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Title Gender Disparities in TVET Access and Outcomes: A Mixed-Methods Study from Peshawar Division, Pakistan»

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Gender Disparities in TVET Access and Outcomes: A Mixed-Methods Study from Peshawar Division, Pakistan

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Abstract

This article using a convergent mixed method study of 260 TVET graduates, 14 principals, 24 teachers and 12 employers in Peshawar Division, Pakistan, looks at the gender disparities in access and achievement of TVET in this region. The study shows that there is a long-standing gender disparity in TVET participation, as only 39.2% of the graduates were women, although about half of them were. The gap between boys and girls is wider in Khyber and Mohmand districts especially at the borders, in few programmes the enrolment of girls is less than 25%. In the study, it is established that women graduate students have compounded problems namely transportation problems, safety, family permission, and limited female-only training facilities. Gender differences in the employment outcomes also reveal that the female graduates have higher rates of unemployment (36.5%) than male graduates (30.4%) and lower scores on income improvement ($M=3.12$ for females and $M=3.48$ for males). From the focus group discussion and semi-structured interviews, the following findings are identified, and they explain how gender affects TVET experiences, namely: cultural norms that restrict women's mobility, the lack of female teachers in technical TVET courses, and employer discrimination on women graduates. The study uses the Human Capital Theory framework to make the argument that gender barriers lower the returns on human capital investment for women, and therefore contribute to cycles of economic marginalisation. The results are important for SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities) and call for targeted interventions to increase access and outcomes for gender equity in TVET. The article suggests four policy recommendations which are interlinked: transport allowance for female students, training batches in conservative districts for female students only, gender mainstreaming in TVET curricula, and the engagement of employers to overcome discrimination in the workplace. These recommendations provide a way to promote gender parity in TVET and support women's economic empowerment in Pakistan.

Keywords: Technical and Vocational Education and Training (TVET), gender disparities, female participation, employment outcomes, Peshawar Division, Pakistan, Sustainable Development Goals, Human Capital Theory, women's empowerment.

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1. Introduction

1.1 Background

Gender gaps in education and employment continue to be a global problem, especially in developing countries and areas affected by conflict. Gender, education, and employment opportunities have been well documented and the research shows that women have structural obstacles in accessing education, completing it, and achieving better labour market outcomes (UNESCO, 2015; International Labour Organization, 2020). Women's ability to move freely, make autonomous decisions, and participate in the economy is further limited in the context of poverty, conflict, and cultural conservatism by both the norms of patriarchy and institutional discrimination.

Technical and Vocational Education and Training (TVET) has come to the fore as a key pathway to tackling these gender gaps. TVET can provide women with skills that are marketable, help them join the formal employment and support economic independence and empowerment (UNESCO, 2015; Maclean & Wilson, 2009). The Sustainable Development Goals (SDGs) clearly highlight the role of TVET in advancing gender equality, SDG 5 targets gender equality and the empowerment of all women and girls while SDG 4 (Target 4.4) calls for significantly to increase the proportion of youth and adults with relevant skills, including those gained through TVET, for employment, decent jobs and entrepreneurship.

Gender gap in education and working is well documented in Pakistan. The country has some of the lowest scores in gender equality indicators worldwide, such as education, employment and income equality indicators (World Economic Forum, 2024). According to the Economic Survey of Pakistan 2023-24, the ratio of the labour force participation of women is 21.3% against 67.4% of the male labour force. This is especially stark in Khyber Pakhtunkhwa, where cultural attitudes, security fears and lack of infrastructure restrict women's mobility and economic involvement.

1.2 The Pakistani Context

The Government of Pakistan has taken strong policy decisions towards eliminating gender disparities in education and employment. The National Education Policy (2009) stated that there should be greater enrolment of girls and women in education with a particular focus on intervening in the obstacles to access such as distance, safety, cultural norms and lack of resources. The policy was to create a separate facility for girls, have their transport provided, to have accommodation, and to recruit feminine teachers in conservative regions.

The 18th Constitutional Amendment of 2010 transferred the responsibility for education to the provinces, and provided opportunities for the provincial governments to create gender-sensitive policies responsive to local contexts. The KP-TEVTA Act 2015 had been enacted in KP for promoting the access of the marginalized groups including women in TVET. To encourage women to participate, KP-TEVTA has launched a number of initiatives such as providing transport allowances, training centres for female villagers, and making special efforts to recruit female instructors.

However, there are still large gender gaps in TVET participation and performance. It is seen that female enrolment has grown in KP-TEVTA, but it is still mostly in the traditionally female dominated trades like fashion design, health technology and garment manufacturing for 2021-2024. There is low participation of women in technical trades like civil technology, mechanical and electrical technology. Furthermore, gender differences are starkly visible in the recently combined districts of Khyber and Mohmand with cultural conservatism and security concerns limiting women's access to education and training.

1.3 The Research Gap

Although the body of literature on gender and TVET has increased significantly, there are still some gaps. There is limited empirical evidence on gender gaps in access and outcomes of TVET in Pakistan, at sub-national level in particular. Previous research has mainly examined national level trends or specific interventions, without assessing the contextual factors that influence gender differences at the regional level. Second, the few existing studies on intersections of gender with other categories of marginalisation such as geographic location, refugee status and disability are limited. The status of women in barrier conditions in the border districts and the situation of women refugees from Afghanistan and women disabled persons have not been studied in a systematic way. Third, limited research exists on gender's underlying drivers of TVET outcomes, such as the influence of cultural norms, institutional practices and labour market discrimination.

1.4 Research Questions and Contributions

This article addresses these gaps by examining gender disparities in TVET access and outcomes in Peshawar Division, Khyber Pakhtunkhwa. The research is guided by four questions:

- 1.What are the patterns of gender disparities in TVET participation and programme selection?
- 2.What barriers do female students face in accessing and completing TVET programmes?

3. What are the gender differences in employment outcomes of TVET graduates?
4. What policy interventions can address gender disparities in TVET?

The study contributes to the literature in a number of ways. First, it aims to offer empirical evidence of the gender disparities in TVET based on convergent mixed methods design in Pakistan. Second, it looks at how gender is interwoven with geography, finding that women in border areas are experiencing compounded barriers. Third, it outlines how gender affects TVET experiences, such as cultural norms, institutional practices and labour market discrimination. Fourth, it provides policy recommendations based on evidence for gender equity in TVET.

1.5 Theoretical Framework

The study is based on Human Capital Theory (Becker, 1975; Schultz, 1961) which is based on the premise that human capital investment provides benefits to the individual in terms of production, employability and earning potential. This, in turn, means that TVET is a form of investment in human resources which brings returns both to the learners and to the society. Theory however needs to be refined to capture gender-based obstacles to women's ability to derive returns on investment in human capital. These are in the form of discrimination, cultural factors that restrict mobility, and institutional factors that affect women. The study also relies on the feminist economics literature, focussed on the structural dimensions of gender inequality and the necessity of targeted interventions to break the cycle of gender-based barriers in place (Sen, 1999; Nussbaum, 2000). The SDG framework offers an extra normative perspective on TVET gender issues. Gender equality and empowerment of all women and girls, including the elimination of all forms of discrimination against all women and girls everywhere (Target 5.1) are highlighted in SDG 5. SDG 4 (Target 4.4) calls for significantly increasing the number of youth and adults with relevant skills, including technical and vocational skills. SDG 8 (Target 8.5): Promote full and productive employment and decent work for all, especially for women and persons with disabilities, and ensure equal pay for work of equal value.

2. Literature Review

The literature on gender and TVET globally shows that there are longstanding gender gaps in participation, choice of programs, and outcomes. A lack of women in TVET programs is observed at international level and is even stronger when considering technical and engineering trades (UNESCO, 2015; ILO, 2020). Women fill the traditionally female-dominated trades, which tend to be less highly paid and less likely to provide career advancement opportunities for

women, than the technical trades traditionally dominated by men (Maclean & Wilson, 2009).

Gender influences TVET participation in many and complex ways. Girls and women are encouraged to avoid taking up certain programs, such as technical trades, based on cultural norms and stereotypes about work that are considered “appropriate” for women and men (UNESCO, 2015). Women's potential to train and work is limited by their family roles and expectations, especially marriage and childbearing. Women have restricted access to training centers and movement due to safety issues. Labor market discrimination, both in the market and through employer bias and unequal pay, diminishes the returns to investments in women's human capital (ILO, 2020).

The intersection of gender with other forms of marginalization have also been studied. There are multiple barriers for women from disadvantaged groups, including the rural, ethnic minority and refugee communities, to access and achieve outcomes from TVET (UNHCR, 2024; Alshareef et al., 2020). Accessibility and discrimination are other barriers affecting women with disabilities (UNESCO, 2015). In regions where there are such conflicts, and gender insecurity, women lack access to education and training (Machel, 2001; Burde et al., 2015).

The findings of the literature review show that there are consistent gender gaps in Pakistan. Researches have pointed out that females have a lesser participation in TVET programmes, especially in technical trades, and are focused on trades traditionally played by women (Tirmazi, 2006, Abbasi, 2021). Several barriers have been identified that hinder women's participation, such as cultural norms, stereotypes, family expectations, security issues, lack of facilities, and discrimination (Sami et al., 2021; Aaqil et al., 2023).

Addressing gender disparities in TVET has been outlined in the policy framework through the National Education Policy (2009) which advocated for increased access for girls and women, separate facilities, transport and accommodation, and for recruiting female teachers. The KP-TEVTA Act (2015) provided for access for marginalised population groups including women. KP-TEVTA has taken several steps such as providing transport allowance, establishing female training centres and recruiting a certain number of female teachers.

