



Analysis of Candidates' Performance in Unified Tertiary Matriculation Examinations (UTME) and Post-UTME in the University of Ibadan, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author OAO designed the study, performed the statistical analysis and wrote the final manuscript. Author EOO collected and rearranged the data. Author OAO managed the literature searches and wrote the first draft. All authors read and approved the final manuscript.

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ABSTRACT

A major criterion for determining the eligibility of candidates for admission into Nigerian Universities was their performance in UTME and Post-UTME before the scrap of the Post-UTME in 2016. This study was therefore aimed at investigating the performance of students in UTME conducted by Joint Admissions and Matriculation Board (JAMB) and the Post-UTME conducted by the University of Ibadan from 2012/2013 to 2015/2016 with emphasis on gender and age-group performance in the two examinations. The secondary data used for this research comprised of the records of all 100 Level students admitted into the University from 2012/2013 to 2015/2016 academic sessions through UTME and Post-UTME. The data collected were analysed using descriptive statistics, independent samples *t* test and Pearson Product Moment Correlation Coefficient *r*. The results [(2012/13: 49.3%; 50.7%); (2013/14: 53.5%;46.5%); (2014/15: 53%;47%) and (2015/16: 53.3%;46.7%)], for male and female respectively showed that more male candidates were admitted compared to their female counterpart in each academic session except the 2012/2013 session that

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had higher female enrolment. More than 80% of the students were in the 16-20 age group. The independent *t*-test, for UTME and Post-UTME respectively, showed that the males had higher mean scores than the females and these mean scores were significant in all the sessions except in the 2015/16 session [(2012/13: $P = .00; .04$); (2013/14: $P = .00; .03$); (2014/15: $P = .00; .00$); (2015/16: $P = .32; .29$)]. The independent *t*-test for Post-UTME showed that the 16-20 age group had higher mean scores in the Post-UTME than the 21 & above age group in all the sessions but the only significant Post-UTME mean score for this group was in the 2012/13 session ($P = .00$). Also, the independent *t*-test for UTME showed that the 21 & above age group had higher mean scores in the UTME than the 16-20 age group in all the sessions except the 2015/16 session but the only significant UTME mean score for this group was in the 2013/14 session ($P = .03$). The Pearson Product Moment Correlation Coefficient *r* was 0.306, -0.351, 0.456 and 0.641 for 2012/2013, 2013/2014, 2014/2015 and 2015/2016 respectively. All the *r* values were positively significant at 5% level except the value of *r* which was negatively significant for 2013/2014 session. The progressive and significant positive increase in the value of *r* in all the sessions except the 2013/2014 academic session suggested tacit support for the scrapping of the Post-UTME in the Nigerian University system.

Keywords: Examination malpractices; enrolment figures; age-group performance; correlation coefficient.

1. INTRODUCTION

Education is a major variable that is needed for the development of any nation. In Nigeria, the University is a major industry that produces high-level human resources needed in various sectors of national development. According to [1], the University education promotes the life of the mind through intellectual inquiry and to generate, store and transmit specialized knowledge and sophisticated expertise, higher forms of culture and ethical bases of conduct. This explains why stakeholders in the University administration usually guard jealously the integrity of the university system and the quality of graduates produced. In the past, Nigerian Universities are known for producing high quality graduates. Many graduates from Nigeria have distinguished themselves in their various fields of study across the world [2]. But, this is no longer the case. Professor Chukwuka Okonjo, a Professor Emeritus of Econometrics and Demography was quoted in [3] as follows:

“In the past, Nigeria’s educational system was the toast of all in the continent of Africa as it boasted one of the oldest, biggest and most comprehensive University Education System. In the 1970s, people of different nationalities moved “en-masse” to acquire qualitative education in Nigeria. But after many years, the story became different as Nigerian Public Universities later became breeding grounds for cultists even as incessant strike actions and all other vices took over the schools.”

