

# Female Students get More Marks as Compared to Male Students: A Statistical Study

Hassan N<sup>1\*</sup> and Hassan T<sup>2</sup>

<sup>1</sup>Department of Statistics, University of Peshawar, KPK, Pakistan

<sup>2</sup>Department of Economics, University of Malakand, KPK, Pakistan

## Abstract

The main purpose of the study is to find various causes which leads towards the success of the female students rather than male students. Nowadays in educational institutions most of the position holders are females. For these investigations sample of 200 students of University of Peshawar selected from different departments and investigated through a questionnaire. There were 55.5% male respondents and 44.5% are females respondents. 75% respondents were agreed that female students get more marks rather than male students, 25% were disagreed. The investigation of marks percentage showed that 8.11% male students and 1.12% female students were in the range of 51-60 percentage marks, low range of marks have less number of female students. As the range increased from 50-60 percentage to interval of 71-80 percentage of marks so there were found 44.14% male students and 46.06% female students. And in the range of 81% and above there were 18.01% males and 40.45% females students. These results showed that more female students have high range of marks as compared to male students. And at low range of marks only 1.12% females compared to 8.11% males. Over all comparison showed that more female students have high marks rather than male students or female students perform better than male students. 60.5% of the respondents believe that female students are more studios as compare to male students. And 21% responses were thinking that female students are not more studios than male students and 18.5% respondents had no opinion that who are more studios. 76% of the respondents said that female students are more serious toward their studies comparatively to male students. Technique of odds ratio analysis was performed to check at the association of female students get more marks as compare to male students with females attend classes (lectures) more regularly, females know the art of attempting paper in a better way, females ask more questions in the class from teachers. The odds ratio analysis suggests that the female students get more marks as compare to male students were significantly associated with females attend classes (lectures) more regularly, females know the art of attempting paper in a better way, and females ask more questions in the class from teachers.

**Keywords:** Female students; Marks; Male students; Statistical study

## Introduction

Education is the crucial need of human being. Education plays a vital role in the development of human capital in any society and also linked with an individual's well-being and opportunities for better living. It enables individual to improve the quality of life. This increase in productivity also leads towards new sources of earning which enhances the economic growth of a country. There are some factors that affect students' performance these factors may be family problems, social and economic problems etc.

In 1951 the literacy rate of Pakistan was 17.90% (Male literacy rate 86.1%, Female literacy rate 13.9%) and now based on 1998 census the literacy rate is 43.9%. Male literacy rate is 67.98%, female literacy rate is 32.02%. In 2012 the literacy rate of Pakistan is increased to 57% and urban literacy rate is 75% and rural is 49% [1]. Female literacy rate in 2012 is 45% and male literacy is 69.7%. The literacy rate of Pakistan is increasing time to time. Female literacy rate of rural areas is low as compare to urban females, rural areas female literacy rate is 35% (2012) and urban female literacy rate is 68% (2012). Rural areas literacy rate is low because they have not enough facilities for education there are lack of educational institutions. In rural areas people do not want to send her females to other villages or urban areas for education, rural areas people not encouraged females for education. Most of rural areas people involve in labour field, small business and forming etc. They not like to get education as compare to urban areas because of some factors like financial resources, educational institutions, transport resources, employments/jobs etc.

In Pakistan total educational institutions are approximately 162,939, there universities number are 139 in which 7 are women universities.

In Pakistan total numbers of female educational institutions from primary to degree collages are approximately 61269. In past females are not encouraged for education but now female getting education equally to males. Males and females have equal rights to get education. And now females have competition with males in any field of study [2]. Generally in school and college results in recent years, is that female students in many cases are better performing than males. And females also behave better in class so there for teachers are cooperative with females.

