

## Mindful Mastery: Empowering Women's Well-Being through the Transformative Power of Education in Malakand Division, Pakistan



Umar Daraz	Lecturer, Department of Sociology, University of Malakand, Pakistan, <a href="mailto:dr.umar@uom.edu.pk">dr.umar@uom.edu.pk</a>
Jahan-UI-Mulk (Corresponding Author)	Lecturer, Department of Sociology, Govt. Postgraduate Jahanzeb College, Swat, Pakistan. <a href="mailto:jahansocial@gmail.com">jahansocial@gmail.com</a>
Ikram Ali	M Phil Scholar, Department of Sociology, International Islamic University Islamabad. <a href="mailto:ikramali1241@gmail.com">ikramali1241@gmail.com</a>

**Abstract:** *This study explores the empowering impact of education on women's health in Malakand Division, Pakistan. Historically, women in Pakistan, particularly within the Pakhtun society, faced barriers to education, hindering their social and economic development. Recent decades have seen positive shifts in gender parity and educational policies, emphasizing the importance of female education. The study underscores the pivotal role of women's education in societal and communal empowerment, linking it to enhanced decision-making powers, improved health conditions, and economic independence. Women with higher levels of education are less prone to reliance on men, thereby enhancing the welfare of their families and promoting self-sufficiency. The research focuses on the unique cultural and regional dynamics of Malakand Division, addressing a noticeable gap in the existing literature. Through a quantitative cross-sectional design, the study collects data from educated women in seven districts, employing stratified random sampling to ensure representation. The findings from the examination, encompassing cross-tabulation, directional and symmetric measures, correlation coefficients, and regression models, consistently underscore a robust positive correlation between education and the empowerment of women's health. Educated women demonstrate heightened health awareness, prioritize health, seek proper treatment, and embrace modern health technologies. The correlation coefficient of 0.93 and an  $R^2$  of 0.877 in the regression analysis emphasize the substantial correlation and predictive power of education in women's health empowerment. The findings have significant policy implications, suggesting that policymakers in Malakand Division should prioritize initiatives promoting and enhancing educational opportunities for women. Investing in accessible and quality education can serve as a potent strategy for improving health outcomes among women. Collaborative efforts between the education and health sectors are crucial for comprehensive policies that address the interplay between education and women's health, contributing to the overall health resilience of the community in Malakand Division.*

**Keywords:** Empowerment, Education, Women's Health, Malakand Division, Societal Transformation

### Introduction

Education stands as a powerful catalyst for societal progress, enriching individuals' mental landscapes, perpetuating values across generations, enhancing capacities, and serving

as a vital source of employment. Notably, it plays a pivotal role in women's health empowerment, a phenomenon underscored by both developed and developing nations alike (Kim, 2023). The significance of women's

education is particularly emphasized in developing countries, where it is deemed instrumental in reducing infant mortality rates (Najibi & McLachlan, 2023). Compelling statistics over various time periods underscore the transformative impact of education on women's lives and the well-being of communities.

Studies reveal that women with primary education contribute to a 40 percent improvement in their children's lives, while those with secondary schooling experience reduced fertility rates, signaling a move from 5.3 to 3.9 offspring per woman (Lopuszanska-Dawid, 2023). Concurrently, an increase in girls' education correlates with a 10 to 20 percent rise in their age (Daraz, Nawab, et al., 2023; Gumà-Lao & Arpino, 2023). The consequences are extensive, as increased educational ratios, particularly for women, contribute significantly to national productivity and effectively mitigate malnutrition (Reshi et al., 2022).

Highlighting the worldwide influence, Brazilian women demonstrate a resourcefulness in children's health that is 20 times greater than that of men, while individuals in Uganda with secondary education exhibit threefold reduced vulnerability to HIV (Lau et al., 2023; Pandipati & Abel, 2023). Education, particularly for women, emerges as a protective shield against domestic violence in India (Mankelkl & Kinfe, 2023). Remarkably, Ahinkorah et al. (2020) discover that within Africa, the prevalence of female genital mutilation is higher among women with lower levels of education. In Burkina Faso, specifically, educated women are 40 percent less inclined to subject their daughters to this practice (Ahinkorah et al., 2023).

Furthermore, the influence extends to the allocation of resources, as evidenced by research indicating that educated women in Brazil have a 20-fold greater impact on children's health compared to the resources provided by men. Studies also propose that in Africa, Asia, and Latin America, women with higher levels of education typically have smaller, healthier, and more well-educated families (Kebede et al., 2022; Veenstra & Vanzella-Yang, 2022).

Education opens up improved earning opportunities for women, influencing family decisions and resulting in fewer children, as fertility decreases among educated women (Daraz, Nawab, et al., 2023).

The reverberating effects on family size and population trends become evident, with education positively influencing women's behaviors and significantly reducing fertility rates, thereby contributing to curbing high population growth (Najmabadi & Sharifi, 2019; Torres et al., 2022). Additionally, women's education contributes to the reduction of infant mortality by 5–10 percent, attributed to their higher likelihood of immunizing their children compared to illiterate mothers (Gakidou et al., 2010). Children born to educated mothers have increased chances of survival and overall health (Shorette & Burroway, 2022).

