender-based violence, and women in academics. The enrollment of students into colleges of health sciences is often overlooked even though these schools produced the majority of the primary healthcare workforce in Nigeria and predominantly rural dwellers who made up more than half of the population.

To actualize the United Nations’ Sustainable Development Goals (4, 5, and 10) agenda 2030 in Nigeria, there is an urgent need to concentrate research efforts on gender equality, be sensitive to cultural norms that can affect development and implement policies that can stimulate the interest of boys and girls into Health Sciences, Sciences and Technology, Engineering and Mathematics from the early age (Adebayo and Akanle, 2014; Akanle and Olutayo, 2012).

More so, adequate attention ought to be paid to the achievement of universal health coverage as it had been hampered with inadequate and uneven distribution of trained primary healthcare givers. Even with the effort from the Nigerian government to provide adequate delivery of health personnel, gaps still exit (Abdulraheem, Olapipo and Amodu, 2012). To this end, this study determines the gender disparity in enrollment of students into selected programs in the College of Health Sciences and Technology, Ijero-Ekiti, Ekiti State, Nigeria.

Theoretical perspective

Many feminist theories (structural and deconstructive) have attempted to provide explanations to gender inequality in the educational system but, this study adopts the socialization theory as presented by liberal feminists because it demands equal rights and justice for women and men, boys and girls (Humberstone, 2020). The theory attempts to provide solutions to inequality caused by ignorance or prejudice as it suggests correctional policies and education promoting programs as ways out of gender inequality (Humberstone, 2020). Socialization theorists submitted that “girls could meet the same academic standards as boys” (Choudhary, 2014, p9) The provision of gender-neutral education, elimination of other obstacles to female success, and the ability of schools to ensure fairness by employing trained teachers would benefit the society at large. Also, vigilant efforts should be maintained to give girls the same education as boys would lead to the rapid growth of the educational system maintaining equity; placing value on girls as much as boys as future women are prepared to be full partners in socio-economic activities (Skelton, 2010).
However, the theory was criticized for its conceptual limitations and the liberal reluctance to confront power and patriarchy (Banet-Weiser, Gill & Rottenberg 2020). Also, liberal theory was accused of failing to addressing the root cause of discrimination between male and female (Taylor, 2019). The critiques queried why boys and girls were socialized in with different massages and opposed the continuously discrimination against girls. Equally, the state was accused of allowing discrimination/bias exist (Banet-Weiser, Gill & Rottenberg 2020; Taylor, 2019)

Still, the theory was widely applied to advocate for equal rights and opportunity, alter socialization and sex roles and reduced discrimination in educational settings. established that it was documented in literature that liberal feminist perspective was used to improve gender enrollment and participation in schools through effective educational policies (Allan, 2011).

**Literature review**

Even though the Nigerian constitution, policy statement, and other conventions that was ratified made provision for equality between men and women, guarantee the rights and protect the interest of women and the girls (Akande, 2000). Gender discrimination still existed in Nigerian society, particularly with the patriarchal nature of the society having undesirable implications manifesting in institutions of higher learning and other spheres of life.

A study observed the regional disparity in the percentage of male to female undergraduate students enrolled in science courses over ten years (1997-2006) across Nigeria’s geopolitical zones and found that the percentage of female enrollment in the South-West zone of Nigeria ranged between 20 percent and 77 percent compared to the Northern zone of 40 percent (Ayodele and Aina, 2018). The result revealed more awareness for the female student to study science courses in the Southern region than Northern Nigeria. It was noted that there was a general increase in admission rate (81%) for males than females over the period reviewed. The paper affirmed that the number of female scientists and engineers were more in universities than the colleges of education (Ayodele and Aina, 2018).

On the contrary, Adeusi et al. (2018) established that no statistically significant difference between male and female enrollment into the Department of Biomedical Engineering at the College of Health Sciences and Technology, Ekiti-State, Nigeria. In another study, Afolabi, Aderibigbe and Sunnol (2016) stressed that girls perform significantly better than their male counterparts in some science subjects in Senior Secondary School Certificate Examination in Ekiti State, Nigeria.