There are major policy gaps, even in the face of these pledges. The 2021-2024 KP-TEVTA enrolment data shows a rise in female enrolment but that the majority of females are enrolled in the female dominated trades. Women's involvement in technical trades like electrical, mechanical and civil technology is

still low. In border areas, women's access to education and training is still strongly limited by cultural conservatism and security concerns, especially.

Studies on gender and employment outcomes show that women are still largely underrepresented in the labour force, have different access to employment as compared to men, and that their earnings are substantially lower. Women's labour force participation rates are lower than men's worldwide, and women are more likely to be working in the informal and precarious sector (International Labour Organization, 2020). The gender pay gap exists at the country and sector level, and women continue to earn a lower income than men for the same job, occupation or work task.

Gender differences in employment is especially high in Pakistan. However, women's participation in the labour force is quite low at 21.3%, while men's participation is high at 67.4% (Economic Survey of Pakistan 2023-24). Women tend to be employed in informal and precarious jobs with little access to social protection and labour rights. There is a pay gap and wages are lower for women than men, and it is significant in all industries and jobs.

Studies on the outcomes of TVET and employment have shown the link between training and women's economic participation. TVET can help women enter the formal sector, improve their income and enhance economic independence (Verick, 2014; Kim & Lee, 2019). But, the effect of TVET on the employment outcomes of women is moderated by structural factors like discrimination and employment opportunities lack. Research has revealed that there is discrimination and the returns on women's human capital investment are constrained by structural factors, as women with TVET qualifications are more likely to be unemployed and earn less than men with comparable qualifications.

3. Methodology

The design of this study involved a convergent mixed-methods approach (Creswell & Plano Clark, 2011), data was gathered concurrently, data analyzed separately, and data combined. The design was pragmatic, allowing for investigation of gender gaps in TVET participation and achievement in Peshawar Division, which included five districts, i.e. Peshawar, Charsadda, Nowshera, Khyber and Mohmand (Creswell, 2014). Khyber and Mohmand were earlier part of FATA, and were historically underinvested areas (Ali, 2019). There are 30 institutions affiliated to KP-TEVTA, under the provision of TVET. Stratified purposive sampling ensured that key subgroups were represented, namely male and female graduates, all of the five districts and Pakistani and Afghan refugee graduates. The quantitative sample included 260 TVET graduates (158 male and 102 female), 14 TVET principals, 24 TVET teachers and 12 employers. The

qualitative component consisted of 14 participants: 5 graduates (2 Afghan refugees and 3 female), 3 teachers (1 female), 3 principals (1 female), and 3 employers. The graduate survey consisted of 30 items (Likert scale) under six themes. The institutional challenges were measured through a Principal survey (8 items); the teacher survey measured teacher effectiveness (6 items); and the employer survey measured graduate readiness (11 items). Data obtained were qualitative using focus group discussions and semi-structured interviews. Experts validated and pilot tested all instruments, and the internal consistency of all instruments was good (Cronbach's $\alpha = 0.87$).

Triangulation, member checking and reflexive journaling were used to enhance qualitative validity. Collection of the data was done in three months after being approved by the ethical committee. The surveys were delivered either electronically (54 responses) or on paper (206 responses). Face-to-face principal and teacher surveys were used. The focus groups and interviews were audio-recorded, transcribed and translated (60-90 minutes). The quantitative analysis was done using SPSS software, descriptive and inferential statistics (t-test, chi-square). Thematic analysis (Braun & Clarke, 2006) with deductive and inductive coding was used for qualitative data analysis. The study complied with ethical guidelines of the University, informed consent, confidentiality and special protections for female participants.

3.7 Ethical Considerations

The study was carried out with regard to the ethical guidelines set by American Psychological Association and University of Peshawar. Informed consent was obtained from all participants, confidentiality and anonymity was assured, and all participants were told they could withdraw at any time. Special measures were taken to safeguard the female participants, such as female research assistants to collect data in conservative environments. Ethical approval was granted from the institutions before the data was collected.

4. Findings

4.1 Gender Distribution in TVET Participation

The gender distribution of TVET graduates in the sample shows that males accounted for 60.8% of the graduates ($n=158$) while females made up 39.2% ($n=102$). This distribution is consistent with KP-TEVTA enrolment trends which reveal that there is a prevailing gender gap throughout Peshawar Division. Although a greater proportion of women are represented (39.2% in this study compared with some earlier studies), there remains a significant difference between this and the proportion of women in the population.