Given the prevailing global trends, this study centers the transformative influence of education on the empowerment of women's health in the Malakand Division of Khyber Pakhtunkhwa, Pakistan. The evolution of women's education in this locality has resulted in heightened life expectancy and enhanced health conditions, propelled by initiatives in family planning and the timely treatment of chronic diseases. The transition to contemporary maternity centers, supplanting traditional birth attendance, has further contributed positively to women's health. This research aims to delve into the specific ways in which education shapes and empowers women's health in the context of Malakand Division, Pakistan, providing insights into the regional subtleties of this global phenomenon.

### **Justification of the Study**

Historically, women in Pakistan, especially within the Pakhtun society, have faced significant barriers to accessing education, hindering their social and economic development. While gender disparities in education have been a persistent challenge, recent decades have witnessed positive shifts in gender parity, educational policies, and an increased recognition of the importance of female education in Pakistan, particularly within

the Pakhtun society (Daraz, Ullah, et al., 2023; Qureshi & Shaikh, 2007).

The pivotal role of women's education in societal and communal empowerment cannot be overstated. The educational attainment of women is associated with increased authority in decisions related to property, the selection of a partner, and ensuring health security. Notably, the health conditions of women in rural areas of Pakistan, including the Malakand Division, have seen improvements, with increased exposure to advance health services, medicines, and postnatal care centers (Daraz et al., 2013; Muhammad et al., 2021). The transformative influence extends to financial self-sufficiency, as women with higher education levels are less prone to reliance on men, actively participating in the workforce and contributing to the welfare of both their families and society, thereby promoting independence (Shoaib et al., 2012).

Furthermore, the educated status of women influences critical aspects of their lives, such as the age at which they marry. Education acts as a catalyst for change, challenging traditional practices like early marriage that are more prevalent among illiterate classes, adversely affecting the health status of women. Literate women are empowered to make informed decisions about the number of pregnancies and the spacing between childbirths, contributing to the maintenance of their overall health (Chan et al., 2023).

The study's significance is emphasized by existing literature establishing a clear link between maternal education and fertility rates. Numerous studies consistently indicate that women with higher education tend to aspire to smaller families and are more proficient in utilizing reproductive health and family planning resources to achieve their desired family size (Samir, 2023). The connection between a mother's education and child nutrition and growth is evident in various settings, such as Nigeria, where evidence suggests a positive relationship between maternal education and children's well-being (Marshan & Pritadrajati, 2023). Similarly, Moroccan women with at least some secondary education tend to have fewer children on average compared to those with no

education, illustrating the extensive impact of education on family dynamics (Glewwe, 1999; James et al., 2023). In Egypt, children born to mothers with no formal education face a higher likelihood of mortality compared to those born to mothers with completed secondary school (Hosny Abd-Elhakam et al., 2023).

Despite these global insights, there is a noticeable lack of research specifically examining the influence of education on women's health empowerment in the particular context of Malakand Division, Khyber Pakhtunkhwa, Pakistan. While existing literature provides a broader understanding of global trends, the unique cultural and regional dynamics of Malakand Division necessitate a focused investigation. This study aims to address this gap by exploring how education empowers women's health in the specific context of Malakand Division, providing insights into the local nuances of this transformative process.

The importance of this study lies in its potential to inform policies and interventions tailored to the specific needs of Malakand Division, contributing to the overall improvement of women's health and empowerment in the region. By shedding light on the impact of education on women's health in this specific context, the study aims to offer actionable insights for policymakers, educators, and healthcare professionals to enhance the well-being of women in Malakand Division. The novel contribution of this study lies in its localized focus, filling a crucial gap in the literature by providing a nuanced understanding of the interplay between education and women's health empowerment in a specific regional context.

### **Study Purpose**

This research endeavors to explore the ways in which education enhances the health status of women in Malakand Division, Khyber Pakhtunkhwa, Pakistan. Through a focused examination of the particular influence of education on women's health within this regional framework, the study aims to offer valuable insights that can guide specific interventions and policies aimed at improving

the well-being and empowerment of women in Malakand Division.

### **Theoretical Framework**

The theoretical framework for this study draws upon a mixed theoretical approach, amalgamating three distinct theories to comprehensively understand the dynamics of how education empowers women's health in Malakand Division, Pakistan.

**Human Capital Approach (HCA):** According to the Human Capital Approach, the education of women is deemed a vital factor influencing both health outcomes and economic development. This perspective underscores the role of education in reducing fertility rates through the promotion of modern contraceptives and decreasing child mortality by advocating for advanced maternity care and health facilities. Furthermore, it highlights the unique significance of maternal education, emphasizing that an educated mother plays a pivotal role in addressing the social, psychological, and educational needs of children (Gillies, 2015; