

## Research Article

# Employability among Statistics Graduates: Graduates' Attributes, Competence, and Quality of Education

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An aspect of quality in higher education is the quality of the outcomes achieved. Higher education adds value by developing job-related skills and competencies. It is also not known to what extent, graduates' competence goes in line with the demands of the employers. This study was to assess the employability and competency of statistics graduates. Data were collected using a structured questionnaire and analysis the using SPSS version 23. This study employed a Kaplan–Meier estimate to compare the duration of unemployed times from two or more groups. To assess whether there is a real difference between groups, we used Log-rank test. From a total of 303 statistics graduates, 17.7% were unemployed and 82.3% were employed. Of employed graduates, 65.8% had a permanent worker and the rest 16.5% of graduates had a temporary worker. The mean duration of unemployed statistics graduate at Bahir Dar University was 12.9 month (95% CI, (9.9, 15.9)). This study revealed that there is a percentage of graduates who are not yet employed and never been employed. Therefore, the department must be a linkage with the different government organization and NGO. This may improve the employability of statistics graduates.

## 1. Introduction

Tracer studies or graduate survey is a means of maintaining curriculum relevance and providing targeted benefits to graduates to enhance the marketability of educational programs. Adequate knowledge on employment outcomes of training graduates could assist in formulating policy towards combating some of the social problems such as unemployment. Students, particularly graduates of any course, are required to earn a sense of competence in their field of interest and develop the confidence to explore new possibilities and new employment especially if there is increasing competition among rivals at work [1]. Graduate tracer studies are one form of empirical study that can appropriately provide valuable information for evaluating the results of the education and training of a specific institution of higher education [2]. It can collect essential information concerning the employment profile of graduates [3], their undergraduate experience, the first and current jobs of graduates [4], and the relevance of their educational

background and skills required in their job. Graduate tracer study can also collect data on the relevance of the curriculum and graduates' level of satisfaction with their academic preparation [3].

An essential aspect of quality in higher education is the quality of the outcomes achieved. Higher education adds value by developing job-related skills and competencies that prepare students for the workplace [3, 5]. The adequacy of Ethiopia University graduates remains hotly debated. It is a question of particular concern to graduates who are seeking employment and to employers who consider hiring them. The situation is of such concern that hundreds of unemployed university graduates in Ethiopia demanding that the government provide them with jobs. Employers complain that graduates are poorly prepared for work. They believe that academic standards have fallen considerably over the past decade and that a university degree is no longer a guarantee of communication skills or technical competence.

Ethiopia's higher education infrastructure has increased in the last 15 years [6]. However, the institutions suffer from

curricula being abandoned due to various reasons. The rapid growth of Ethiopia's higher education system has come at a cost, but it is moving forward all the same. Even though the number of universities has increased offering many programs in Ethiopia, there is a problem of imbalance between the number of graduates and employment in different institutions. It is also not known to what extent graduates' competence goes in line with the demands of the employers. Therefore, to make the curriculum of each program responsive to the demand for potential employers, conducting this research has become a necessity for the department. Thus, this study was to assess the employability and competency of statistics graduates, focusing on the years 2012 to 2016 at Bahir Dar University.

## 2. Methodology

The study population consisted of the sample a statistics graduates between 2012 and 2016 years. The data were collected using online questioners ([https://docs.google.com/forms/d/e/1FAIpQLSc0xZjCp\\_kJUNV7bL6YHSp8inTCizA\\_D9AMhSLfkpKtbbw\\_1A/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSc0xZjCp_kJUNV7bL6YHSp8inTCizA_D9AMhSLfkpKtbbw_1A/viewform?usp=sf_link)) and the Internet access not availed, the data were collected structured questionnaire form offered to graduates in work and live place of the graduates. The sample size was calculated using EPI Info considering the following assumption. The expected frequency of graduates employability in Ethiopia was 80% [11], 95% CI, and 7.6 % acceptable margin of error, and the entire number of study participants was 79. Based on a cross-sectional study, the data was conducted March to June 2018 in Ethiopia.

