

GENDERED ACADEMIC PERFORMANCE IN TWO PUBLIC UNIVERSITIES IN FAISALABAD, PAKISTAN

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ABSTRACT: *This study investigates factors influencing gender gap in academic performance of students in two main public universities (out of five), namely the Government College University and University of Agriculture in Faisalabad, Pakistan. Primary data was collected using structured questionnaires from 160 randomly sampled students, comprising 80 male and 80 female students. Grade Point Aggregate (GPA) was used as a proxy of 'academic performance' based on gender of the respondent and other variables such as previous academic scores and income of respondent's household, etc. Econometric techniques applied included bivariate analysis (Chi-square), correlation metrics, and OLS regression analysis. Independent t-test was also used to find out the significance level between gender and academic performance/CGPA. The Chi-square results reveal that there exists a strong association between gender and academic performance (Grade Point Aggregate) which is highly significant. Eta test statistic was also used to check the strength of association between gender and student's GPA, which reveals a positive relationship between these variables. Ordinary Least Square (OLS) was used which shows that variables like gender, previous GPA, household income, parental education, and behaviour of teachers contribute towards GPA. This shows that gender disparity leads to gender inequality in academic performance; therefore, the study recommends that the Government should play a vital role to eradicate the adverse effect of gender gap in the education sector.*

Keywords (Gender, Academic Performance, Previous Student record, Public Universities)

1. BACKGROUND

Education plays an important role in the social and economic development of any society. It is a basic and important determinant of human resource development. It is the basic and foremost human right and plays an important role in bringing behavioural changes among the masses, particularly women, to face different socioeconomic problems, and to attain better education. Education has five basic principles for getting better socioeconomic situation in the developing countries of the world. First, it provides personal benefits to individual and it improves the personality of the individual by generating self-assurance, moreover education enhances individual's creativity and social interaction. Second, education opens different ways of career building. It also increases the abilities of an individual to get socioeconomic benefits. Third, educated individual avails enormous chances of access to public debates and seminars than an illiterate individual. Fourth, education contributes to deviate from trend among developing countries, by spreading awareness among people, as a result, parents willingly or unwillingly send their children to school. Fifth, higher level of education provides opportunities for the lower and middleclass individuals to attain massive social and political stability in the society [2]. Education, knowledge and vocational training are the most imperative tools or individual progression and advancement. Education has turned into fundamental human right and key to the attainment of women's goals and empowerment particularly. The word gender deals with the assigned duties and activities of men and women in the society and their roles and the moral obligations fluctuating among them from one area to another area. These fluctuations in the role, provision of basic facilities and rights to men and women are the major indicators of gender disparity in a society. The effect of gender disparity could be judged from the following fields of

life in any society such as free social status, families, customs, geographic values and some aspects of religion. In the world population, the females are the 50 percent of the total population and they do 1/3rd part of the total work completed, but they just have 1/10 share in the total world income and they receive lower than 1/100 of the total property of the world and they have legal rights of this property that is registered to them by name. There are different faces of gender disparity, but in this research study main focus is gender disparity in academic performance. There are nearly 900 million uneducated people and 65 percent among them are females in the world. In developing countries, females receive less education as compared to males [10]. Gender differences refer to social roles and obligations with respect to males and females. Gender gap is a most prominent reality of daily life in most countries of the entire world; Gender inequality is higher in developing countries. Academic performances deal with the individual differences. Students (male/female) depends upon their individual personalities, intelligence, IQ levels, consciousness and ability to deal with any task are the factors that affect academic performances. Moreover, there are a lot of more factors affecting students' academic performances in which firstly children's home environment helps to develop early learning skills. Gender gap also exist in the academic achievements as females have low access to education as compare to males, however females perform better than male because they are more hardworking and sincere with their work. In Pakistan, 6.5 million children are out of school of which 80 percent never enrolled in school, the reason behind this are economic and non-economic constrains such as disparities among gender. There are variations in the gross enrollment rates of the girls at different levels of education [1]. In Pakistan, only 10 percent Balochi-Pathan rural girls complete primary school as compared with 40 percent boys

and 55 percent of urban Punjabi girls as compared to 65 percent of urban Punjabi boys [7]. The female education has direct returns at primary and middle level. In Pakistan among wage-working females' 58 percent are uneducated, 3.9 percent of them have middle schooling and 5.2 percent women have primary education but on other side 12.2 percent men have middle level of education. There are much economic benefits of educating the women because mostly they spend more on the education and health of children, so the overall returns from women's education are higher than that of men [6]. If there is higher level of human capital and then its stock and accumulation will also be higher. There are realities that the gender disparities in education end up the human capital stock, its quality and also its level of accumulation. The education of the mothers indirectly affects the economic growth through their demographic impacts [8]. The adverse effects of this discrimination can be resolved by facilitating parent's education, enhancing media awareness and by government policies [9]. It is found that in pacific region, gender disparity costs \$16-\$30 billion a year. This figure just shows the economic costs to the society and other than this are social and personal costs. There is an issue that gender inequality in education can only be resolved when we bring change in the factor such as norms and values that are the main source of gender disparity in education. Parents qualification may influence student's educational performance by developing their personality, attitude and skills towards school [11]. Highly literate parents provide their children a better learning environment. In the era of 21 century, women are being discriminate for the purpose of educational attainment. -Gender gap concerns to injustice in status between females and males for recognizing their individual privileges. The position of women in Pakistan is diverse from other European nations. Gender is one of the developing doctrines of Pakistan's economy. Due to cultural and family life style differences from developed countries, women are bound to run their house and perform household tasks in Pakistan. A woman plays a role of mother and spouse but a male governs a works of outside the home and earn livelihood. The males' role as a wage earner, assigned the men and women two different planets. Male persons of family are given well education and furnished with full of skills, but women are restricted at homes to learn domestic skills so that they become good moms and spouses. Females are inadequate chances to generate options for their own lifestyle. Pakistan has not given importance to women's education. Young girls in the rural area of Punjab have to accomplish various tasks along her mothers or siblings. The profound tasks are washing clothes on canal, collect fuel for cooking, to serve the meal to their parents or family members at work place and bring drinking water from water reservoirs. Family members and parents consider a threat to their respect and honour if girls have to travel long distance from home for educational attainment. They believe that, there is no need to educate the girls, as they have to get marriage and serve their in-laws at home. Such prototypes of social and cultural differences keep way girls from learning, reading and schooling [4] Females accept a major obligation of household work and perform various duties for their family members. Females are much conscious about their family and are ready

to do work for the benefits and prosperity of family members and other close relatives, particularly their kids. Girls are less educated and provided fewer opportunities to enrol in schools, colleges and universities, if compare with the boys in developing countries [12]. Pakistan is ranked in the list of those developing countries where gender disparity is higher with respect to the population proportion of women, which is 52% of total population. . It is true to say that no country can make progress and could not achieve its goals whose 50 percent of the total population consists of females and they are being ignored and have to face many problems to survive and could not play role to bring social change and human development. With the data from Pakistan Ministry of Education, the overall numbers of primary schools in Pakistan are 146,691 out of which 43.8 percent are for boys, only 31.5 percent for girls the rest of the 24.7 percent have mixed proportion of girls and boys. Mostly 50 percent of the girls in school going age are trapped in such domestic responsibilities and are unable to continue their education. Due to gender inequalities access to education may suffer, although there are incidences reported in the literature reviewed where female academic performance remained better than that of males despite gender inequality. However, gender disparities are more violent in the developing countries and Pakistan is no exception. Pakistan is knowingly one of the heavily populated countries of the world; it has five provinces, Punjab, Sindh, Khyber Pakhtunkhwa and Baluchistan and Gilgit Baltistan. Population wise Punjab is the biggest province of Pakistan and its literacy rate is about 61%. Where, literacy rate of male is 71 % and that of female is 52% [5]. A promise towards treating men and women equally on its own is not enough to close the gender gaps in accessing education [3]. Access to education is the measure of an average of male to female literacy ratio, net school enrolment in primary, secondary and higher level. As school level increases the girl's participation is decreases total literacy rate of Pakistan is about 54 percent, from which male literacy rate is about to 42 percent and female 29 percent. Faisalabad is third biggest city of Pakistan, total population of Faisalabad is about to 60 to 70 lacks, total literacy rate of city is 60 percent, from which male literacy rate is 65 percent and female 45 percent. Study in hand investigates the impact of gender disparity on academic performance of public universities of Faisalabad. This research work includes the following sections: Sections 2 contain material and methods in terms of existence of gender gap on academic performance in public universities of Faisalabad, Pakistan. Section. 3 Section disused about model and methodology to identify gender gap. This paper concluded by finding, conclusion and policy recommendations (Section 4, 5) however list of references followed at the end of this research work

Objectives of the Study

- To investigate the gender gap in academic performance of master students.
- To analyze the determinants of gendered in academic performance.
- To recommend policy prescriptions based on the results of the study.