Table 1: Gender Distribution of Graduate Respondents

Gender	Frequency	Percentage	Cumulative Percentage
Male	158	60.8	60.8
Female	102	39.2	100.0
Total	260	100.0	

There is a noticeable gender imbalance in some programmes. The technical and engineering courses, such as Auto and Diesel Technology (95.0% male), Civil Technology (92.6% male), Electrical Technology (97.6% male), and Computer Information Technology (70.5% male) are male dominated. More females (87.0%) than males graduated in Health Technology, more females (94.7%) than males graduated in Fashion Design and Garments, and more females (63.6%) than males graduated in Hotel Management. This segregation at the programme level is a reflection of the cultural notion, stereotype, and myth of what is suitable work for women and men.

Table 2: Programme-Wise Gender Distribution

Programme	Male (%)	Female (%)	Total
Auto and Diesel Technology	95.0	5.0	59
Civil Technology	92.6	7.4	54
Computer Information Technology	70.5	29.5	44
Electrical Technology	97.6	2.4	42
Health Technology	13.0	87.0	23
Fashion Design and Garments	5.3	94.7	19
Hotel Management	36.4	63.6	11
Agriculture Technology	87.5	12.5	8

The gender gap is higher in border districts. In district Khyber, the number of female graduates was 22 (15.4%) and in Mohmand district, it was 22 (20.0%). The proportion of female graduates in Peshawar district was 41.4% in contrast to other district. The gender gaps in these district level disparities are the result of geographical marginalisation and gender gaps, with women in border districts being hit with multiple impediments to their access to TVET.

4.2 Barriers to Female Participation

The focus group discussions and interviews yielded a number of obstacles for female participation in TVET. The barriers are at several levels – individual, family, institutional and societal.

Theme A: Familiarity with cultural norms and family permission

One of the female graduates from Mohmand district explained:

“In my family getting permission to study was difficult, my father was supportive, but my uncle said that girls should not go out to study, there was a lot of argument in the family, at the end my father said that I can go, but only if my brother comes with me so my brother used to wait for me outside the college every day, this was a burden on him too.”

This testimony brings into focus the influence of family dynamics and culture on women's participation in TVET. A family's collective decision-making processes, hierarchical structures, and culturally embedded norms and understandings can limit women's participation even when individual family members are supportive.

A Khyber district graduate girl added:

I was lucky because my father was educated and he believed in my education and most girls aren't lucky. They say girls don't need to go to the city for training, it isn't safe, girls should stay at home until they get married.

The focus of this testimony is the effect of safety concerns on the mobility of women. Since there are no training sites available in villages, women have to reach the urban centres, which may be considered unsafe by families. The reference to “getting married” is an indication of how the people lived then, where marriage was expected to be the main activity for women, and where education and work were not seen as the main priorities.

Theme B: Transportation and Mobility Constraints

A female graduate from Charsadda said:

There is no direct bus to the college and so I had to take two buses and then walk for 15 minutes, in summer it is very hot and in winter it is cold and dark and I was also accompanied by men in the bus, many girls do not have money to take a bus so I was saving money from my pocket money to take a bus.

This testimony is about the barriers that women encounter when it comes to transportation. Lack of direct public transport, the price of the trips and safety issues in public transport are major obstacles to participation. It does not say much about the financial resources women may have, since they are saving money from their pocket money, which could make travel a major expense.

A Peshawar graduate lady also added:

There wasn't any hostel for girls in the college and the college did not provide any transport service. Some girls from my area would travel together in the van but it is expensive, when the van broke down, we had to use public transport, some of the girls dropped out as they were scared.

This testimony underscores the institutional component of transportation barriers. Women have to arrange their own transport or hostel services since this is not provided by the college, which can be costly or unreliable. Dropping out because of fear of public transport relates to the fear of public transport that limits women's mobility.

Theme C: Limited facilities for women only

A Khyber district principal said:

The percentage of enrolment of females is very low in our district, we need to have women-only training centres or we need to provide transport and accommodation support, but we don't have any funding for that at the moment, we have only one female teacher in the whole college teaching fashion design and for the technical trades we have only male teachers, some families are not comfortable when their daughter is being taught by a male teacher.

This testimony exposes the institutional constraints to female involvement. Female-only facilities for training, lack of female trainers and transport and accommodation support is a big constraint. Having families not feel comfortable with male instructors is a cultural norm that restricts women's participation in technical training.

A Nowshera teacher added:

There is a part of the workshop for girls, but it is not in good condition, the girls workshop is smaller, and the boys' workshop is in better condition. The girls say they are not treated equally to the boys, but we cannot afford to improve the facilities of the girls' workshop.

This testimony is a glimpse into the gendered distribution of institutional resources. Where separate girls and boys facilities are provided, they can be under resourced compared to the boys section. This is a systematic bias that negatively affects women's education and training.

Theme D: Limited availability of scholarships and financial aid

The graduate survey indicated a mean of $M=3.10$ (Satisfactory) for male graduates and $M=2.98$ (Satisfactory) for female graduates for scholarships and financial aid, with the difference being significant at the $p<0.05$ level. This indicates that women students feel there is less financial assistance available when compared to male students.