**2.1. Study Variable.** The dependent variable for this study was the employability of graduates (employed and unemployed). Employed graduates: graduates who are employed full-time or part-time during a specified payroll period; unemployed: statistics graduates who do not have a job. Demographic, education status, and the region of their graduates and residence area were independent variables of this study.

**2.2. Data Analysis.** The data gathered were tallied, analyzed, and interpreted. Frequency, ranking, mean, and *t*-test used to describe the typicality of responses. This study used a Kaplan–Meier estimate to compare the duration unemployed times from two or more groups. To assess whether there is a real difference between groups, we used Log-rank test [7].

**2.3. Kaplan–Meier Estimator of  $S(t)$ .** The KM estimator is simple and intuitive.  $S(t)$  = proportion of observations with failure times  $> t$ . When there are censored data, KM provides an estimate of  $S(t)$  that takes censoring into account.

KM estimator is defined only at times when events occur [8]:

$$K \text{ unemployed duration } t_1 < t_j < \dots < t_k. \quad (1)$$

At each employed duration  $t_j$ , there are  $n_j$  individuals unemployed and  $d_j$  is the number of graduates employed at time  $t_j$ :

$$S(t) = \prod_{j:t_j \leq t} \left[ 1 - \frac{d_j}{n_j} \right]. \quad (2)$$

## 3. Results and Discussion

Three hundred three people studying statistics were graduated on the period between 2012 and 2016 at Bahir Dar University, Ethiopia. Of these, 79 of graduates were enrolled in this study. From those included in this study, 14 or 17.7% were unemployed and 65 or 82.3% were employed. About 20 or 25.3% of graduates included in this study were female, of which 40.0% were unemployed and 59 or 79.1% were male, of which 10.2% were unemployed. The percent of unemployed female statistics graduates at Bahir Dar University was higher than that of male graduates. 59 or 74.6% of graduates were from the Amhara region. Out of these graduates, 20.3% of graduates were unemployed in the Amhara region and the remaining 10.5% were unemployed in other regions. The rate of the unemployed of Amhara region was higher than that of any other region in Ethiopia. The mean age of graduates was 26.19 years with 1.85 standard deviations. 73.4% of graduates preferred to join Bahir Dar University, and 25.3% were not preferred to join the university.

Of the employed graduates stated in Table 1, 65.8% were permanent workers and the rest 16.5% of graduates were temporary workers. For employed graduates 59.5%, their work directly aligns the study of the field and 24.1% of the graduates doing work not directly align the study of the field (Table 2). From the total of 79 respondents, 16 (20.3%), 5 (6.3%), 14 (17.7%), 20 (36.7%), and 15 (19%) were in the 2012 year, in the 2013 year, in the 2014 year, in the 2015 year, and in the 2016 year of statistics graduates, respectively. All statistics graduates from 2012 to 2014 years were employed. In the 2015 year of statistics graduates, 72.4% were employed and 27.6 were unemployed. 40% of statisticians were unemployed in the 2016 year graduates. The unemployed statistics graduate increase year to year.

24.1% of the graduates' gross income was between 5001 and 8000 Ethiopian Birr per month. 21.5% graduate their income was between 2001 and 3000 Birr per month. 12.1% of the graduates earn income 3001–4000 Birr per month, and 10.1% of the graduates earn monthly 4001 to 5000 Birr per month. The government sector (a federal and regional government organization) was the main employer of statistics graduates (Table 2). 36 or 45.6% of the graduates were employed in the federal government organization and 15 or 19.8% of statisticians are workers of the regional government sector. Five or 6.3% of graduates were employed in the international NGO and one percent graduate has work in local NGO. Five or 6.3% and 2 or 2.5% of graduates were worked in the private sector and private work, respectively. The other graduates were not employed, did not indicate where they worked and it was not the permanent work sector. Table 2 shows the results of some worker sectors of statistics graduates and employment. More than half (54.4%) of the graduates obtained their first job by examining the

TABLE 1: The graduate employability.

Characteristics	Category	Employability		Chi-squared	
		Unemployed	Employed	Value	P value
Year of graduation	2012	0 (0.0%)	16 (100%)	14.58	0.006
	2013	0 (0.0%)	5 (100%)		
	2014	0 (0.0%)	14 (100%)		
	2015	8 (27.6%)	21 (72.4%)		
	2016	6 (40%)	9 (60%)		
	Total	14 (17.7%)	65 (82.3%)		
Gender of graduation	Female	8 (40.0%)	12 (60.0%)	9.11	0.003
	Male	6 (10.2%)	53 (89.8%)		
Region where graduate lives	Amhara region	12 (20.3%)	47 (79.7%)		
	Other	2 (10.5%)	17 (89.5%)		
Types of job searching methods	Public media	13 (20.6%)	50 (79.4%)	2.144	0.709
	Direct contact with employer	0 (0.0%)	4 (100.0%)		
	From individuals	0 (0.0%)	2 (100.0%)		
	Internet or websites	1 (11.1%)	8 (88.9%)		
	Others	0 (0.0%)	1 (100.0%)		
Education status of father	Illiterate	7 (17.1%)	34 (82.9%)	1.462	0.833
	Grade 1 to 8	5 (19.2%)	21 (80.8%)		
	Grade 9 to 12	0 (0.0%)	3 (100.0%)		
	TVET	0 (0.0%)	1 (100.0%)		
	Higher education	2 (28.6%)	5 (71.4%)		
Education status of father	Illiterate	9 (16.7%)	4 (583.3%)	7.401	0.116
	Grade 1 to 8	2 (20.0%)	8 (80.0%)		
	Grade 9 to 12	0 (0.0%)	9 (100.0%)		
	TVET	2 (66.7%)	1 (33.3%)		
	Higher education	0 (0.0%)	1 (100.0%)		
Looking for a job	Before graduation	1 (33.3%)	2 (66.7%)	0.501	0.479
	After graduation	13 (17.3%)	62 (82.7%)		

organization entrance exam, and 13.9% of graduate acquired their first job by university cumulative grade point. 5.1% of graduate acquired their first job by cumulative grade point average and organization entrance exam. Other graduates start their first job by direct contact with the company, or through a friend's recommendation (Table 2).

The graduates included in this study 65 (82.3%) were employed and 14 (17.7%) were unemployed at data collected time (June, 2018). The length of the job search for statistics graduates was a minimum of 1-month duration and a maximum of 36-month duration. Figure 1 shows that the probability of the unemployment rate was high in the first months, which relatively decreases when the duration of graduate increases. The mean duration of unemployment in statistics graduates at Bahir Dar University was 12.929 months and the 95% confidence interval of mean duration of unemployed was between 9.935 and 15.922 months. And the median of unemployed statistics graduates was 6 months and the 95% confidence interval was between 5.284 and 6.716. The mean duration of time unemployed of male and female for statistics graduates was 22.250 and 9.754 months, respectively. The average duration of time for the unemployed female graduates was higher than male graduates. The mean duration of unemployed statistics graduates was 5.667 months for cumulative grade point average (CGPA) between 2.25 and 2.50. Grouped cumulative grade point average (CGPA) of graduates and the duration of

unemployed were statistically insignificant, based on log-rank test (Table 3). This means grouped cumulative grade point average has no effect on the duration of unemployment among statistics graduates.