Nowadays Pakistan has two different education systems, one is annual (BSC/M.Sc) examination system and 2nd one is Semester (Hons/Bachelors) system. In annual system the exams are conducted on annual base but in semester system exams are conducted after every 3 or 2.5 months in this system students are more involve in study activities like assignment, Presentations and monthly tests. Semester system is adopted in Pakistan in most of educational institutions so large numbers of students are studying in semester system. Comparison between annual and semester systems is very often done. Both the

**\*Corresponding author:** Noor Hassan, Department of Statistics, University of Peshawar, KPK, Pakistan, Tel: 03439996171; E-mail: [nhassan230@yahoo.com](mailto:nhassan230@yahoo.com)

**Received** October 27, 2016; **Accepted** November 17, 2016; **Published** November 27, 2016

**Citation:** Hassan N, Hassan T (2016) Female Students get More Marks as Compared to Male Students: A Statistical Study. J Bus Fin Aff 5: 226. doi: 10.4172/2167-0234.1000226

**Copyright:** © 2016 Hassan N, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

semester and annual systems have its own merits and demerits. Annual system covers the entire syllabus and then students remember all this till the end of the study year. In this system teacher and students both have enough time for study and easily cover all topics of syllabus. In annual system University/Collage have enough time to prepare questions paper. In semester system examinations are held within five months so what the students studied will remain afresh in their mind. In semester system the syllabus load also will be less on students. In this system different topics have no need to be combined in the same paper. In semester system students have more chances to improve also.

## Literature Review

A study of University of Agriculture, Faisalabad showed that performance of female students is better than males. In a study of university level the female students performance compared to male students. There were 265 respondents in which female students were only 36.2% [3].

Comparison between the performance of male and female students with reference to their GPA "up to 2.00" in first semester, this comparison showed that there were 4.7% males and 1% females placed in this GPA range but the range of GPA increased to "above 3.00" so in this range 49.1% males and 59.4% females were counted.

When the performance of males and females was studied till the end of sixth semester, the situation further trended in favor of female students. In CGPA category of "up to 2.01 to 3.00", only 16.7% females were placed, whereas in contrast more than 44% male students fell in this category. Mean of these results was that majority of males probably did not effort to get better grades. The situation became further interested when their performance was considered with reference to the CGPA in "above 3.00", wherein compared to males, about 28% more females secured higher than 3.00 CGPA, the difference being highly significant [4].

The above study concludes that the overall performance of female students was better than male students. This study showed that females work hard and females are more studies as compare to males. Males involve themselves more in social activities and also in physical activities. University of Punjab also showed (December, 2011) that there is a significant difference between male and females marks. There were studied 300 samples of student's marks. And hypothesis were tested that there is no difference between male and females in performance. But there  $t$ -values ( $t=-5.405, -2.745, -2.034$ ) indicate that there is a significant difference in the marks of male and female students [5]. Null hypothesis was rejected. And conclude from the result of this study that female students perform better than the male (mean values=295.03; 38.71; 38.47) in the subjects of English and Mathematics as well as in the overall scores/performance.

## Study limitation

Due to the limitation of time and resources the study is delimited to;

- University of Peshawar Students
- Survey/Data Collection from 200 respondents

## Need of the study

In most of the educational institutions females are position holders. Females perform better than males there should be some main causes which lead towards the success of female students rather than male students. There are some factors which affects the performance of students.

Therefore need to investigate these factors and causes.

## Main objectives of research are:

- To examine the study trend of male and female students
- To study the activities of students
- To study the seriousness of students about her/his study
- To point out the weaknesses of male students in study
- To find different factors affecting on students' performance
- To study the teachers cooperation

## Methodology

Data was collected through a questionnaire for this study, from 200 students of university of Peshawar. One of the sampling method known as simple random sampling (SRS) was used.

According to this method 200 students were taken randomly and then information has been collected. The response of the questionnaires was coded, tabulated and analyzed under Statistical Packages for Social Sciences (SPSS 20) [6]. University of Peshawar is one of the largest educational institution of Khyber Pakhtunkhwa (KPK) Pakistan have different Faculties like faculty of Medical sciences, faculty of Numerical and Social sciences, faculty of Islamic and Oriental studies, faculty of Management and Information Sciences and faculty of Life and Environmental Sciences.