2. MATERIAL AND METHODS

Different Quantitative techniques were used to investigate the Gendered Academic Performance in Two Public Universities in Faisalabad, Pakistan.

2.1: Study Design

Faisalabad is the third biggest city of Pakistan, with total population about 60-70 lacks. The literacy rate of total population is about 57.9 percent, the male ratio is 69.5 and female ratio is 45.8 percent with huge difference [5]. Public universities have been selected in this study to collect data. The reason for selecting public universities was, students with different class/status studies here, a student from low socioeconomic status can afford to study here, public universities have better ranking than private universities. There are few public universities in Faisalabad, named as Government College University (GCUF), University of Agriculture (UAF), Government College Women University, and National Textile University. The current study based on gender differences so Universities with Co-Education has been selected, using stratified sampling so we choose UAF and GCUF. The primary data was collected by using a close-ended questionnaire. The population of this study was, students of master’s level in these Universities. The sample size of this study was 160 respondents who were selected using simple random sampling, because their academic background is observable, which was required for the analysis of the study in hand. A good structured questionnaire was used to collect the required information, which helped to the estimate exact effect of gender gap on academic performance.

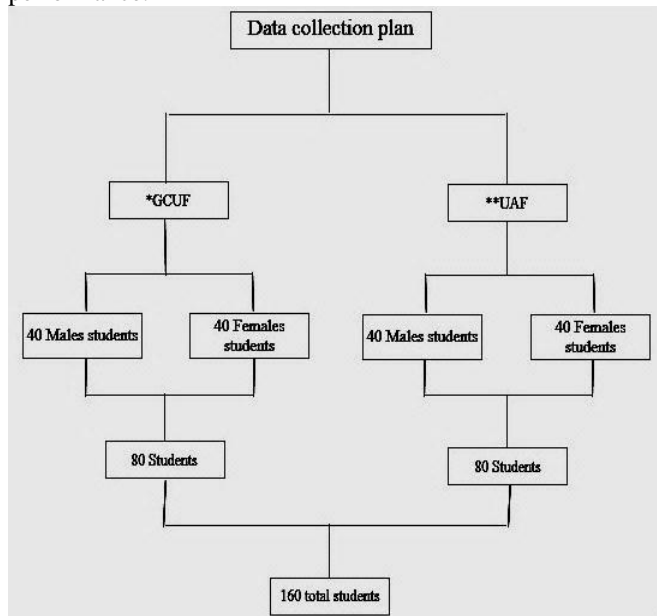


Figure 1: Data Collection Plan

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2.2: Model Specification

In order to analyse the effect of gender disparity over the academic performance the variables used in this study were, current GPA, previous academic scores (PCGPA), household income and parental education. Descriptive analysis of relative percentage of male and female was used to measure

the gender disparity on the academic performance of these Universities. Similarly, descriptive analysis was used to find out the reasons

Dependent Variables	Description of Variables
Cur.GPA	Current Grade Point Average
Explanatory variables	
GEN.	Gender (Male=1, Female=0)
H.H.I	Household Income
P.E	Parental Education
P.CUR.GPA	Previous Cumulative Grade point average

behind gender gap to meet our first objective. Chi-square technique was used to estimate the gender gap and academic performance, to estimate our second objective. Eta was used to check the relationship between academic performance and gender. The O.L.S (ordinary least square) regression model was used to analyze, what level of gender gap affect the academic performance, and which determinants affect the gender gap. To analyze the data collected by close-ended questionnaire, SPSS software was used. The SPSS analysed the effect of gender gap over academic performance of public universities of Faisalabad. The multiple regression models estimated the direction and strength of current GPA, previous academic scores (PCGPA), household income and parental education over the academic performance, moreover, problems of multi-co linearity and auto-correlation were mitigated as well. Different specification was made in OLS regression equation in which dependent variable is current GPA and the independent variables were randomly used. The OLS regression equation used as:

$$\text{Cur.GPA} = \beta_0 - \beta_1 \text{GEN} + \beta_2 \text{HHI} - \beta_3 \text{PE} + \beta_4 \text{BOT} + \beta_5 \text{PCGPA} + \epsilon$$

This regression equation shows the relationship of the dependent variable Cur.GPA that is the proxy of academic performance and other explanatory variables which are previous academic scores (PCGPA), household income and parental education to estimate the gender gap on the academic performance of public universities of Faisalabad.

2.3: Selection of Variables

In the current study, different explanatory variables were selected to measure the gender disparity on t academic performance of public universities of Faisalabad. The variables used in the OLS model had their own characteristics and effect on te dependent variable. The list of independent/explanatory) variables is given below.

List of Abbreviations and Symbols

α = Cronbach’s index of internal consistency

B = Beta

Df = Degree of freedom: number of values free to vary with some restrictions

< = less than

> = greater than

2.4: Descriptive Analysis

Descriptive analysis was used to measure the presence of gender gap on academic performance. Different variables were estimated in this section, some of them are used to measure the gender disparity on academic performance and other find out the reasons behind gender disparity on academic performance.

2.5: Chi-square

Statistician had made a distinction between measure of significance and measure of association. A measure of significance tells whether the relationship between two variables might be result of chance alone but measure of association how strong the relationship between two variables. Chi-square test was applied to examine the relationship between independent variable and dependent variable. The formula for calculating chi-square (X^2) is

Table 1: Description of Gender wise distribution of respondents

	Frequency	Percent
Female	80	50.0
Male	80	50.0
Total	160	100.0

Source: Author's own calculation

$$X^2 = \sum (f_o - f_e)^2 / f_e$$

Chi-square is the sum of the squared difference between observed (f_o) and the expected (f_e) frequency (data) (or the deviation, d) and divided by the expected frequency in all possible categories. \sum - capital sigma tells to compute the fractions for every cell and then sum over all cells to get X^2 Chi-square is used to check the association between two variables,

2.6: Eta Test

In order to measure the association between nominal and interval variable Eta test was applied in this study. In order to analyse the association between two variables Chi-square test is applied. To measure the effect of this association, is it positive or negative for this, Eta-test was applied, and it is also used for check the direction measure and it varies from 1.0 to 1.0.

2.7: Independent T-Test

To check the significance between two variables Independent T-Test was used as study in hand check the relationship between academic performance/CGPA and gender independent t-test was applied.

3. RESULTS

3.1.1: Descriptive Analysis

Descriptive statistics is a set of short-term descriptive coefficients that reviews a given data set, which can either be a representation of the entire population or a sample. The measures used to define the data set as a method of central tendency and measures of spreading

3.1.2: Gender of Respondent

The above table 1 shows that total number of respondents who participated in this study was 160. The respondents selected in this study belonged to public universities of Faisalabad District. The table shows that 80 respondents were male, who were 50 percent of total sample size, while 80

respondents were female who 50 percent of total number of respondents were,

Table 2: Description of family type of respondent

	Frequency	Percent
Joint	71	44.4
Nuclear	89	55.6
Total	160	100.0

Source: Author's own calculation

3.1.3: Family Type of Respondent

The table 2 highlights the family type i.e. Nuclear and joint family system of respondents. The results shows that, there were 71 respondents belonged to joint family system who were 44.4 percent of total respondents while 89 respondents belonged to nuclear family system who were 55.6 percent of total respondents. Therefore, the strength of respondents living in nuclear family system is greater than joint family system in Faisalabad.

3.1.4: Gender & CUR.GPA

Table 3: Cross Tabulation of Gender and GPA of respondent

	Gender		Total
	Female	Male	
2.00 -2.50	5	16	21
2.51 - 3.00	8	37	45
3.01 -3.50	18	15	33
3.51 -4.00	49	12	61
	80	80	160

Source: Author's own calculation

The table 3 shows that 21 respondents scored marks between 2.00-2.50 CUR.GPA, and the results on gender basis shows that five females and 16 males scored between 2.00-2.50 CUR.GPA, which shows that proportion of males are greater than females.45 respondents scored between 2.51-3.00 CUR.GPA, the segregation between male and female shows, 8 females and 37 males scored between 2.51-3.00. 33 respondents scored between 3.01-3.50 CUR.GPA while 18 females and 15 males scored between 3.01-3.50 CUR.GPA. However, 61 respondents scored between 3.51-4.00 CUR.GPA, The results on gender basis shows that 49 females and 12 males scored between 3.51-4.00 CUR.GPA, which shows that proportion of females are greater than males. So it is concluded on the basis of above mentioned results females scored high than males studying at university level.

3.2: Chi-Square

Chi-square is used to check the association between two variables, gender and Cur.GPA. The table below shows the results of gender and Cur.GPA

Table 4: Chi-square test:

	Value	Df	Asymp.sig. (2-sided)
Pearson Chi-Square	47.166 ^a	3	.000
Likelihood Ratio	50.669	3	.000
N of Valid Cases	160		

Source: author's own calculation

Gender and Cur.GPA are two main components of this study. The chi-square applied to check the association between two variables either it is strong or not. The value of

Pearson is 47.166, and sigh. value is 0.00, which is less than 0.05, so there is strong association between gender and Cur-GPA. While Likelihood ratio is 50.669 and Sig., value is 0.00, which is less than 0.05 so there exist strong association between the variables

3.3: Eta Results

Gender (independent) =.867

Cur.GPA (dependent) =.531

To check the direction of association between interval and nominal variables we apply Eta test. According to the results, there is positive direction in gender and Cur.GPA by .867 and .531. which shows that there is positive relationship between two variables.

3.4: Independent t-test

Table 5: T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Academic performance	Equal variances assumed	.886	.348	7.876	158	.000	.56200	.07135	.42107	.70293
	Equal variances not assumed			7.876	157.222	.000	.56200	.07135	.42106	.70294

Source: Author's own calculation

The Sig. (2-Tailed) value of our results is .000. This value is less than .05. Because of this, we can conclude that there is a statistically significant Different between the academic performance and mean number of male and females, reveals

that females' academic performance is better than male students are.

3.5: OLS Regression Estimation

In order to find out the effect of gender disparity on the academic performance of public universities of Faisalabad,

Table 6: OLS Regression Analysis

	Un-standardized Coefficients (B)		Standardized Coefficients (Beta)	T	Sig.
(Constant)	1.844	.339		5.435	.000
Gen.	-.305	.088	-.288	-3.466	.001
P.CGPA	.370	.083	.369	4.448	.000
HHI	1.794E-006	.000	.108	1.730	.086
PEDU	-.003	.011	-.016	-.260	.795
BOT	.079	.030	.165	2.637	.009

Source: Author's own calculation

R-Square. =.400, Adjusted R-Square .381, F-Statistics=20.538 P-value =0 DW=1.959

*5 Percent level of significance.

**10 Percent level of significance.

The regression analysis of the above equation expresses that all the variables are statistically significant except PE and HHI. GEN and Cur.GPA are most prominent variables in our study.

Gender Disparity

Gender disparity used to analyze the gap between males and females over the academic performance of students studying in public universities. in the OLS model DGEN present the significant results at .001 the result is statically significant at the 5 percent level of significance., we take equal division of male and female students of public universities GC and UAF.1 unit change in GEN brings -.305 unit change in Cur.GPA. This analysis shows that there is negative of Cur.GPA on gender. As Female performance is better than male students, as we used dummy variable male command by 1 and female command by 0. This analysis shows that female

performed more efficiently and they are more hardworking than males. Our D.W is 1.959, which means there is less chances of model misspecification and autocorrelation problem.

Teacher's Behaviour

To investigate the effect of gender disparity over the academics of public universities, teacher's behaviour was also implemented as in independent variable of this study. As a teacher's behaviour abruptly contributes towards the academic performance and personality of student as well. It was investigated that if the behaviour of the teacher was satisfactory or not? According to our result, the sig value is 0.009, which is less than 0.05, and t value is 2.637, which is more than 2, so there exist strong positive relationship between behaviour of teacher and student's performance. In addition, the beta value is 0.165, which shows one unit

increase in the good behaviour of teachers the performance of student increases 16.5%. If a student get comfortable atmosphere he/she performs much better if the teacher's behaviour is good and linear towards students, it directly affects the performance of student. Teacher's behaviour encourages the student and appreciation gives him the spirit to work harder and perform better.