For centuries, the role of Nurses, Midwives, Community Health Extension Workers, Dental Technicians, and other health professions had been reserved for women, and it continues to be so in recruitment and training of the professionals. The midwife role attributed to women is not acceptable because no law stated that only women should be a midwife or other health professionals. More so, men and women were trained, and both perform deliveries. It is the society that ascribed the roles to women. The gender roles ascribed to females within the health sector are undoubtedly historical and perhaps also consolidated by social and cultural norms (Kok, Broerse, Theobald, Ormel, Dieleman and Taegtmeyer, 2017).

The result of meta-analysis and other scholarly articles revealed that researchers are beginning to research gender disparity that existed within personnel in the health sector (Dhatt et al., 2017; Steege et al., 2018). Nevertheless, available literature in this field in Nigeria had remained sketchy. Primary healthcare professionals played significant roles in the promotion of health, prevention of infections, and providing curative healthcare services because they are at the frontline of healthcare delivery in the community (Steege et al., 2018). Their presence is felt in the community or a primary healthcare Centre (Appleford, 2013). Primary healthcare workers assist in promoting service delivery to improve health outcomes (Okunade, Adeusi and Iluku-Ayoola, 2020). Community healthcare professions are many, and they play a different kind of roles as may be designated in the condition of service of different countries (Appleford, 2013).

Gender norms also affect community health workers’ profession. Although the profession plays vital roles in achieving the Alma Ata Declaration of Health for all of 1978 (Wahl, Lehtimaki, Germann and Schwalbe, 2020), community health extension workers (CHEWs) form the primary group in this profession (Theobald, MacPherson, McCollum and Tolhurst, 2015). Lewin and Berridge (2010) described CHEW as “any health worker carrying out functions related to health care delivery; trained in some way in the context of the intervention, and having no formal professional or paraprofessional certificate or degree in tertiary education” (p. 1110). A systematic review itemized the roles of CHEWs to include “treatment of diseases, community
education and the promotion of healthy behaviors, counseling services, conducting disease screening and managing referrals if necessary and collection of relevant health data” (Wahl et al., 2020, 98).

There is a global trend in gender bias in health profession training; a study in Australia observed an inadequate supply of medical professionals, most especially in rural communities due to diminishing working times and feminization of the medical profession (Harrison and Britt, 2011). In the United States, female dentists were still getting unpleasant comments for being a female dentist (Kolokythas and Miloro, 2016). People still imply they do not work full time even though women have become more integrated into the profession than before. The percentage and position of women in Science, Technology, and Health professions are frequently changing but are not necessarily improving at a constant rate, though when they do, it is for various social and economic reasons.

In the past, in Mozambique and other African countries, women were not allowed to learn and practice medicine, while research had shown that most of the few ones who find their way into the practice have become exceptional in practice (Sidat, 2016). Today the scenario is changing; for example, 60 percent of students in the Faculty of Medicine of University Eduardo Mondlane are females (Sidat, 2016). In SSA, among the midwife’s professionals, both men and women receive equal training to make deliveries, and the role of men at this level is not questioned as no law forbids the training of men in most African society. These gender-ascribed roles within the health sector are undoubtedly historical and perhaps also consolidated by social and cultural norms (Kok et al., 2017). Kok et al. (2017, P 2) made a strong case that “it was the responsibility of health systems researchers to challenge gender inequities as it is an ethical issue and one that enables us to contribute to tackling the social determinants of health, as well as harmful practices such as gender-based violence and female genital mutilation.”

