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Gender Disparity in Academic Achievement: Contributing Factors: A Systematic Review of Research Literature in Pakistan

HINA MUNIR
Assistant Professor, Department of Education
The Women University, Multan.
Email: hina.munir@wum.edu.pk

ASMA BASHIR
Department of Applied Psychology
The Women University, Multan.
Email: asma.bashir@wum.edu.pk

SAMRA NASEER
Visiting Lecturer, Department of Education
The Women University, Multan.
Email: samranaseer45@gmail.com

Abstract

Pakistan lies in the region of the world where 75% of the world's illiterate population resides. An immense majority among them are women. However, when examining the educational performance of young adults, it is revealed female students are performing better than male students in almost every subject and at every level. Consequently, researchers are becoming increasingly interested in studying the factors contributing to the better academic performance of female students. The Review of the published research (50 articles) carried out in Pakistan has been done. Most of these studies are either presented in conferences or published in abstract booklets from the 1990s -2021 or are articles published in national and international psychological journals. The review of the literature indicates that when compared with male students, female students' academic performance is significantly better due to a positive study attitude that reflects appropriate study habits. Another factor that results in the better performance of female students is the gender differences in the use of information and communication technology, utilizing digital libraries, and accessing and using digital resources. To the best of my knowledge, this is the only study that has documented a detailed review of research examining the factors contributing to the academic achievement of Pakistani male and female students. This review also examines factors contributing to gender disparity in academic performance.

Key words: *Academic Performance, Gender Disparity, Contributing Factors towards Academic Performance, Use of Technology.*

Introduction

Pakistan is a developing country which is located in South Asia. It is the fifth most populated nation in the world (Pakistan population 2021, world meter) with a 226.2 million population which is equivalent to 2.83%of total world population, The education sector has been facing issues including management, low

priority, disparity, and no access to educational facilities or services, for some segments of the society. (Pakistan UNESCO Country Programming Document, 2013-2017). A number of international assessments have pointed out that Pakistan has been lagging behind many countries in achieving the Education for All goal (EFA). UNESCO rates in Pakistan are at a lower EFA Development Index (EDI). No one is surprised when ranking Pakistan on terms of Human Development Index (i.e. ranking of a country in terms of economics and human development indicators) for 2021 is one of the lowest i.e. 0.557, which ranked the country at 154 out of 188 countries and territories, because of low enrolment at primary school, low adult literacy, gender disparity, and quality educational facilities. (UNDP Human Development Report 2020 cited in Baumann 2021).

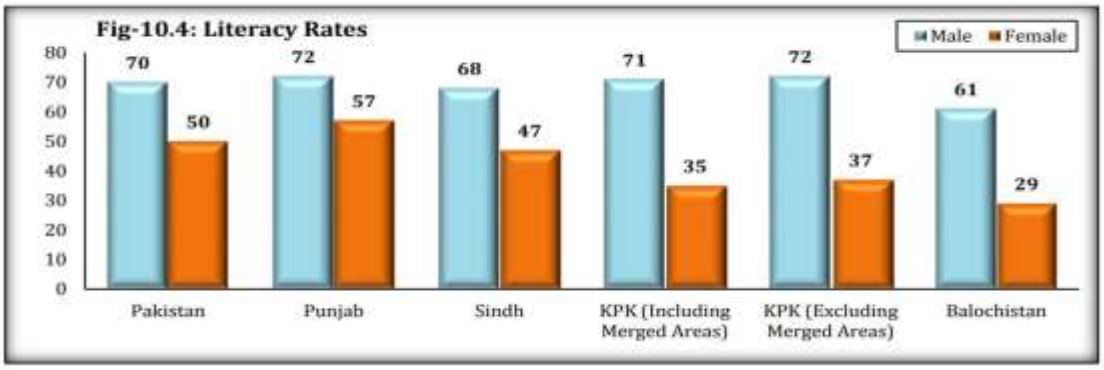
All this shows that a developing country needs to establish an operational educational system that can serve as a key element for the growth strategy of the country. Such a system will lay a pathway to financial growth. The history of the developed nations shows that the progressive nations could peak the glory and power only by providing a better educational system to their nations.