A Khyber girl graduate said:

There is a scholarship programme for girls but it is very competitive: only a few girls get it, the rest have to pay for everything themselves, and many girls cannot afford to pay the fees, books and transport and drop out: I was one of the lucky ones that I got the scholarship.

This testimony shows the monetary obstacles for women. Where there are programmes available, they may not be enough to cover the demand and the criteria for applying may be strict. The costs of participation may be beyond the reach of women from low-income families, who may drop out.

4.3 Gender Differences in Programme Outcomes

The graduate survey revealed gender differences in perceptions of TVET quality and outcomes. While both male and female graduates rated their TVET programmes positively overall, there were some significant differences in specific areas.

Table 3: Gender Differences in Survey Responses (Selected Items)

Item	Male Mean	Female Mean	p-value
Technical skills were well developed	3.92	3.81	0.08
Soft skills were developed	3.55	3.65	0.12
TVET helped me secure employment	3.78	3.68	0.09
My income has improved since graduation	3.48	3.12	0.01*
Career guidance was provided	3.12	2.98	0.04*
Facilities are accessible for students with disabilities	2.98	2.85	0.06
Equal opportunities are provided to all students	3.62	3.71	0.14

* $p < 0.05$

The most significant gender differences were in income improvement ($M=3.48$ for males, $M=3.12$ for females) and career guidance ($M=3.12$ for males, $M=2.98$ for females). The income improvement gap suggests that even when women complete TVET and enter the labour market, they may earn less than their male counterparts. The career guidance gap suggests that women may receive less support in navigating the transition from training to employment.

4.4 Gender Differences in Employment Outcomes

The employment status data reveal gender disparities in employment outcomes. While 57.4% of the total sample was economically active, the rate

was 59.5% for male graduates and 54.9% for female graduates. Unemployment rates were also higher for female graduates (36.5%) compared to male graduates (30.4%).

Table 4: Employment Status by Gender

Employment Status	Male (%)	Female (%)	Total (%)
Employed (Full-time)	30.4	25.5	28.5
Unemployed (Job Seeking)	30.4	36.5	33.1
Self-Employed	17.1	14.7	16.2
Employed (Part-time)	12.0	13.7	12.7
Further Education	8.9	8.8	8.8
Not Seeking Employment	1.2	0.8	0.8
Total	100.0	100.0	100.0

The higher unemployment rate of female graduates indicates that there are gender barriers on the returns of investing in the human capital of women. Despite having the same skills and qualifications, women graduates face discriminatory treatment in the labour market, reduced employment opportunity and mobility and employment restrictions as a result of cultural norms.

Here is an explanation by a female graduate of Peshawar:

After graduating, I applied to several positions and was called for interviews but when they found out that I was a woman they asked me questions such as, "Can you work late? Can you travel? Do you have family permission? They would say they'd call me but they wouldn't call me, I guess they'd be afraid to hire one of the girls, it's easier to hire a guy.

This is an example of a testimony of the gender disparity of labour market discrimination. Employers may assume that women cannot be available, reliable, and committed to work and this assumption can negatively impact on women in their recruitment process.

4.5 Gender and SDG Alignment

The SDG alignment analysis identified gender differences in perceptions on TVET's contribution to the SDGs. The female graduates gave a rating of $M=3.35$ on the contribution of TVET towards SDG 5 (Gender Equality) and the male graduates gave a rating of $M=3.48$. The female graduates also rated the

contribution of TVET to SDG10 (Reduced Inequalities) at M=3.28 and male graduates rated it at M=3.38.

The differences indicate that women might have a different understanding of the effectiveness of TVET in addressing gender inequalities compared to men. This could be the direct experience of discrimination and exclusion for women which may not be apparent to male graduates.

A Charsadda female graduate told:

I don't think TVET really helps women, training is good, but we still have the same issues when we go to the job market: we are not equal in the job market and in society, so we need more than just training.

This testimony is a recognition of the constraints of TVET as a gender equality tool. Skills training is crucial, but not enough to solve the problem of structural barriers, such as discrimination, cultural norms, or institutional practices, that women encounter. A holistic strategy that involves skills and structural barriers must be put in place.

4.6 Principal and Teacher Perspectives on Gender

Gender gap was a great problem in TVET provision as reported by principals and teachers. A school's principal in Nowshera told us:

Female enrolment is growing, but less than male enrolment; and the girls are in fashion and health; as opposed to the technical trades, we try to encourage the girls to take the technical trades but the families are not supportive; they say that these are not suitable for girls; we need to change this culture, but it is difficult. This testimony highlights the cultural aspect of gender disparities in TVET. Encouraging women in technical trades can be a priority for institutions, but can be hampered by cultural norms on appropriate work for women and men.

A teacher from Charsadda added that:

They have a girls' section, but the facilities are not very good, girls say they don't have the same opportunity, and the boys' workshop is better, but we don't have the means to improve the workshop for the girls.