Statistical techniques were used to analyze the collected information and to investigate the records/data. For illustration of joint distribution of the responses the descriptive statistics (bar chart, frequency distribution and pie chart) were used. Odds ratio were used for measuring associations of different categorical variables with one main variable. Odds of an event is the probability of event occurring divided by the probability of the event does not occurring. And the odds ratio is the odds of the event for one group divide by the odds of the event for second group or odds ratio is a measure of association of two binary variables. The odds ratio shows the association between a predictor and the response of interest. And as logistics regression is used to fit a best model and to investigate that which variables have impact on main/dependent variable and how much explaining the response variable. The forward stepwise (Wald) technique is used to get best model. Binary Logistic regression is a type of regression which can be used a situation where the dependent variable is categorical and has only two categories [7].

## Result/Analyses

Table 1 showed the result of this question. 8.11% male students and 1.12% female students were in the range of 51-60 percentage marks, low range of marks have less number of female students.

As the range increased from 50-60 percentage to interval of 71-80% of marks so there were found 44.14% male students and 46.06% female students. And in the range of 81% and above there were 18.01% males and 40.45% female students. Over all comparison showed that more female students have high marks rather than male students or female students perform better than male students (Table 1).

It is clear from Table 2 "Female students get more marks as compare to male students". There 75% of the respondents were agreed that female students get more marks rather than male students, 25% of the respondents were disagreed (Table 2).

| Marks (%) | No. of male students | %     | No. of male students | %     | Total | Percent |
|-----------|----------------------|-------|----------------------|-------|-------|---------|
| 51-60     | 9                    | 8.11  | 1                    | 1.12  | 10    | 5       |
| 61-70     | 33                   | 29.72 | 11                   | 12.36 | 44    | 22      |
| 71-80     | 49                   | 44.14 | 41                   | 46.06 | 90    | 45      |
| 81-90     | 20                   | 18.01 | 36                   | 40.45 | 56    | 28      |
| Total     | 111                  |       | 89                   |       | 200   | 100     |

Table 1: Your last semester (previous year) GPA/CGPA or (Marks %).

|       | Frequency | Percent |
|-------|-----------|---------|
| No    | 50        | 25      |
| Yes   | 150       | 75      |
| Total | 200       | 100     |

Table 2: Female students get more marks as compare to male students.

|            | Frequency | Percent |
|------------|-----------|---------|
| No         | 42        | 21      |
| Yes        | 121       | 60.5    |
| Don't Know | 37        | 18.5    |
| Total      | 200       | 100     |

Table 3: Do you think that female students are more studios as compare to male students?

|       | Frequency | Percent |
|-------|-----------|---------|
| No    | 48        | 24      |
| Yes   | 152       | 76      |
| Total | 200       | 100     |

Table 4: Do you think that girls are more serious towards their studies comparatively to male?

|       | Frequency | Percent |
|-------|-----------|---------|
| No    | 20        | 10      |
| Yes   | 180       | 90      |
| Total | 200       | 100     |

Table 5: Females attend classes (lectures) more regularly?

|       | Frequency | Percent |
|-------|-----------|---------|
| No    | 25        | 12.5    |
| Yes   | 175       | 87.5    |
| Total | 200       | 100     |

Table 6: Females complete assignments on time?

|        | Frequency | Percent |
|--------|-----------|---------|
| Male   | 181       | 90.5    |
| Female | 19        | 9.5     |
| Total  | 200       | 100     |

Table 7: Who's more involved in extra curriculum activities?

Table 3 results clearly showed that female students are more studios than male students. 60.5% of the respondents said that female students are more studios as compare to male students (Table 3).

According to the Table 4 findings 76% of the respondents said that female students are more serious toward their studies comparatively to male students (Table 4).

It is clear from Table 5 that female students attend classes (lectures) more regularly. 90% of the respondents said that female students attend classes (lectures) more regularly (Table 5).

According to the Table 6 that female students complete assignment on time. 87.5% of the respondents were agreed that females complete assignments on time (Table 6).