Also, there have been concerns about the quality of graduates being produced by Nigerian Universities. According to [4,5,6,7], most of these graduates have poor analytical, communication, social, technical and managerial skills among others. A major factor, among other factors, responsible for this low quality is the high rate of examination malpractices in examinations conducted by the major examination bodies in Nigeria. Examinations bodies including the Joint admissions and Matriculation Board (JAMB), West African Examinations Council (WAEC) and National Examinations Council (NECO) have been heavily criticized by stakeholders in the education industry on issues that bothered on the integrity of their examinations. A fall-out of such criticism was the introduction of the Post-UTME into the University admission system (Post-UTME before it was scrapped by the Federal Government of Nigeria in 2016) by the Obasanjo administration in 2005 to ensure that competent candidates were admitted into Nigerian Universities. According to the former executive secretary of the National Universities Commission, Professor Okebukola as cited in [8], the Post-UTME was meant to test candidates’ abilities in English language through essay writing and oral interviews. The outcome of the research of [9] supported the introduction of Post-UTME. The UTME were multiple choice objective questions while the Post-UTME included essay questions. Forty-three and a half percent (43.5%) of candidates who scored 200 and above in UTME succeeded in Post-UTME implying that majority of those who did well in UTME could not perform the same feat in Post-

UTME. In response to these criticisms, these examination bodies have been introducing various reforms aimed at improving the credibility of their examinations. These included the introduction of the Unified Tertiary Matriculation Examination by JAMB, conduct of Computer-Based Examinations, prompt release of results among others.

The number of females enrolled for higher education in Nigeria and their academic performance is also a major issue in the Nigerian educational system because of the important role women play in the development of any nation. Despite many international interventions, declarations and conventions on women's and girl-child access to qualitative education, Nigeria is still lagging behind in terms enrolment status of females into our higher institutions. [10,11] reported lower enrolment figures for females when compared to that of males in selected Nigerian Universities.

Also, in terms of academic performance, [12] reported that males performed better than females in Education/Economic programme at Obafemi Awolowo University, Nigeria while [13] reported that there was no significant difference in the performance of males and females in Accounting at the University of Benin, Nigeria.

This study was therefore aimed at investigating the performance of students in UTME conducted by JAMB and the Post-UTME conducted by the University of Ibadan from 2012/2013 to 2015/2016 with emphasis on gender and age-group performance in the two examinations so that appropriate recommendations can be made to the relevant stakeholders.

1.1 Statement of the Problem

The quality of graduates from Nigerian Universities, in recent times, has become a major source of concern for stakeholders in the Nigeria education sector. Most of these graduates, because of their *half-baked* status, are unemployed contributing to the economic challenges of the nation. This poor quality has been attributed to so many factors. These included poor infrastructural facilities, incessant strikes by labour unions in the Universities, poor funding of the educational sector, lack of dedicated and qualified academic staff, examination malpractices among others. This study, therefore, sheds more light on candidates' performance in the UTME conducted by JAMB

and the Post-UTME conducted by the University of Ibadan from 2012/2013 to 2015/2016 with emphasis on gender and age-group performance in the two examinations so that appropriate recommendations can be made to the relevant stakeholders.

1.2 Research Questions

1. Are there significant differences in the mean scores for the male and female groups in each of the two examinations?
2. Are there significant differences in the mean scores for the age groups in each of the two examinations?
3. Is there any relationship in the performance of the students in the UTME and Post-UTME in all the sessions under study?

Specifically, our hypotheses are:

- a. **H₀:** There are no significant differences in the mean scores for the male and female groups in each of the two examinations
H₁: There are significant differences in the mean scores for the male and female groups in each of the two examinations
- b. **H₀:** There are no significant differences in the mean scores for the age groups in each of the two examinations
H₁: There are significant differences in the mean scores for the age groups in each of the two examinations
- c. **H₀:** There is no relationship between the performance of the students in the UTME and Post-UTME in all the sessions under study
H₁: There is relationship between the performance of the students in the UTME and Post-UTME in all the sessions under study.