Prevalence of Gender Disparity in Literacy Rates

Though the external estimates regarding the educational growth of the country are dismal, after a review of statistics published by the Government, it is observed that the general literacy rates have been growing gradually i.e. (60 % overall in 2019-2020) and particularly for females (presently 38%). This growing trend in literacy rate is far improved than at the time of independence i.e. 16.41 % overall but the literacy rate of the population 10 years and older at the National level was stuck in 2019-20 with 60 percent as in 2014-15., however, an obvious trend of gender inequality in enrollment rates at different educational levels is still extensive. Overall males have a higher literacy rate of 70 percent as compared to females with 49 percent.

Male students are having high enrollment rates (70% overall) as compared to female students (50% overall) respectively. Recent statistics indicate that our overall education system is facilitating 79% male students as compared to 65% female students aged 15-24. Province-wise literacy rates display the same gender disparity among females and males with different proportions in Punjab (female 58% and male 73%), Sindh (female44% and male 65%), Baluchistan (female 26% and males 58%) & K-P(female 36% and male 73%). (Pakistan Bureau of Statistics, PSLM Survey 2019-20).

Adult Literacy Rates 2020- 2021 by Province and Gender



Indigenous Research on factors contributing to academic achievement

In Pakistan, a review of the research literature establishes that most of the research has been done on the role of personal, psychological, family, environmental and technological factors contributing to academic achievement. Altogether, there are 50 published articles, which were found relevant to our topic. A systematic review of the literature of these published articles has shed light on factors contributing to the academic performance of adults in the Pakistani context.

Table 1: Factors contributing to academic achievement (the 1990s-2021)

Factors	Description
Personal & Psychological factors	Emotional Intelligence, Social Anxiety & Self-Esteem, Learning Style, Academic SE, Locus Of Control, Motivation, Stress, sociability Career Choices And Occupational Aspirations, Study Orientation, Intelligence, Study Attitude, Motivation & Self-Concept, Study Skills, Study Attitude, Reading Habits
Environmental factors	Socio-Economic Status (SES), School Size, School Culture, Teacher factors
Family factors	Parental education, Family Size, And Financial Pressure
Technological factors	Internet, Access of Internet, Impact of FaceBook, digital Libraries, Impact of Multimedia Aided Teaching on Academic Performance

Method

Research carried out (published) in Pakistan has been thoroughly reviewed. Most of these studies are both presented at conferences and published in abstract booklets from the 1990s -2021 or are articles published in national and international psychological journals. The inclusion and exclusion criteria are given below.

Inclusion and exclusion criteria

Those studies included that (1) were conducted during the 1990s till 2021, on contributing factors in the academic achievement of male & female students at high school, intermediate, graduate, and postgraduate levels (2) were conducted in Pakistan, (3) were published in Pakistani journals, abstract & conference books & international journals. Those studies were excluded which were dealing with the academic performance of school children were.

Research Trends during the First Decade of the 21st Century (2001-2015): Identified Variables

Research in this time frame has explored gender differences with academically substantial variables i.e. motivational pattern (Ayub, 2010), Study orientation (Sarwar, Bashir, Khan, and Khan, 2009), Study attitude, educational & occupational aspirations (Riaz, 1995) relationship of social anxiety and self-esteem (Naz et al., 2014) among male and female students. Results revealed that female students are significantly different and better in study orientation (Sarwar, Bashir, and Alam, 2010) and thus academic achievement. Further, it is found that both male and female students follow different motivational patterns (Niaz, 2009). Females are intrinsically motivated as compared to male students. The very reason behind this motivational pattern is that girls are having higher academic ethics which results in higher academic attainment as compared to boys (Nadia Ayub, 2010).

Research on Career Choices and Occupational Images showed a substantial difference between career choices and aspirations among male and female students (Riaz, 1995). While comparing gender performance on an intelligence test among medical students, the performance of male students has been slightly better than female students (Naz, et al, 2014; Niaz Ahmad, 2009).

The research conducted during the second decade of the 21st century specifically considered factors contributing to academic achievement and their relationship with gender.To explore the contributing factors in high academic achievement, Parental education, involvement, and SES of parents were found to play a vital role in the academic achievement of the students (Farooq et al., 2011). Consistent results regarding performance and academics can be seen in gender analysis, which revealed that female students scored more Matric marks, Inter marks, and CGPA as compared to male students (Sarwar, et al., 20009; Ahmad, Hussain, &Azeem, 2012).