Even though the literature has shown that women may make up about 70 percent of the Community Health Workers cadre in Kenya (Ojakaa, Olango and Jarvis, 2014), unfortunately, they earn less salary than their male counterparts. The gender inequality in the medical profession is highly unacceptable, with higher-level positions often reserved for men. The social and cultural factors have been implicated as factors contributing to this occurrence. Women’s domestic responsibilities often mean that they do not have the same amount of time to work as men (Hay et al., 2019). Another study noted an urgent need to provide decent work for women (Chikaphupha, Kok, Nyirenda, Namakhoma and Theobald, 2016). The researcher noted a serious issue at hand as most female Community Health Workers are employed as community volunteers while men are given paid jobs. They noted that if the health system provides decent work to women, there will be no excuse for excluding women from decision making. However, others argued that women had paid jobs does not automatically mean their voices are heard when it comes to decision-making in an organizational setting or at the family level.

**Objectives of the study**

This study was designed to:

i. determine the gender disparity in enrollment of students into selected programs in the College of Health Sciences and Technology, Ijero-Ekiti, Ekiti State, Nigeria

ii. examine the factors responsible for the observed gender gap in enrollment of students into selected programs in the College of Health Sciences and Technology, Ijero-Ekiti, Ekiti State, Nigeria

**Method**

**Study area and the institution**

The College of Health Sciences and Technology is located in Ijero Ekiti, Ekiti State, Nigeria. The institution’s student population is about 3,500 students in various departments. Fourteen departments train students to meet the demand for primary and secondary health care services in their various communities. The various departments include Environmental health Technology, occupation health and safety, Health Community Extension Workers, Public Health Nursing, Medical Laboratory Technician, Imaging Science, Health Information Management, Computer Science and Statistics, Pharmacy Technicians, Dental Surgery Technicians, Ophthalmic Science, Basic Medical Sciences, General Studies, and Entrepreneurship Development, and Skill Acquisition. The vision of the institution is to “produce health professionals that will render health care services in line with the global concept of public health and environmental safety” with the mission of “Combining professional health training with academics to produces competent health providers.” The college is a state-owned institution and a significant stakeholder in providing personnel for primary, secondary, and tertiary care services.
Data

A qualitative (Key In-depth Interview (KII)) and quantitative (secondary) data were employed in this study. The secondary data contained a total number of 627 enrollment data from the academic records of students of the College of Health Sciences and Technology, Ijero Ekiti, Ekiti State, Nigeria. The data were extracted only for students enrolled in the Dental Health Technician (DTH) and Community Health Extension Workers (CHEW) programs between the 2013/14 and 2017/18 academic period. Female students were overrepresented in the data (91%). We conducted the KII with the Dean of the School of Community Health and the Head of the Department of Dental Health Technicians in 2020. The KII was conducted face-to-face with and recorded with an electronic device by the first author.

Data analysis

The Statistical Package for Social Sciences, SPSS 20, was used to analyze the data. The data were analyzed based on the distribution of students’ enrollment by gender for five academic years. The independent t-test was applied to compare the statistical means between males and females in the five years at a 95% level of significance. We present the result in a simple table and graph for visualization. Data from the KII was recorded electronically, transcribed, and analyzed into themes. The interviews were conducted in the English language. The themes included views on gender disparity in enrollment status, factors responsible for the gaps, and possible solutions to the observed gaps. The possible solutions were discussed in the policy implications of this study.

Results

Table 1 shows that the mean enrollment in the Department of Dental Health Technician (DTH) during the period under review (2013/2014 to 2017/2018 academic session) was 7.2 for males and while the mean point value for female enrollment was 60.4. This implies that females are eight times more likely to enroll in the DHT programs than males, and the difference was significant at a 95% confidence level. Similarly, Table 1 shows that the Mean enrollment of males into the CHEW program during the 2013/2014 to 2017/2018 academic session was 3.60 compared to female was 54.2. Indicating that females are 15 times more likely to enroll in the department than males; the difference is significant at a 95% confidence level.

Table 1. Mean gender difference in the enrollment into the Dental Health Technician and Community Health Extension Workers programs between 2013/14 and 2017/18 academic period

<table>
<thead>
<tr>
<th>Gender</th>
<th>Dental Health Technician</th>
<th>CHEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>7.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Female</td>
<td>60.4</td>
<td>54.2</td>
</tr>
<tr>
<td>T-test</td>
<td>= 7.40, df= 8, P &lt; 0.001</td>
<td>= 10.46, df= 8, P &lt; 0.001</td>
</tr>
</tbody>
</table>

Gender disparity in enrollment status

Under this theme, the KII reports supported the quantitative study by revealing that “There is gender differential in enrollment into nursing, community health extension workers, and other health technology professions in Nigeria” (KII 01, Senior Administrative Staff, School of Community Health).