Table 3 displays the length of job search among statistics graduates from 2012 up to 2016 from Bahir Dar University. Statistics graduates of 2012 and 2014 years were unemployed up to six months after graduation, whereas graduates of 2013 and 2016 years were unemployed up to one year after graduation. 18.966 months were taken to get a job for statistics graduates in the 2015 year. This implies that the majority of statistics graduates are able to secure jobs within a year period and the responsiveness of the labor market to accommodate graduates as fast as possible as well. This is also considered as long-term unemployment among graduates. Basically, long-term unemployment indicates poverty. Poverty makes it difficult to make investments in education and health that would increase a person's productivity [9]. Long-term unemployment has a number of socioeconomic, political, and moral consequences (UNDP, 2006). It reflects the failure to make use of an important factor of production, labor, for fostering economic growth (UNDP, 2006). Besides, unemployment results with different crises, for instance, in Ethiopia, structural unemployment and widespread poverty, were believed to be the basis for the riots and violent demonstrations by youths and unemployed graduates in Addis Ababa in April 2001, upsetting the seemingly peaceful and

TABLE 2: Employed characteristics.

Variables	Category	Frequency
Employability of graduate	Employees	65 (82.3%)
	Nonemployees	14 (17.7%)
Type of work	Permanent	52 (65.8%)
	Temporary	13 (16.5%)
Study-related work	Unrelated	19 (24.1%)
	Related	47 (59.5%)
Salary of graduate per month	2001–3000 birr	17 (21.5%)
	3001–4000 birr	10 (12.7%)
	4001–5000 birr	8 (10.1%)
	5001–8000 birr	19 (24.1%)
	More than 8000 birr	11 (13.9%)
Employer organization name	Missing data (nonresponse)	28 (35.4%)
	Administration office	6 (6.5%)
	Bank	5 (6.3%)
	Central statistical agency	5 (6.3%)
	Economy and development center	2 (2.5%)
	Education office	3 (3.8%)
	Ethiopia airport	3 (3.8%)
	Ethiopian federal courts	2 (2.5%)
	Ethiopian revenue and customs authority	1 (1.3%)
	Food institution	1 (1.3%)
	Health center	2 (2.5%)
	International NGO	2 (2.5%)
	Private work	4 (5.1%)
	University	15 (19.0%)
	Selecting candidate	CGPA
Entrance exam		43 (54.4%)
Both 1 and 2		4 (5.1%)
Others		4 (5.1%)
Number of racing companies	0–3.00	24 (30.4%)
	4.00–6.00	20 (25.3%)
	7.00–9.00	4 (5.1%)
	10.00+	21 (26.6%)
	Total	69 (87.3%)
	Missing data (none response)	10 (12.7%)
The type of organization you recruited	Federal	36 (45.6%)
	Regional organization	15 (19.0%)
	International NGO	5 (6.3%)
	Local NGO	1 (1.3%)
	Private organization	5 (6.3%)
	Private work	2 (2.5%)
	Missing data (none response)	15 (19.0%)

stable political situation. The incident resulted in many deaths and destruction of property worth millions of dollars [9].

In Table 3 the *P* value shows that the duration of the unemployment in different years of graduates and gender of graduates were statistically significant. Their difference is statistically significant at the 95% level of significance by log-rank test. This means the hazard of time unemployed for a different year of graduation and gender of graduates are statistically significant.

Table 4 presents the knowledge, skills, and personal attributes of graduates, which were requirements for their professional. Table 4 shows the course was taken at university while they were working. Most of the graduates had

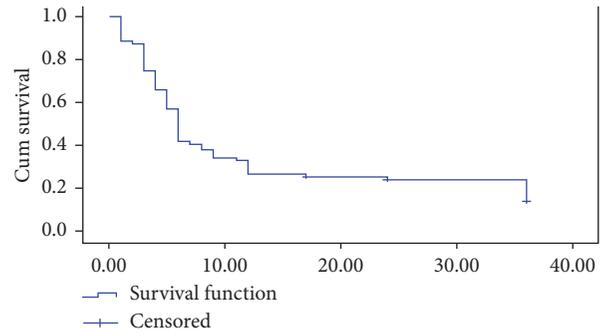


FIGURE 1: Overall product limit estimate of the duration of unemployed.

agreed that the statistics courses were given at the university where they applied for the job. One-sample *t*-test displayed in Table 4 showed the courses provided at the university were statistically important for their work. This means that the graduates responded to the courses taken at university qualified for doing work. The details of each measurement that is used to qualify their work are given in Table 4. Graduates also believed that the courses offered by the department is capable of demonstrating conceptual knowledge and specific technical skills related to their work performed in a better way.