Test anxiety and its relationship with academic achievement have shown an inverse relationship between academic achievement and anxiety. Studies revealed that female students underwent more examination anxiety as compared to male students (Akram, 2010; Nadeem et al, 2012; Butt &Akram., 2013). Results also indicated that there was a positive significant relationship between students' high level of academic achievement and anxiety (Kazmi et al., 2013).

Researchers also unveiled the relationship between gender and study habits, academic achievement & self-regulated learning. Female university students possess more effective study habits and higher academic achievement (Kurshid et al., 2012). Moreover, Dilshad, Adnan, and Akram (2013) examined the gender differences in reading habits of university students and found that female students exhibited comparatively more positive attitudes towards reading as compared to their male counterparts. Also, female students were more strategic learners as compared to male students (Rehman et al., 2013).

Traditionally boys have been found to perform well in subjects such as math's and science (Rana et al., 2015) but researchers also indicated that in recent years varying inclinations is being observed in the selection of subjects among male and female students. Male and female students are opting for subjects of their own choice i.e. male students are excelling in fashion designing and female students are showing a positive attitude in opting for science subjects (Muhammad Anwer et al., 2012) although previously their choices had been restricted and traditional. This trend is also affecting the gender role attitudes and occupational aspirations of Pakistani adolescents. Along the same line, a study (Aziz & Kamal, 2012) displayed a significant difference in occupational aspirations of female and male students. Women aspired more for traditional women occupations and men opt more for traditional occupations. Conversely, girls were found to have more egalitarian gender role attitudes than boys. But this change may only appear in their attitudes, not in their real aspirations. While studying self-esteem as a contributing factor in academic achievement, it was found that female students have high academic self-esteem as compared to male students (Ahmad et al., 2013). However, no gender differences were not found on measures of self-efficacy beliefs at the academic domain level, school identification, and anxiety level, which is consistent with the research done in the area of self-esteem. But on average girls performed well than boys in academic achievement (Farhan & Khan 2015).

Research trends during the Second Decade of the 21st Century: (2016-2021)

The research trends of the second decade of the 21st century have revealed that female studentsare provided fewer chances to excel on educational and professional levels constantly.The reasons behind this include Poverty and social and cultural ritual practices that have enhanced gender disparity and the

illiteracy rate of women (Pervez & M. Iraqi, 2018). For instance, the results of a study revealed that girls face gender stereotyping not just in the professional field but from the selection of their desired subjects (Ullah, Ullah, Allender, 2020). Due to this fact, boys have a high probability of enrolment in educational institutes and science subjects than girls in rural, urban areas (Cheema, Awan & Iqbal, 2019). However, the importance of parental attitude and support toward their daughters' education cannot be ignored. Study findings reveal that positive parental attitudes have a direct impact on the high educational achievements of their daughters (Amin, Rashid & Ahmad, 2019).

Another study has revealed that It is seen normally in Pakistan that girls can't perform well in science subjects as compared to males. In 2020 a study explored various reasons behind girls' underperformance in science subjects e.g. favorable occupational choices for males and females, gender stereotyping in parents and teachers, traditional beliefs related to masculinity, and science subjects study trends have also shown that girls score higher in educational achievements due to their good study habits and honest strategies for exams. In the same line, Study reveals that male students are rated higher in academic dishonesty than female students due to parental pressure and high GPA maintenance. More concisely high academic dishonesty is directly related to higher studies (Quraishi& Aziz, 2017).

Use of information resources /Libraries/E-learning resources and its relation with academic achievement in Pakistan