This testimony points to the resource aspect of gender inequity in TVET. This may be true even if there is a separate facility, and there may be a general imbalance in the amount of resources available for girls' education and training. When it comes to female graduates, employers have some ideas about them. Employers have some thoughts to share about female graduates.

Employers had mixed perceptions about female TVET graduates. Some employers acknowledged the worth of women on the job while others voiced concerns on hiring women.

“In the social services industry, a female employer of a family member explained, it is usual for the female household member to earn more than the male.

We have already recruited a few female TVET graduates, who have worked well – they are working hard, reliable, professional, and they bring in their perspectives to the workplace – more women in the workforce and TVET can help.

A male-manufacturing employee commented:

We didn't recruit any women TVET graduates, we have problems with working late, travelling, family responsibilities; we don't know whether women can do the job or not, it is easier to hire men.

The divergent views reflect the ambivalent attitudes of employers towards female graduates. Some employers understand the importance of having women in their workforce, but some employers have concerns which may stem from gender stereotyped views.

A female construction employer described:

I know the challenges that women face but I also know that women can do this work; the culture needs to change, and opportunities need to be created; TVET can help to train women, and to link them to employers who will hire women!

This testimony demonstrates how TVET can help to advance gender equality, and the importance of cultural change and employer engagement.

5. Discussion

5.1 Gender Disparities in TVET Participation and Outcomes

The results of this study have shown that there is still a significant gender gap in the participation and results of TVET in Peshawar Division. There was a smaller proportion of female graduates compared to males (39.2%) and the gap was greater in technical trades and border districts. The barriers for the girls/young women graduates to participate are cultural, family permission, transport availability, limited facilities for girls and financial. Girls also appear to be disadvantaged in terms of employment – girls are more likely to be unemployed and less likely to improve their income compared to boys.

The results are similar to the general gender–TVET situation globally as highlighted in the literature, in which there are continued disparities in enrolment, programme availability, and results (UNESCO, 2015; International Labour Organization, 2020). They are also consistent with the findings of the literature that has been conducted on Pakistan, which highlights that women's enrolment in TVET and focusing on female-dominated trades is comparatively low (Abbasi, 2021; Sami et al., 2021; Aaqil et al., 2023).

The results contribute to the literature as they examine the aspect of gender and geographic location and programme type. The double marginalisation of women

in border areas with gender and geographical barriers has not been studied systematically before. The level of segregation at the programme level found in this study indicates the level of gender segregation in TVET, where women are more likely to be found in a relatively limited number of female dominated occupations.

5.2 Implications of the Human Capital Theory

This study's results contradict the Human Capital Theory. The theory suggests that there is a positive relationship between investing in education and training and the productivity, employability and earning potential of individual persons. The returns from investments in human capital are, however, not the same for men and women. Structural inequalities such as discrimination, cultural norms and institutional practices hinder women's ability to enjoy the returns on human capital investment.

The more disadvantaged situation of female graduates is reflected in higher unemployment rates and lower income improvement scores, even though they have completed TVET and are marketable. The barriers include discrimination by the employers, culture-related factors that restrict women's participation in the workforce and employment in female-dominated sectors, and limited job opportunities. It is assumed that gender inequality cannot be addressed with TVET alone; it needs to be complemented by structural barriers that need to be addressed through policies and programmes.

The results also indicate that the measurement of human capital is a more complicated phenomenon than has previously been thought. Family expectations, cultural norms, and a lack of information can hinder women's choices to invest in TVET. If women invest, they might encounter difficulties in benefitting from the investment. To build gender equality in TVET, the supply side (skills training) and the demand side (employment opportunities) need to be covered.

5.3 Implications for SDG 5 and SDG 10

The results have far-reaching consequences on SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities). The gender gap in TVET participation and outcomes persist, as a failure to attain gender equality and reduce gender inequalities. Women in Peshawar Division, especially in the border areas experience the compound barriers that restrict them to access TVET and access to benefit from it.

SDG Target 5.1 is to put an end to all forms of discrimination against all women in all areas of the world. The results of this study show that discrimination exists at different levels, including the decisions of the family to invest in women's education, institutional practices that prevent women from obtaining access to

technical trades, and employer decisions to not hire women. A comprehensive approach is needed to address these multiple forms of discrimination and involves the practice of the family, institutions and labour market.

SDG Target 10.2 is to promote the social, economic and political inclusion of all people on the basis of their characteristics. The result of this study shows that women are systematically excluded from TVET and jobs, especially in border districts. To overcome this exclusion, specific interventions are needed that take into account the barriers women may encounter, such as transportation, safety, financial limitations, cultural norms, and more.