Most of the graduates thought that they possessed basic computing skills and that related technologies are necessary to perform their tasks. For participating in the study, only 3 (3.8%) of graduates reported lack of computer skills, 16 (20.3%), 33 (41.8%), and 24 (30.4%) of statisticians told have fair, adequately, and very good computer skills, respectively. The acquired computer skills from the university were important for their work.

The use of qualitative and quantitative information to solve problems and assess the validity of the conclusion is discussed here. The graduates supposed that the courses offered the by the department were skillful. The research skills for graduates were adequate or better (Table 4). The graduates believed that to have adequate or better for planning and organization skills, priority setting skills and performing tasks accurately (Table 4). The graduates who reported the employability skills, namely, to solve the decision-making problem, to review based on the fact, to provide research skills, and to work with the colleagues in an effective manner, were competent. However, competence on reading and speak English briefly explained to do work express ideas in writing, knowledge of the field, and knowledge-related work was rated moderate. Moreover, it was presented also in this study that same group of employees demonstrated a satisfactory contextual performance. In general, the knowledge, skills, and personal attributes of statistics graduates were found to be better.

The graduate reported in Table 5 that their study field helps them to do work. The great number of graduates rate that the study filed stated in Table 5 aids to perform good work. The benefit of the study field to do work was statistical significance based on one-sample *t*-test (see one-sample *t*-test). 36.7% of graduates believed to be a hard worker by

TABLE 3: Duration of unemployment.

Variable	Category	Means and medians for survival time					
		Mean <sup>a</sup>			Median		
		Estimate	Std. error	95% confidence interval	Estimate	Std. error	95% confidence interval
Year of graduation	2012	5.938	0.981	(4.015, 7.860)	5.000	0.571	(3.880, 6.120)
	2023	12.80	6.078	(0.887, 24.713)	9.000	3.286	(2.559, 15.441)
	2014	4.714	0.986	(2.782, 6.646)	3.000	0.370	(2.274, 3.726)
	2015	18.966	2.815	(13.449, 24.482)	12.00	4.017	(4.126, 19.874)
	2016	11.60	2.64	(6.427, 16.773)	5.000	1.288	(2.475, 7.525)
Gender	Female	22.25	3.583	(15.227, 29.273)	36.00	11.390	(13.675, 58.325)
	Male	9.754	1.46	(6.893, 12.615)	5.000	0.512	(3.996, 6.004)
CGPA	2.0–2.25	11.500	7.128	(0.000, 25.471)	3.000	2.500	(0.000, 7.900)
	2.25–.50	5.667	2.906	(0.000, 11.362)	5.000	3.266	(0.000, 11.401)
	2.50–2.75	10.286	2.397	(5.588, 14.983)	8.000	1.309	(5.434, 10.566)
	2.75–3.00	12.000	2.709	(6.691, 17.309)	6.000	0.378	(5.259, 6.741)
	3.00–3.25	19.125	6.540	(6.307, 31.943)	3.000	12.021	(0.000, 26.561)
	3.25–3.50	12.286	3.041	(6.325, 18.246)	5.000	0.756	(3.518, 6.482)
	3.50–3.75	11.818	3.085	(5.772, 17.865)	6.000	4.404	(0.000, 14.632)
	3.75–4.00	11.500	8.231	(0.000, 27.633)	3.000	2.500	(0.000, 7.900)
	Overall	12.929	1.527	(9.935, 15.922)	6.000	0.365	(5.284, 6.716)

(a) Estimation is limited to the largest survival time if it is censored

Overall comparisons				
Variable		Chi-squared	df	Sig.
Year of graduation	Log rank (Mantel–Cox)	19.758	4	0.001*
Sex	Log rank (Mantel–Cox)	9.122	1	0.003*
CGPA	Log rank (Mantel–Cox)	2.434	7	0.932

TABLE 4: Knowledge, skills, and personal attributes of graduates concerning their present occupation.