An important and emerging factor that is playing role in the better academic performance of the student at different levels i.e. graduate, undergraduate, and post-graduate levels is the use of e-learning resources, ICTs, and information resources in academics. In Pakistan, HEC has taken initiatives to introduce the use of technology to facilitate students. Students can consult HEC respiratory at any time and can get the desired information easily. All this has not only enhanced the interest of the students in the use of this technology, rather it appears that the availability of E-resources, HEC policies, digital inventiveness, ICT infrastructures, and university incentives have played a significant role in enhancing the research output in Pakistan (Tahira & Ameen 2009). Digital libraries are gaining popularity because of the vast information available on them. Students and teachers are found visiting the digital library resources on daily basis for the sake of the latest information in academics (Jamil et al. 2013).Research done in this area has shown that by using information technology in class, students are found to take more interest in class taking and it also improved their interest in the subject being taught (Farooq et al., 2011). If the classroom is organized and facilitated with necessary aids like multimedia, it is going to aid in the better performance of the students (Suleman& Hussain, 2014). The students are more concerned with the internet and e-learning resources' use as it helps to satisfy their thirst for knowledge and thus contributes to the academic performance of the students. Also, it saves time and provides sufficient information as compared to printed book materials (Gill, 2015).

When talking about the gender differences in the use of e-learning resources for better output in academic performance, it is concluded that the performance of female students in higher education is better as compared to that of male students. Females on average scored high on more time on internet use for the sake of studies, use of more study hours, and participation in co-curricular activities. However other emerging inclinations related to e-technology such as the use of the internet and Facebook, are found to affect academic achievement among male and female students. No gender differences are found in the use of Facebook (Ahmed et al., 2018) however, internet addiction is more common in boys and it could be the possible reason for affecting their academics in negative ways (Akhtar, 2013; Saleem et al., 2015).

Research findings explain that Females are less skilled and more anxious than males in computer usage. Also, females are more satisfied with social interaction on e-resources and males are more satisfied with educational internet (Ahmad, Rafiq& Ahmad, 2018). In 2021 research was performed by Muhammad Ismail and Asad Khan on the topic of The Impact of Information Resources and Services on the Research Output of University Faculty. It shows that the participation of males is almost double as compared to female participants. It is also shown in the results that no significant difference between males and females in the use of information recourses. However, younger adults use more internet than older ones (Ismail &Khan, 2021).

Limitations and Recommendations

The majority of research conducted in this area has the following shortcomings:

1. Most of the research done since the 1990s to date has focused on psychosocial and environmental factors e.g. parental role, SES, stress, anxiety, etc., there is a dire need to conduct more research on the latest areas i.e. cultural and technological factors contributing to the academic performance of male and female students.

2. Research done to gauge the gender differences in academic achievement has usually adopted a quantitative approach, although this approach provides us with more significant results. However, mix method approach (i.e. qualitative & quantitative methods) should also be used to explore factors contributing to academic achievement so accurate estimates of gender differences can be obtained.

Conclusion

The review of the literature indicates that when compared with male students, female students' academic performance is significantly better due to a positive study attitude that reflects appropriate study habits. Another factor that resulted in the better performance of the female students is the gender differences in the use of information and communication technology, utilizing digital libraries, and accessing and using digital resources. Based on this review, it can be concluded that it is clear that the incipient twenties are reflecting an obvious trend in narrowing down gender differences in enrollment and increasing literacy rate for females predominantly (Compendium of Gender Statistics, 2014).

Social and cultural factors could be among the possible explanations for this change. Parenting practices are also showing trend change, as now Parents are well informed about the global advancement & market trends, they may have encouraged their daughters to put efforts in their studies to ensure seats in the higher posts both in public and private sectors, as women are having fewer seats than men. So it is expected them to work hard to get success. Recently, the NGOs, media, and local, international, and national organizations have started voicing their apprehension on gender bias, gender studies, gender disparity, gender discrimination, and female liberation alike, which has resulted in far improved status and representation of women on all fronts. The present article has laid the basis to establish the existence of female lead and contributing factors in academic performance, however, there is a need to conduct more research to determine factors contributing to academic performance, gender differences, and their possible reasons.

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Annexure

Research Trends (1990-2020)