Factors responsible for the observed gaps in the CHEW program

We also asked the interviewee the factors attributable to the observed gender gap in the community health extension workers profession in Nigeria. Broadly, as elucidated by the interviewee, the bias was due to ego on the part of the male students, discrimination between polytechnic and university graduates, poor parental knowledge about the professions, ignorance, and work-related problems (KII 01, Senior Administrative Staff, School of Community Health). The fewer males were enrolled in primary healthcare professions is large, attributed to many factors. Only females enrolled in the midwifery program in Nigeria, but the situation is changing gradually as some males are now enrolling in the midwifery program (KII 01, Senior Administrative Staff, School of Community Health).

First, males due to ego, will prefer to attend university education to study medicine, engineering and pharmacy because of the pay and ego (KII 01, Senior Administrative Staff, School of Community Health).

Second, the discrimination that existed between polytechnic and university graduates in Nigeria contributed to the observed gaps (KII 01, Senior Administrative Staff, School of Community Health).

Third, many parents believed that these professions are for lazy people. Whereas it is not so because the
O’level requirements for both university and polytechnic is the same, a student must have a credit pass in all the basic sciences (Chemistry, physics, mathematics, biology) before he/she can be admitted. Many of the boys who are willing to enroll for this course may not meet up with the admission requirements leaving them to seek admission elsewhere (KII 01, Senior Administrative Staff, School of Community Health).

Fourth, some boys believed that they could not cope with shift and call duties attached to the primary healthcare professions. Even many who studied medicine were forced by their parents or those who had a passion for it (KII 01, Senior Administrative Staff, School of Community Health).

Fifth, to a great extent, the gender gap observed is largely due to ignorance about these courses. Many people do not have adequate knowledge about the courses offered in these institutions (KII 01, Senior Administrative Staff, School of Community Health).

Sixth, the disparity may exist between males and females in terms of employment status; many employers may prefer female professionals than males. The reason is that males may tend to compare themselves with the doctors in terms of salary and other benefits, especially when they have spent long years in the establishment, thereby causing disharmony in the workplace. This may lead some men to establish their practice if it is supported by law while the women may endure staying with the organization (KII 01, Senior Administrative Staff, School of Community Health).

Corroborating the above t-test analysis, it was established that “gender bias exited in enrollment into dental health technician program and in the workplace” (KII 02, Senior Administrative Staff, Department of Dental Health Technician).

Factors responsible for the gaps in the dental health technician program

First, boys believed that nursing care should be a female profession. Male may not want to go around giving health education or giving ejections (KII 02, Senior Administrative Staff, Department of Dental Health Technician).

Second, many parents preferred their children to be a doctor, lawyer, accountant, or engineer. They do not have adequate knowledge about other health professions. Many may become aware when they
have health challenges and are being attended to by a dental professional. Many even think the profession is about removing teeth alone (KII 02, Senior Administrative Staff, Department of Dental Health Technician).

Discussion

This study determined the gender disparity in enrollment in Dental Health Technician (DHT) and Community Health Extension Workers (CHEW) in Nigeria. The study affirmed that more female than male students enrolled in both programs in the last five academic years. However, more male students enrolled in the DHT program than CHEW. Our analysis indicates that male enrollment in the DHT programs significantly declined by more than 90 percent, while male enrollment in CHEW decreased slightly between 2013/14 by 3.2 percent.

Within the CHEW enrollment, we found a significant increase in male enrollment in 2017/18 compared to the previous academic year. Conversely, male enrollment in the Dental Health Technician program significantly dropped by more than 90% during the study period. Our findings agree with a study that reported the gender gap in the enrollment of women in academic oral and maxillofacial surgery (Kolokythas and Miloro, 2016) and a United Kingdom study that reported a continuous increase in the number of women in the Dental profession (Jefferson et al., 2015).