2. METHODOLOGY

Secondary data was used for this research and it comprised of the records of all 100 Level students admitted into the University from 2012/2013 to 2015/2016 academic sessions through UTME and Post-UTME. The UTME and Post-UTME were both multiple choice objective questions for all the sessions considered. Descriptive statistics showing the gender and age distributions with their mean scores in both examinations were obtained. Independent samples *t* test was used to test for significant differences in the mean scores for gender and age groups in each of the two examinations in all

the sessions under study. The Pearson Product Moment Correlation Coefficient r was used to investigate whether any relationship existed between students' performance in UTME and Post-UTME for each session under study. This r was tested for significance at 5% level.

3. RESULTS

3.1 Descriptive Statistics

Table 1 shows the gender distribution of the students. More males are admitted in all the sessions except in the 2012/2013 session where there are more females than males. Table 2 shows the age distribution of the students. Majority of the students (over 80% in each session) are in the 16 – 20 age group while less than 20% are in the 21 & above category.

Table 1. Gender distribution of the students

Session	Gender	Frequency	Percent
2012/13	Male	1071	49.3
	Female	1103	50.7
	Total	2174	100
2013/14	Male	1293	53.5
	Female	1124	46.5
	Total	2417	100
2014/15	Male	1509	53.0
	Female	1336	47.0
	Total	2845	100
2015/16	Male	1748	53.3
	Female	1534	46.7
	Total	3282	100

The other results of the study are presented in the order of the research questions.

3.2 Research Question 1

Are there significant differences in the mean scores for the male and female groups in each of the two examinations?

Table 3 shows the gender group statistics. The mean score for male is higher than that of females in the UTME and Post-UTME in all the sessions except in the 2015/2016 session where the mean score for female (Post-UTME) is slightly higher than that of the males.

Table 4 shows that significant differences exist between the mean scores obtained by both the male and female groups in the UTME and Post-

UTME in all the sessions except the 2015/2016 session where the differences were not significant for the two examinations. The males performed better than the females in all the sessions in both examinations except in the 2015/2016 session where the females had a slightly higher mean score than the males in the Post-UTME.

Table 2. Age distribution of the students

Session	Age groups	Frequency	Percent
2012/13	16 – 20	1816	83.5
	21 & Above	358	16.5
	Total	2174	100
2013/14	16 – 20	2107	87.2
	21 & Above	310	12.8
	Total	2417	100
2014/15	16 – 20	2498	87.8
	21 & Above	347	12.2
	Total	2845	100
2015/16	16 – 20	2712	82.6
	21 & Above	570	17.4
	Total	3282	100

3.3 Research Question 2

Are there significant differences in the mean scores for the age groups in each of the two examinations?

Table 5 shows the age group statistics. The mean scores for the 21 & above age group are higher than the 16–20 age group in all the sessions except 2015/2016 session in the UTME while the mean scores for the 16-20 age group are higher than that of the 21 & above age group in all the sessions for the Post-UTME.

Table 6 shows that significant differences exist between the mean scores obtained by the two age groups in the 2012/2013 (Post-UTME), 2013/2014(UTME), and 2015/2016(UTME). The 16-20 age group performed better than the other age group in the 2012/2013 (Post- UTME). The 21 & above age group performed better than the other age group in the 2013/2014 (UTME) session while the 16-20 age group performed better than the other age group in the 2015/2016 (UTME).

Table 3. Group statistics (Gender)

	Session	Gender	Frequency	Mean score	Standard deviation	Standard error mean
UTME	2012/13	Female	1103	229.05	16.796	.506
		Male	1071	231.81	17.990	.550
	2013/14	Female	1124	219.26	19.627	.585
		Male	1293	224.16	22.543	.627
	2014/15	Female	1336	223.84	16.305	.446
		Male	1509	226.83	17.632	.454
2015/16	Female	1534	239.09	23.353	.596	
	Male	1748	240.04	29.756	.712	
Post-UTME	2012/13	Female	1103	61.20	7.597	.229
		Male	1071	61.93	8.465	.259
	2013/14	Female	1124	58.95	13.755	.410
		Male	1293	60.15	13.783	.383
	2014/15	Female	1336	63.04	8.062	.221
		Male	1509	64.11	8.991	.231
2015/16	Female	1534	61.70	7.916	.202	
	Male	1748	61.38	9.103	.218	