Sr. No	Author(s) & Year	Title	Design	Sample	Results
1	(Riaz, 1995)	Career Choices And Occupational Images	Questionnaire	N=600(400 Female & 600 Male)	Results exposed that the three occupations most preferred by boys are armed forces, medicine, and engineering. Girls on the other hand preferred medicine, law, and teaching as their preferred occupations.
2	(Farooq, 2003)	Effect of emotional intelligence on academic performance	Questionnaire	N=246(123 female&123 male)	The students who secure high academic intelligence have good academic performance.
3.	(Salfi& Saeed, 2007)	Relationship among school size, school culture, and students' achievement at secondary level in Pakistan	descriptive	N=630	The contrast of gender on academic performance revealed no significant differences. The study revealed a positive impact of school culture and size on students' performance.
4.	(Sarwar et al., 2009)	Study-orientation of high and low academic achievers at the secondary level in Pakistan	Questionnaire	N=224 secondary school students	There was no noteworthy difference between the study orientations of female and male students. High achievers had improved study orientation, attitude, and, study habits than the low achievers.
5.	(Ali et al., 2009)	Comparison of gender performance on an intelligence Test among medical students(2009)	Cross-sectional, comparative study	N=150 students,75 male &75 female students	The score of female students as a group was lower as compared to the male students' group with a significant level (p=0.015).

6.	(Ahmad, 2009)	Academic Achievement And Its Relationship With Social Anxiety And Self-Esteem In Male And Female School Students	Stratified random sampling	N=1000(449 female&551 male)	The performance of female students on academic achievement tests was better as compared to males. But male students' self-esteem was higher as well as the lower level of social anxiety as compared to the female. Other results revealed that academic achievement is related positively to Parents' education and monthly income whereas, with a negative relationship with social anxiety.
7.	(Ayub, 2010)	Effect Of Intrinsic And Extrinsic Motivation On Academic Performance	Normative survey	N=200(100 female&100 male)	According to study findings that academic performance improves through motivation. But gender differences revealed that the academic performance of female students get motivated intrinsically while male students are extrinsically motivated.
8.	(Sarwar et al., 2010)	Study Attitude and Academic Achievement at Secondary Level in Pakistan	Quantitative Method	9th Grade students	Results indicated a significant difference between study attitudes of male & female, rural and urban students. The devotion of girls towards study was found better than boys.
9.	(Halai, 2010)	Gender and Mathematics Education in Pakistan: Asituation analysis	Descriptive		Attainment and excellence of mathematics education in Pakistan show persistent gender bias in favor of boys. However, there are signs of change in trends toward girls' access to education and mathematics.

10.	(Farooq et al., 2011)	Factors affecting students' quality of academic performance: a case of secondary school level	Normative Survey	N=300(300 girls &300 boys)	Parents' literacy level and Socioeconomic status have a significant effect on student's overall academic achievement while girls were better than boys in their academic performance.
11.	(Khan et al., 2011)	Gender disparity in the attribution of aggression and academic success among undergraduate students of management studies in Pakistan	Cluster sampling	N=289	There found no difference in achievements among gender. With few exceptions there existed a difference between the aggression among male and female students.
12.	(Khurshid et al., 2012)	Relationship between Study Habits and Academic Achievement among Hostel Living and Day Scholars' University Students	Descriptive	N=200(100 girls &100 boys)	Study habits and academic achievements of girls were higher than those of boys and Day scholars have better study habits and higher academic achievement than living students.
13.	(Farooqi et al., 2012)	Gender Differences in Test Anxiety and Academic Performance of Medical Students	Survey research	N=150(75 girls &75 boys)	The results projected that test anxiety level in female medical students is higher than in male students. Furthermore, a negative relationship was found between test anxiety and students' academic achievement.
14.	(Sarwar, 2012)	Factors Having an Impact on the Performance of Business Students	Descriptive	N=500 (boys & girls)	The results showed that sessions, previous academic records, and gender affect the CGPA of the students.

15.	(Fazal et al., 2012)	The Role of Study Skills in Academic Achievement of Students: A Closer Focus on gender	Normative Survey	N=300(173 girls &127 boys)	The Results revealed that time-management skills, reading, and note-taking skills have a significant relationship with academic achievement. Girls are better at using study skills than boys.
16.	(Aziz & Kamal, 2012)	Gender Role Attitudes and Occupational Aspirations of Pakistani Adolescents	Normative survey method	N=200(100 boys & 100 girls)	A significant difference was found in the occupational aspirations of males and females as men have more aspired to traditional men occupations whereas, women aspired more to traditional women occupations.
17.	(Nadeem et al., 2012)	Impact of Anxiety on the Academic Achievement of Students Having Different Mental Abilities at University level in Bahawalpur (Southern Punjab) Pakistan	Descriptive research Stratified random sampling	N=300	The results show that when anxiety increases, academic achievement decreases both in male and female students. It is also notable in the results that there is more impact of anxiety on female students as compared to male students.
18.	(Anwer et al., 2012)	Students' Attitude towards Science: A Case of Pakistan	Multi-Stage Sampling	N=3526((Boys = 1914& Girls = 1612)	Results revealed a significant effect of gender and locale on students' attitudes toward science. Girls had a significantly higher attitude toward science than boys.
19.	(Adnan et al., 2012)	Emotional Intelligence and Students' Academic Performance: A Study Conducted in Pakistan and Afghanistan	convenient sample	N=293	The results predict that a positive link exists between emotional intelligence and the academic performance of students. But no difference was found between the emotional intelligence and gender of the students