Nevertheless, it deflects from some earlier works (Afolabi et al., 2016) that found no significant difference between male and female enrollment into Science Subjects in Public Senior Secondary Schools in Ekiti State, Nigeria and (Adeusi et al., 2018) that found no significant difference between male and female enrollment into the Department of Biomedical Engineering, College of Health Science, Ekiti State. Also, the findings in this current study build on the previous works that found a similar gender gap in the enrollment of students into the Community Health Extension Workers Department and similar professions in Kenya, Nigeria, and elsewhere (Kok et al., 2017; Ojakaa et al., 2014; Sidat, 2016). Many parents and guardians erroneously believe that courses in these institutions are only for girls. There is an urgent need to check this imbalance if Nigeria and Africa are to achieve the Sustainable Development Goals.

The current gender gap among students enrolled in the college of science and technology dominated by the women alone needs an urgent overt to achieve professional diversity in the long run. Based on the information deduced from the participants, they believed that the gender gap existed in intermediate health professions in Nigeria. This result corroborates the information from the quantitative study and other studies. The gender gap observed was due to ego on the part of the male students, discrimination between polytechnic and university graduates, poor parental knowledge about the professions, ignorance and work-related problems.

More so, the dental and community health technician professions may be profitable for males than females because most females will leave the workplace to take care of the family while the male professionals will have more time for home services or overtime. More males should be encouraged because it is profitable for both males and females, while encouraging more males will undoubtedly increase the diminishing health professional workforce in Nigeria. This assertion corroborates a previous study that opined that women’s domestic responsibilities often mean that they do not have the same amount of time to work as men (Hay et al., 2019).

Many young secondary school leavers prefer enrolling in the university than other institutions equipped with practical skills useful in the job market. Today, the number of university graduates continued to increase with no employment opportunities due to, in part, lack of needed skills in the job market. The health and medical profession will never and cannot be saturated. There will always be a need for newly trained young medical professionals to work in primary and secondary health sectors. Graduates from the College of Health will continue to be gainfully employed as Nigeria’s population continued to increase.

Recommendations

This study revealed a serious knowledge gap in the intermediate health profession in Nigeria. In light of these findings, we present four critical recommendations for improving the gender gap in the intermediate health profession thus,

1. Counselors in secondary schools should engage in serious sensitization and awareness campaigns to bridge the knowledge gap identified in this study, which hopefully will increase students’ knowledge about courses offered in colleges.
of health sciences and technology in Nigeria.

2. More so, the Nigerian government, educational administrators, and other policymakers should embark on rapid awareness campaign among the parents and guardians, youths organizations, market men and women, religious and traditional organizations using the social media and one-to-one approaches to educate the community to bridge the gender gap in enrollment of males into the intermediate health professions to bring boys at par with girls.

3. The management of colleges/schools of health sciences and technology should employ counselors who will be saddled with the responsibility of conducting public enlightenment campaigns, working in partnership with health educators and social workers, and other line ministries such Ministry of Education, Sciences, and Technology. Besides, the Ministry of Health should also stress the importance of these courses and debunk the gender bias associated with it.

4. This study also recommends that the government and the management team of schools/colleges of health sciences and technology in Nigeria should provide scholarships/ funding (full or partial) available for interested male applicants to encourage them to enroll in these professions.

Conclusion

Primary healthcare workers training ought to receive priority attention from policy makers and scholars because of the numerous roles they play in securing the health of the citizenry. This study concluded that there existed gender gap in enrollment into the Dental Health Technician and Community Health Extension Workers during the five years review. Overall, more females than males enrolled in the two programs for the study period. More so, various reasons ranging from individual, family, school, and community levels were given for the gender imbalances. The gender inequality in the medical profession is highly unacceptable as this may cause delay in the achievement of the sustainable development goals 2030.
List of References


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