Variables	Not at all	Very little	Fair	Adequately	Very well
Brief explained to do work	4 (5.1%)	6 (7.6%)	26 (32.9%)	29 (36.7%)	9 (11.4%)
Express ideas in writing	2 (2.5%)	2 (2.5%)	29 (36.7%)	30 (39.0%)	14 (17.7%)
Read and speak English	10 (12.7%)	11 (13.9%)	24 (30.4%)	18 (22.8%)	11 (13.9%)
Knowledge of the field	3 (3.8%)	6 (7.6%)	18 (22.8%)	37 (46.8%)	11 (13.9%)
Knowledge-related work	7 (8.9%)	9 (11.4%)	17 (21.5%)	27 (34.2%)	14 (17.7%)
Relevant skills	3 (3.8%)	7 (8.9%)	25 (31.6%)	26 (32.9%)	14 (17.7%)
Understand different concept my own way	1 (1.3%)	4 (5.1%)	26 (32.9%)	26 (32.9%)	20 (25.3%)
Make decision by statistical techniques	0 (0%)	4 (5.1%)	21 (26.6%)	31 (39.2%)	20 (25.3%)
Basic skill of computer	0 (0%)	3 (3.8%)	16 (20.3%)	33 (41.8%)	24 (30.4%)
To solve and decision making problem	0 (0%)	3 (3.8%)	23 (29.1%)	36 (45.6%)	14 (17.7%)
Review is based on the fact	0 (0%)	4 (5.4)	23 (29.1%)	31 (39.1%)	18 (22.8%)
Provided research skills	1 (1.3%)	2 (2.5%)	22 (24%)	24 (30.4%)	25 (31.6%)
To work my colleagues in an effective	2 (2.5%)	3 (3.8%)	25 (31.6%)	32 (40.5%)	12 (15.2%)
Lead the people	2 (2.5%)	6 (7.6%)	32 (40.5%)	22 (27.8%)	12 (15.2%)
The ability to plan and organize project work	1 (1.3%)	3 (3.8%)	29 (36.7%)	32 (40.5%)	10 (12.7%)
To do my work on plane	2 (2.5%)	3 (3.8%)	26 (32.9%)	30 (38.0%)	14 (17.7%)
To do work properly	1 (1.3%)	5 (6.3%)	25 (31.6%)	35 (44.3%)	10 (12.7%)
To do work effectively and on time	1 (1.3%)	6 (7.6%)	24 (30.4%)	34 (43.0%)	9 (11.4%)
New way to do my work	1 (1.3%)	11 (13.9%)	32 (40.5%)	26 (32.9%)	6 (7.6%)
To using updating knowledge for work	1 (1.3%)	12 (15.2%)	28 (35.4%)	21 (26.6%)	13 (16.5%)
To take responsibility	1 (1.3%)	7 (8.9%)	26 (32.9%)	34 (43.0%)	9 (11.4%)
To acquire knowledge	2 (2.5%)	5 (6.3%)	30 (38.0%)	29 (36.7%)	10 (12.7%)
To improve my self-esteem	2 (2.5%)	7 (8.9%)	29 (36.7%)	28 (35.4%)	9 (11.4%)
Being open for improvement	1 (1.3%)	1 (1.3%)	26 (32.9%)	35 (44.3%)	14 (17.7%)
Understand social problem	3 (3.8%)	3 (3.8%)	19 (24.1%)	34 (43.0%)	16 (20.3%)

One-sample test

Personal attributes	t	df	Sig. (2-tailed)	Test value = 3	95% CI	
				Mean difference	Lower	Upper
	10.40	76	0.000	0.62207	0.5029	0.7412

TABLE 5: Aid of the field to the job.