It is clear from Table 7 that male students are more involved in extra curriculum activities. 90.5% of the respondents said that males are more involved in extra curriculum activities and 9.5% of the respondents answered that females are more involved in extracurricular activities (Table 7).

### Odds ratio analyses (Tables 8-14)

Table 9 showed that the odd ratio of female students get more marks as compare to male students is 2.19. Female students have 2.19 times more chance to get more marks if they are attend classes (lectures) regularly as compared to non-regular female students. The 95% Confidence interval (0.840, 5.715) shows a significant relationship between getting more marks and attending classes (lectures) regularly. Female students are more regular then male students because the male students are mostly involve in extra curriculum activities.

It is clear from Table 11 that female students have 1.408 more chance to get more marks if they are know the art of attempting paper

|  |     | Females attend classes (lectures) more regularly? |     | Total |
|--|-----|---|-----|-------|
|  |     | No  | Yes |       |
| Female students get more marks as compare to male students | No  | 8   | 42  | 50    |
|  | Yes | 12  | 138 | 150   |
| Total  |     | 20  | 180 | 200   |

Table 8: Female students get more marks as compare to male students. Females attend classes (lectures) more regularly?

|            | Value | 95% Confidence Interval |       |
|------------|-------|-------------------------|-------|
|            |       | Lower                   | Upper |
| Odds Ratio | 2.19  | 0.84                    | 5.715 |

Table 9: Risk Estimate.

|  |     | Females know the art of attempting paper in a better way? |     | Total |
|--|-----|---|-----|-------|
|  |     | No  | Yes |       |
| Female students get more marks as compare to male students | No  | 15  | 35  | 50    |
|  | Yes | 35  | 115 | 150   |
| Total  |     | 30  | 150 | 200   |

Table 10: Female students get more marks as compare to male students. Females know the art of attempting paper in a better way? Cross tabulation.

|            | Value | 95% Confidence Interval |       |
|------------|-------|-------------------------|-------|
|            |       | Lower                   | Upper |
| Odds Ratio | 1.408 | 0.69                    | 2.874 |

Table 11: Risk estimate.

|  |     | Females ask more questions in the class from teachers? |     | Total |
|--|-----|--|-----|-------|
|  |     | No   | Yes |       |
| Female students get more marks as compare to male students | No  | 33   | 17  | 50    |
|  | Yes | 97   | 53  | 150   |
| Total  |     | 130  | 70  | 200   |

Table 12: Female students get more marks as compare to male students. Females ask more questions in the class from teachers? Cross tabulation.

|            | Value | 95% Confidence Interval |       |
|------------|-------|-------------------------|-------|
|            |       | Lower                   | Upper |
| Odds Ratio | 1.061 | 0.541                   | 2.081 |

Table 13: Risk estimate.

|         |                  | B      | S.E.  | Wald   | Df | Sig.  | Exp(B) |
|---------|------------------|--------|-------|--------|----|-------|--------|
| Step 1a | Gender           | 1.493  | 0.39  | 14.691 | 1  | 0     | 4.451  |
|         | Constant         | 0.574  | 0.198 | 8.424  | 1  | 0.004 | 1.775  |
| Step 2b | Gender           | 1.949  | 0.459 | 18.069 | 1  | 0     | 7.023  |
|         | Responsibilities | -0.797 | 0.404 | 3.894  | 1  | 0.048 | 0.451  |
| Step 3c | Constant         | 0.819  | 0.24  | 11.689 | 1  | 0.001 | 2.268  |
|         | Gender           | 1.972  | 0.463 | 18.101 | 1  | 0     | 7.182  |
|         | Study Time       | -0.717 | 0.354 | 4.093  | 1  | 0.043 | 0.488  |
|         | Responsibilities | -0.842 | 0.41  | 4.21   | 1  | 0.04  | 0.431  |
|         | Constant         | 1.218  | 0.321 | 14.438 | 1  | 0     | 3.381  |

Binary logistic regression, Forward Stepwise (Wald).