5.4 Policy Implications

This study has a number of implications for policy and practice. The first challenge is to tackle the mobility problem that hinders women in TVET. The mobility constraints faced by girls would decrease if transport stipends were provided, transport was provided by the college and hostel facilities were provided for girls. This would be significant especially in border districts where women are faced by compound barriers of geographic remoteness and cultural conservatism.

Secondly, improvement in the accessibility of female training facilities with female trainers in technical trades. Women's lack of access to training is a result of the segregation of the labour market for technical trades, which is reflected in the lack of female instructors in these trades. Recruitment and training of female instructors in technical trades will help overcome this barrier.

Thirdly, financial constraints need to be tackled for women. Financial constraints that hinder women's participation could be alleviated by an increase in the size of programmes of scholarships and financial aid, especially for women of low economic status and in border areas. Stipends for transportation, books and materials would also be a way to ease the financial strain on participation.

Fourth, the cultural norms that hinder women's participation in TVET need to be tackled. Cambodia needs to take a long-term strategy and involves raising awareness, community engagement and community leaders and religious leaders. Positive role models of women working in technical trades and involvement of families in decision-making processes would help change norms.

Fifth, it is necessary to tackle discrimination of female graduates in the labour market. This involves interaction with employers to tackle gender stereotypes, encourage the participation of women in the labour market and make workplaces inclusive. Internship and job placement programmes that bring female graduates into contact with employers who will hire them would also help overcome this obstacle.

Sixth, gender mainstreaming in TVET curricula and pedagogy and institutional practices is required.

This includes reviewing curricula for gender bias, training teachers in gender-sensitive pedagogy, and ensuring that institutional practices promote gender equity. The inclusion of gender equality content in TVET curricula would help raise awareness of gender issues and promote gender-sensitive attitudes among graduates.

6. Recommendations

Following recommendations are suggested from the findings of this study for promoting gender equity in TVET in Peshawar Division:

6.1 Transport Stipends and Female Batch Scheduling

Barriers to female participation were identified as being related to transportation. Female graduates gave the overall rating of $M=3.42$ (Satisfactory) in regard to the support for female students, however, the ratings were low in the border districts. Principals from the border districts highlighted the need for transport support.

Recommendation: To start transport stipends and female batch scheduling in all KP-TEVTA institutions in districts where less than 25% of females are enrolled. The transportation stipends would cover the cost of travelling and the female batch would enable women to study in a female only environment.

Implementation: KP-TEVTA to identify eligible districts. KP Women Development Department to provide funding. Participation in the community to gauge transportation needs and preferences.

6.2 Female-Only Training Facilities

Evidence: In conservative districts, women's access to TVET is constrained by a lack of training facilities for women. Technical trades are segregated because there is a lack of female instructors.

Suggestion: Set up the training centres for women only in the conservative districts and also in the border districts where the enrollment of women is low. Hire and educate female technical trades teachers.

Implementation: KP-TEVTA, to identify locations for the female only centres. KP Social Welfare Department to assist in recruitment and training of female teachers. Community participation in the promotion of the acceptance of the facilities for women.

6.3 Scholarship and Financial Aid Expansion

For male graduates, the rating for scholarships and financial aid was $M=3.10$, while it was $M=2.98$ for the female graduates. There are major financial barriers for female graduates from low-income families.

Recommendation: increase scholarship and financial assistance programs for TVET girls, particularly for women living in low-income areas, border areas, and Afghan refugee communities.

Implementation: KP-TEVTA to provide resources for scholarships. KP Finance Department to provide funding. Community organizations to recruit and screen candidates.

6.4 Gender Mainstreaming in TVET Curricula

Evidence: Women are not involved in technical trades as the same level as men, due to gender stereotypes and cultural norms. There is a lack of gender-related issues in curricula.

Recommendation: mainstream the gender perspective in TVET programme and incorporate lessons on gender equality, women's rights, and the importance of economic engagement of women. Inform teachers about gender sensitive pedagogy.

Implementation: KP-TEVTA to review curricula for gender bias. Increase teacher training programmes with gender-sensitive pedagogy. Community engagement to raise awareness about gender equality.

6.5 Employer Engagement for Gender Equity

Evidence: Female graduates were recognized as a barriers to employment because of discrimination by their employers. Employers had mixed opinions about employing females, which is due to stereotypes and cultural norms.

Recommendation: Promote gender equity in employment by involving employers through awareness raising campaigns, internship programmes and job placement programmes for female graduates and female employees of employers willing to offer employment.

Implementation: KP-TEVTA to set up employer engagement programmes. The Chamber of Commerce to help employers participate. Funds from international donors (GIZ, UNHCR) for programme development.

7. Conclusion

7.1 Summary of Findings

In this article, the authors have explored gender gaps in access and outcomes of TVET in Peshawar Division, Pakistan. The study finds that the participation rate in TVET is still low for women (39.2%) in the sample. There are significant gender gaps, especially in border districts, with enrolment of women in some programmes below 25%. Women graduates encounter further challenges such as access to women-only training centres, family approval, safety concerns, and transportation. Gender is also reflected in employment outcomes, where

females' unemployment rates are higher and females' income improvement scores are lower.