20.	(Tahir et al., 2012)	Impact of Achievement Goals, Sociability, and Gender on Academic Achievement of University Students	Stratified Random Sampling	N= 300 (boys (152) & girls (148).	Study finding reveals that academic Achievement is significantly predicted by performance-approach goals. Also, girls are significantly high in academic achievement than boys.
21.	(Ahmad et al., 2012)	Relationship of academic SE to self-regulated learning, SI, test anxiety, and academic achievement.	Correlational Study	N=426(205 male & 221 female)	Girls' academic achievement was found better than boys' achievement. Boys were stated well than girls on the measure of self-efficacy for self-regulated learning.
22.	(Ishtiaq et al., 2013; Jabbar et al., 2011)(Ishtiaq et al., 2013; Jabbar et al., 2011)	A study on the effect of demographic factors on the achievement of secondary school students in Punjab, Pakistan	Correlational Study	N=1500(750 male & 750 female)	Studies showed that demographic variables (family size and financial pressure are strongly correlated with student achievement). Urban students than secured more grades than rural areas
23.	(Rehman et al., 2013)	The approach of freshly-inducted medical students towards learning at Bahria University Medical & Dental College	Cross-Sectional Questionnaire	N=98(51 girls & 47 boys)	Female medical students were strategic learners, who could manage time concerning their studies.
24.	(Butt et al., 2013)	Test Anxiety among Students of Pure Science and Social Science	Purposive Sampling	N=200 (100 from social science and 100 from pure science subjects	Students of pure science have a higher level of test anxiety than students of social science. Females face more test anxiety than males.

25.	(Dilshad et al., 2013)	Gender Differences in Reading Habits of University Students: An Evidence from Pakistan	Descriptive Survey Method	N=1050(525 girls &525 boys)	Study results describe that Female students have a more positive attitude towards reading as compared to their male counterparts.
26.	(Ahmad et al., 2013)	Gender Differences In Domain-Specific Self-Esteem Of Adolescents	Random Sampling	N=512	Findings show that female students have higher academic self-esteem as compared to males. Whereas, no gender differences have been found in general, parent/home, and overall self-esteem.
27.	(Mubeen et al., 2013)	Attitude towards Mathematics and Academic Achievement in Mathematics among Secondary Level Boys and Girls	Two-Stage Cluster Sampling	N=500 Boys =200& girls 300	The findings revealed that boys and girls are different in their mathematical achievement because girls achieved better results as compared to boys.
28.	(Afzal, 2013)	Impact of Motivation on Academic Performance of University Graduates	Survey Method		Results showed that each student gets motivated differently and girls and boys are also different in their pattern of motivation.
29.	(Khan et al., 2014)	Academic Procrastination among Male and Female University and College Students	Purposive Sampling	(N=200 ,boys =100 men and women (100)	The study's findings indicate significant differences in demographic variables of age, gender, and education. Procrastination was found to be higher in male concerning female students. It is also found that college students are more procrastinated than university students.
30.	(Farhan & KHAN, 2015)	Impact of stress, self-esteem, and gender factor On students' academic achievement	Cluster Random Technique	N=303, 171 male & female 132	Self-esteem and stress are strongly correlated with each other according to results but gender has no significant impact on students' GPA, level of stress, and self-esteem.

31.	(Ahmad et al., 2015)	a comparative study of the factors affecting the male and female students' academic performance in higher education (a case of Government College University, Lahore)	Purposive Sampling	N=285, 91 male & female 194	Results indicated that the performance of female students in higher education is better as compared to that of male students.