Table 4. *t*-test for equality of means for gender

	T	Df	Sig. (2-Tailed)	Mean difference	Std. error difference	95% Confidence interval of the difference		
						Lower	Upper	
2012/13	UTME	-3.696	2151.357	.000	-2.761	.747	-4.226	-1.296
	Post-UTME	-2.110	2131.947	.035	-.729	.345	-1.406	-.052
2013/14	UTME	-5.711	2414.994	.000	-4.899	.858	-6.581	-3.217
	Post-UTME	-2.134	2415	.033	-1.198	.562	-2.299	-.097
2014/15	UTME	-4.701	2837.610	.000	-2.992	.636	-4.239	-1.744
	Post-UTME	-3.326	2842.534	.001	-1.063	.320	-1.690	-.437
2015/16	UTME	-1.003	3280	.316	-.946	.943	-2.795	.903
	Post-UTME	1.049	3279.727	.294	.312	.297	-.271	.894

3.4 Research Question 3

Is there any relationship in the performance of the students in the UTME and Post-UTME in all the sessions under study?

Table 7 shows the Correlation Coefficient *r* for all the sessions under study. A slightly weak but significant positive correlation exists in the 2012/2013 session while fair and significant positive correlations exist in the 2014/2015 and 2015/2016 sessions. These imply that every increase in a student's UTME score leads to a corresponding increase in his/her Post-UTME score. A weak significant negative correlation exists in the 2013/2014 session. This implies that an increase in UTME score leads to a corresponding decrease in the Post-UTME score. We also notice a gradual increase in the value of the *r* as the implementation of the Post-

UTME progressed with the highest *r* value of 0.641 in 2015/2016 session.

4. DISCUSSION

From the findings of this research, the number of candidates admitted into the undergraduate programmes of the University of Ibadan has been increasing steadily on a yearly basis from 2174 in 2012/2013 to 3282 in 2015/2016. There were more males than females in all the sessions except the 2012/2013 session where there were more females than males. This result agreed with the works of [14,15].

Over 80% of the students were in the 16-20 age group. The minimum age for undergraduate admission into the University of Ibadan is sixteen (16).

Table 5. Group statistics (age)

	Session	Age	Frequency	Mean score	Standard deviation	Standard error mean
UTME	2012/13	16 – 20	1816	230.30	17.509	.411
		21 & Above	358	230.97	17.130	.905
	2013/14	16 – 20	2107	221.49	21.175	.461
		21 & Above	310	224.52	22.531	1.280
	2014/15	16 – 20	2498	225.38	16.945	.339
		21 & Above	347	225.73	18.074	.970
2015/16	16 – 20	2712	240.52	24.849	.477	
	21 & Above	570	235.21	34.981	1.465	
Post-UTME	2012/13	16 – 20	1816	61.99	8.100	.190
		21 & Above	358	59.40	7.389	.391
	2013/14	16 – 20	2107	59.68	14.183	.309
		21 & Above	310	58.98	10.645	.605
	2014/15	16 – 20	2498	63.65	8.621	.172
		21 & Above	347	63.28	8.303	.446
	2015/16	16 – 20	2712	61.66	8.445	.162
		21 & Above	570	60.91	9.119	.382

Table 6. t- test for equality of means for the age groups

	T	Df	Sig. (2-Tailed)	Mean difference	Std. error difference	95% Confidence interval of the difference		
						Lower	Upper	
2012/13	UTME	- .663	2172	.508	- .669	1.009	-2.647	1.310
	Post-UTME	5.952	540.238	.000	2.585	.434	1.732	3.438
2013/14	UTME	-2.227	393.557	.027	-3.029	1.360	-5.703	-.355
	Post-UTME	.836	2415	.404	.700	.838	-.943	2.344
2014/15	UTME	-.356	2843	.722	-.348	.979	-2.267	1.571
	Post-UTME	.754	2843	.451	.371	.492	-.593	1.335
2015/16	UTME	3.446	694.459	.001	5.310	1.541	2.285	8.335
	Post-UTME	1.889	3280	.059	.746	.395	-.028	1.519