7.2 Contributions

The article has several contributions to the literature. First of all, it has provided empirical evidence that shows the gender gap in TVET in Pakistan, through convergent mixed-methods design. Second, it looks at the link between gender and geographical location, and highlights that women in border districts have additional constraints. Thirdly, it pinpoints gender related mechanisms impacting on TVET experience such as cultural norms, institutional practices and labour market discrimination. Fourth, it provides policy recommendations based on evidence for gender equality in TVET.

7.3 Limitations

There are several limitations in the article. Subgroup analyses have limited power given the small sample size of female graduates ($n=102$) and especially for border districts. Secondly, the study is cross-sectional, and therefore, only limited causal statements are possible. Third, the study is limited to Peshawar Division, which restricts the generalizability to other Divisions.

7.4 Future Research

Future research should: (1) involve larger numbers of graduates (oversampling female graduates especially in border districts); (2) have a longitudinal design to follow up on the journey of female graduates over time; (3) explore the effectiveness of certain interventions in creating gender equity in TVET; (4) explore the intersectionality of gender with other forms of marginalisation such as refugees, disability, and economic status.

7.5 Final Reflection

The persistent gender gap in access and outcomes of TVET in Peshawar division is a testament to structural inequalities that constrain economic participation of women in Pakistan. Multiple barriers – cultural norms, transport and mobility, inadequate facilities, financial difficulties and labour market discrimination – need to be tackled to overcome these disparities. The recommendations given in this article provide a tool to promote gender equity in TVET and supports economic empowerment of women in Pakistan. There is a need for concrete steps to address these barriers to achieve SDG5 and SDG10 and TVET can contribute to that.

References

Aaqil, M., Khan, A. U., & Hussain, S. (2023). *Mainstreaming Sustainable Development Goals in Khyber Pakhtunkhwa: Progress, challenges and the way forward*. *Journal of Development Policy*, 11(2), 45-62.

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- Abbasi, M. U. (2021). Technical and vocational education and training (TVET) in Pakistan: Challenges and prospects. *Journal of Educational Research*, 24(1), 1-14.
- Ali, S. (2019). FATA merger with Khyber Pakhtunkhwa: Challenges and opportunities. *Pakistan Journal of Social Sciences*, 39(2), 45-58.
- Alshareef, M., Alqahtani, A., & Alghamdi, F. (2020). Access to vocational training for Afghan refugees in Pakistan: Legal frameworks and implementation gaps. *Refugee Survey Quarterly*, 39(3), 312-335.
- Becker, G. S. (1975). *Human capital: A theoretical and empirical analysis, with special reference to education* (2nd ed.). National Bureau of Economic Research / Columbia University Press.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Burde, D., Guven, O., Kelcey, J., Lahmann, H., & Al-Abbadi, K. (2015). What works to promote children's educational access, quality of learning, and wellbeing in crisis-affected contexts. UNICEF Office of Research.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). SAGE Publications.
- Economic Survey of Pakistan. (2024). *Economic survey of Pakistan 2023-24*. Ministry of Finance, Government of Pakistan.
- International Labour Organization. (2020). *World employment and social outlook: Trends 2020*. International Labour Organization.
- Kim, J., & Lee, S. (2019). TVET and the SDGs: Analytical review of alignment, gaps and opportunities. UNESCO-UNEVOC Research Series No. 8. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.
- KP-TEVTA. (2024). *Annual report 2024: Enrolment and graduate data*. Khyber Pakhtunkhwa Technical Education and Vocational Training Authority.
- Machel, G. (2001). *The impact of war on children*. United Nations Children's Fund.
- Maclean, R., & Wilson, D. (Eds.). (2009). *International handbook of education for the changing world of work*. Springer.
- Nussbaum, M. C. (2000). *Women and human development: The capabilities approach*. Cambridge University Press.
- Sami, F., Khan, J., & Hussain, Z. (2021). TVET in merged districts of KP: Challenges and opportunities. *Journal of Educational Development*, 8(2), 45-61.
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1-17.
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Tirmazi, S. H. (2006). *Technical and vocational education in Pakistan: A critical analysis of policy and implementation*. Unpublished policy brief.
- UNESCO. (2015). *Recommendation concerning technical and vocational education and training (TVET)*. UNESCO General Conference, 38th Session.
- UNHCR. (2024). *Pakistan registered refugee statistics - Q4 2024*. UNHCR Pakistan Bureau.
- Verick, S. (2014). Vocational training and labour market outcomes in Ghana: Evidence from a recent survey. *IZA Journal of Labor & Development*, 3(1), Article 12.
- World Economic Forum. (2024). *Global gender gap report 2024*. World Economic Forum.
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