**Table 14:** Logistic regression model (Variables in the Equation).

in a better way as compared to those who are have no art of attempting paper. The 95% Confidence interval (0.690, 2.874) shows a significant relationship between female students get more marks as compared to male students and female student know the art of attempting paper in a better way [8].

It is obvious from Table 13 that the odd ratio of female students is 1.06. There female students have 1.06 times more chance to get more marks if they are asking more questions in the class room from teachers [9]. The 95% Confidence interval (0.541, 2.081) shows a significant relationship between female students get more marks as compared to male students and female students ask more questions in the class from teachers.

After applying forward stepwise logistic regression the required best model has only three variables are

$$X_1 = \text{Gender}$$

$$X_2 = \text{Study Time (Are you studying at start of semester/session?)}$$

$$X_3 = \text{Responsibilities (Who has more responsibilities at home?)}$$

The simplest model which represents the data is given by

$$\ln\left(\frac{p}{1-p}\right) = 1.218 + 1.972X_1 - 0.717X_2 - 0.842X_3$$

From the fitted logistic regression model, the  $\beta_1 = 1.972$  means that being a male the odds of female students get more marks as compare to male students increased by 1.972 times or 97%.

There  $\beta_2 = -0.717$  indicates if the respondents does not study at start of semester/session than the odds of female students get more marks decreased by  $-0.717$  ( $1 - 0.717 = 0.283$ ) times.  $\beta_3 = -0.842$  means if male student is responsible at home than the odds of female get more marks as compare to male decreased by  $-0.842$  times.

## Conclusion

To find various causes of that female students get more marks as compare to male students, in most of the educational institutions the positions holders are females therefore this study is important. For this study a survey in University of Peshawar was conducted. According to the survey 75% respondents were agreed that female students get more marks rather than male students, 25% disagreed (Table 2). Generally the performance of the students mostly depend on study, these students will get more marks when they should be more studios as compare to others. So according to the Table 3 60.5% of the respondents believe that female students are more studios as compare to male students. And 21% responses were thinking that female students are not more studios than male students. These results clearly showed that female students are more studios than male students so there for female students get

more marks than male students. And female students also more regular in attending classes, according to the survey 90% of the respondents said that female students attend classes (lectures) more regularly.

From Table 7 majority male students are involved in extra curriculum activities therefore male students not giving full concentration on study. Therefore female students get more marks as compared to male students.

## Recommendation

On the basis of above findings the following recommendations are made. The trend of female students getting more marks as compared to male is very challenging in educational institutions. To improve male performance, concentration and hard work of male students is required and male students need to avoid those weaknesses that affect the performance of male students like extra curriculum activities. Male students need to improve class attendance, study seriousness, art of attempting paper, completion of assignments on time, study hours, and responsibility.

## References

- Peng CJ, Lee KL (2002) An introduction to logistic regression analysis and reporting. The Journal of Educational Research 96: 3-14.
- Khan BB, Nawaz R, Chaudhry KM, Hyder AU, Butt TM (2012) Evaluation of comparative academic performance of undergraduate students at university level. The Journal of Animal & Plant Sciences 22: 798-801.
- Farooq MS, Chaudhry AH, Shafiq M, Berhanu G (2011) Factors affecting students' quality of academic performance: A case of secondary school level. Journal of Quality and Technology Management 7: 1-14.
- Azhar M, Nadeem S, Naz F, Perveen F, Sameen A (2013) Impact of parental education and socio-economic status on academic achievement of university students. International Journal of Academic Research and Reflection 1: 25-33.
- Pakistan Economy Survey (2012-13). Government of Pakistan, ministry of finance.
- Pedhazur E (1997) Multiple Regression in behavioral research. (3rdedn) New York, Harcourt Brace College.
- Chaudhry SM, Kamal S (1996) Introduction to Statistical Theory. Pakistan.
- Stephen FE (2007) The analysis of cross-Classified Categorical Data. Statistical Theory and Methods pp: 120-121.
- Fuller WA (2016) Sampling Statistics. Iowa State University pp: 1-10.