Variables	Very much disagree	Disagree	Partially agree	Agree	Very agree
To be a hard worker	3 (3.8%)	6 (7.6%)	19 (24.1%)	29 (36.7%)	20 (25.3%)
To be good at work	0 (0%)	7 (8.9%)	26.6 (26.6%)	34.2 (34.2%)	27.8 (27.8%)
To be responsibility	3 (3.8%)	6 (7.6%)	17 (21.5%)	34 (43.0%)	18 (22.8%)
To be good citizen	8 (10.1%)	8 (10.1%)	26 (32.9%)	25 (31.6%)	11 (13.9%)
To be prosperity of my personal life	10 (12.7%)	13 (16.5%)	23 (29.1%)	20 (25.3%)	12 (15.2%)
To see different problem in my way	2 (2.5%)	3 (3.8%)	23 (29.1%)	33 (41.8%)	15 (19.0%)
To be have skills	1 (1.3%)	3 (3.8%)	26 (32.9%)	33 (41.8%)	15 (19.0%)
To develop my communication	3 (3.8%)	2 (2.5%)	22 (27.8%)	34 (43.0%)	17 (21.5%)
To be successful in my life	5 (6.3%)	6 (7.6%)	24 (30.4%)	31 (39.2%)	12 (15.2%)

One-sample test					
Test value = 3					
Producing qualified	<i>t</i>	df	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference
					Lower Upper
	7.248	77	0.000	0.60862	0.4414 0.7758

TABLE 6: The importance of courses to their work.

Variables	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>
Major course	24 (35.82)	11 (16.42)	11 (16.42)	9 (13.43)	12 (17.91)
Common courses	12 (17.91)	17 (25.37)	13 (19.40)	14 (20.90)	11 (16.42)
Research course	25 (37.31)	11 (16.42)	11 (16.42)	14 (20.90)	6 (8.96%)
Lab	12 (18.18)	10 (15.15)	16 (24.24)	14 (21.21)	14 (21.21)
Senior project	13 (19.7)	9 (13.64)	11 (16.67)	14 (21.21)	19 (28.79)

their study field, and 43.4% said to have good communication skill by way of the study field. Almost all statistics graduates acquired knowledge and skill in Bahir Dar University were good workers. Regarding the rate of usefulness of the field to work, most of the graduates reported agree and very agree. This means that the study field was useful to perform well. Table 5 shows the extent of the value of the acquired competencies, skills, and knowledge in the university in the occupation. The data proved that their acquired knowledge and knowledge during their college life were highly useful and relevant to their present jobs and statistically significant. (Table 5).

As a result, Table 6 indicates the rank of importance of the courses during a academics till their work. The respondents rated from 1 up to 5 for the importance of prior education in the present job. The major courses and research-related courses were assigned the first rank based on the importance of their work. 35.8% of graduates assigned the major courses the first rank and 37.3% assigned research-related courses the first rank (Table 6). The table shows that 16.42% of graduates allocated the second rank for major courses to their work importance, 16.42% the third rank for major courses, 13.43% the fourth rank for major courses, and 17.91% fifth for major courses.

Statistics is one of the preferable departments at Bahir Dar University College of Science. Of the graduates who responded, 60 or 75.9% preferred to join the statistics department and 19 or 24.1% were not interested to join the statistics department. Most of (59.5%) graduates who agreed with their education qualified in the department. In this

study, most graduates responded to have the quality of education in the statistics department. When the respondent was asked about the knowledge of the teacher, the majority of respondents (69 (87.3%)) were satisfied with the way of lecture and tutor methods.

Quality of education is important for better learning outcomes for the job, and the delivery of education is one of the effective measurements of education quality. A good quality curriculum not only prescribes what should be taught and learnt in the various subjects and grade or stage levels. The result indicates the quality of education delivery courses by major and common courses teachers. The graduates rated that the major courses teachers delivered in a better way compared to common courses teachers. 56.3% of graduates responded that the way of delivery of the course by major courses teachers was better compared to that of common courses teachers.