Table 7. Correlation coefficient r between UTME and Post-UTME

Session	r	Sig.
2012/2013	0.306	.000
2013/2014	-0.351	.000
2014/2015	0.456	.000
2015/2016	0.641	.000

There were significant differences in the performance of the male and female candidates in the two examinations in all the sessions considered, with the males performing significantly better than the females except in the 2015/2016 session. In the 2015/2016 session, however, the females performed better than the males in the Post-UTME, though this result was not significant. This result contrasted with the outcome of the research of [16] which concluded that there were no significant differences in the

performance of male and female undergraduate students in Nigeria.

Also, there were significant differences in the performance of the two age groups in the two examinations. In the Post-UTME for 2012/2013 session, the 16-20 age group performed significantly better than the 21&above age group. For UTME, in the 2013/2014 session, the 21 & above age group significantly performed better than the other group. In the 2015/2016 session, the 16-20 age group performed significantly better than the 21&above age group in the UTME.

A slightly weak but significant positive r (0.306) was obtained for the 2012/2013 session while fair and significant positive $r = 0.456$ and $r = 0.641$ were obtained for the 2014/2015 and 2015/2016 sessions respectively. Every increase in a candidate's UTME score generally led to a

corresponding increase in his/her Post-UTME score. This contrasted with the outcome of the research conducted by [17] that showed that candidates with high scores in UTME did not have a corresponding high score in Post-UTME.

A weak but significant negative $r = -0.351$ was obtained for 2013/2014 session. This implied that, generally, an increase in UTME score led to a corresponding decrease in the Post-UTME score. This corroborated the works of [18] that reported significant negative r between the two examinations. Also, [19] reported that students scored significantly lower marks in Post-UTME than UTME with a weak insignificant relationship $r = 0.44$.

Also, there was a gradual increase in the value of the r as the conduct of the Post-UTME progressed with the highest r value of 0.641 reported in 2015/2016 session. This implied that generally, a candidate with a high score in UTME had a corresponding high score in Post-UTME too in all the sessions considered except the 2013/2014 session. Thus, candidates with good UTME scores can be admitted into the University of Ibadan without the conduct of the Post-UTME. This might be attributed to the fact that the Post-UTMEs conducted in all the sessions studied were multiple-choice objective examinations that did not include essay writing as was the case in [8] above. Also, various mechanisms put in place by JAMB to reduce examination malpractices might have contributed to the consistent positive relationship between the two examinations.

5. CONCLUSION

The males outnumbered the females in the enrolment register of the University of Ibadan from 2013/2014 to 2015/2016 academic sessions. They also performed better than the females in the UTME and Post-UTME in all the sessions considered in this study.

Majority of the candidates are in the 16-20 age bracket. The 16-20 age group performed significantly better than the 21 and above age group in the 2012/2013 session for Post-UTME and in the 2015/2016 session for UTME.

Excluding the 2013/2014 significant negative r result, there was a gradual increase in the value of r as the conduct of the Post-UTME progressed with the highest r value of 0.641 reported in 2015/2016 session. There was a high degree of positive relationship in candidates' performance

in the two examinations. Thus, candidates with good UTME scores can be admitted into the University of Ibadan without the conduct of Post-UTME. Thus, this result tacitly supported, empirically, the recent decision of the Federal Government to stop the conduct of Post-Unified Tertiary Matriculation Examinations in Nigerian Universities.

6. RECOMMENDATIONS

We recommend that enlightenment campaigns be intensified on the importance of female education in Nigeria. This will go a long way in increasing the number of females aspiring to get University education in Nigeria. Further investigations should also be carried out to identify why the males performed better than the females in the study.

The Joint Admissions and Matriculation Board (JAMB) should continue the revolution in its administrative procedures and the conduct of the Unified Tertiary Matriculation Examinations in Nigeria. This will help in further raising the standard of the examination and boost the confidence of Nigerians on the organizations' outputs.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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