Previous CGPA

Previous CGPA is an important variable of this study, as it is implemented to analyze the expected performance of student. To check the impact of gender differences over the academic performance, the previous academic scores of student were analyzed. If the previous academic record has a significant effect on his current performance, then he will perform well in future. As the results show that sig value is 0.000, which is less than 0.05, and t value is 4.448, which is more than 2, so there exist a strong positive relationship between the previous CGPA of the student and student's performance. In addition, the beta value is 0.369, which shows one unit increase in the previous CGPA of the student the performance of student increases 36.9%. Which means, the hardworking students who perform well in their previous course of education, perform well in their future studies?

Household Income

The Socioeconomic status of families varies and accordingly it affects the student's performance. The students belong to the family enjoying te high socioeconomic status can utilize all the available resources at any cost, on the other hand, students belong to low socioeconomic status cannot utilize the all resources. So parents belong to low socioeconomic status will not prefer their girls to attain higher education than boys. In this model, house an hold income has a positive relationship with student performance, as the sig value is 0.086 which is close to the 0.05 and t value is 1.730 which is also close to the 2, means household income have less but certain affect over the academic performance of students.

Parental Education

Education plays a very important role in social and economic development of any society. It is basic determinant of human resource development. Gender disparity in education leads to gender inequality. The sig value of parental education is 0.795, which is more than 0.05, and t value is -0.260 which is less than 2, so results shows that parental education has insignificant effect on student's performance. Parent education also has insignificant effect on students' performance, no matter how much their parent's education. Every person has a different mental capability, this is true, they provide a nice atmosphere for their children, they can well facilitate, but they can't perform on the behalf of their children, Students perform on his own eligibility and intelligence.

4. SUMMARY AND CONCLUSION

Women play an important role for the prosperity of developed countries. On the other hand, role of women towards the economic prosperity is less in developing countries. The reason behind this less contribution is that, women have to face discrimination in fields of life like; health, education, media etc. Moreover, religious and socio-

economic barriers are another cause of this discrimination.. It is analysed that half of the world population is consist of women and this portion of world population is being ignored due to biasness and inequality in various levels of life. It is awell known factor that the gender gap in education has adverse effect on different important development goals, such as disparity in education and basic resources cause high child mortality rate, high fertility, and become hurdle and expansion of education of next generation. In spite of facing various social and cultural barriers, females excel in their academic record as compared to males. This study imbedded different socioeconomic factors, which directly and indirectly affect the student's performance like, gender, education and income. Factors like, parental Education, behaviour of teachers, also introduced in this study to analyse their affect over the student's performance the total population of Faisalabad is approximately 60-70 lacks, the literacy rate of males is 64 percent while the literacy rate of women is 46 percent of the total population. It is admitted that educated women contributes towards the prosperity of society, poverty reduction, and productive generation. In Pakistan gender, disparity in education sector is high as compare with other countries of the world. Due to limited available resources and barriers literacy rate of women is lower than men in Pakistan. The results of this study show that the gender disparity is a main obstacle for the academic performance of females in the universities of Faisalabad.. The results of OLS regression and various studies have been briefly summarized the facts and digits. The descriptive analysis, Chi-square-test, Eta-test-test, and OLS regression technique as well as an empirical methodology was implemented to evaluate the results. The results of this study show that gender and parent education has a negative effect on academic performance, And negative relationship exists between Cur.GPA and academic performance. While previous CGPA, teacher's behaviour and house-hold income have a positive relationship with academic performance. Chi-square test provides highly significant association between dependant and independent variables. The results of this study also reveal that the girl's performance is better than males because girls are hardworking and sincere with their work.

5. POLICY RECOMMENDATIONS

There are different policy recommendations to overcome the problem of gender disparity on academic performance based on results of study conducted given as:

- To cope up with the gender differences due to cultural and familial issues government should take initiatives to establish higher education universities and colleges for women so that women could be more qualified as men without facing any barriers.
- Government should take initiatives to open employment/business opportunities for women on equality bases.
- To reduce the gender discrimination among male and female, government should provide educational and social facilities on equality bases.
- Importance of female education should be highlighted through media and social campaigns.

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