#### 4. Conclusion and Recommendation

This tracer study or graduate survey is a collaborative work of the college researchers from 6 departments. The project's output is significant primarily to recognize and address the existing curriculum's strengths and weaknesses and its adequacy, quality and competencies of a graduate in the market. Thus, the aim of this study was to assess the employability and competency of statistics graduates. The study revealed that 14 or 17.7% of were unemployed among graduates of statistics and 65 or 82.3% were employed. Among employed graduates, 65.8% were permanent workers and the rest 16.5% graduates were

temporary workers. The mean duration of unemployment for statistics graduates at Bahir Dar University was 12.929 months and their 95% confidence interval of mean duration of unemployed graduation was between 9.935 and 15.922 months. This study's findings indicate the strengths and weaknesses of the programmers offered by the Department of statistics. Whereas some of the weaknesses were addressed by the delivered courses teachers, the department is creating collaboration with employer organization and identifying their needs to look at a curriculum again in view of these findings and identifying areas that can still be strengthened. A considerably high percentage of respondents are employed in a government organization. Their present job, mostly professional in nature, was also their first job and relevant to their degree. It took only a moderate period for most graduates to land a job. The study revealed that there was a high percentage of unemployed graduates. The department should make a linkage with different governmental organizations and NGOs. This may improve the employability of statistics graduates. The BDU must continually aspire for graduates to be provided with relevancy and effectiveness of work to escalate their employment.

## Abbreviations

KM: Kaplan–Meier  
 BDU: Bahir Dar University  
 CGPA: Cumulative grade points average  
 NGO: Nongovernmental organizations  
 TVET: Technical and vocational education and training  
 UNDP: United Nations Development Program.

## Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

## Additional Points

*Definition.* A tracer study or graduate survey is a survey (in written or oral form) of graduates from educational institutions, which takes place sometime after graduation or the end of the training. The subjects of a tracer study can be manifold, but common topics include questions on study progress, the transition to work, work entrance, job career, use of learned competencies, current occupation, and bonds to the education institution (school, center, and university) [10].

## Ethical Approval

This investigation was conducted according to the principles expressed in the Declaration of Bahir Dar University, Ethiopia. It was approved by the research ethics committee at the Bahir Dar University.

## Consent

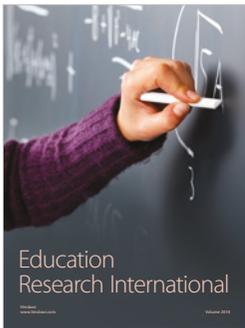
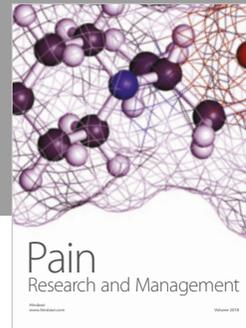
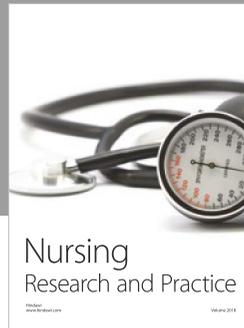
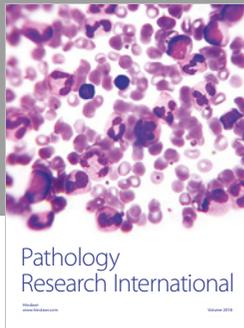
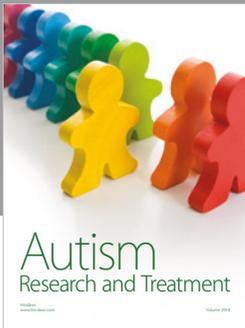
All participants that agreed to participate in this study have signed a consent form.

## Conflicts of Interest

The author declares that there are no conflicts of interest.

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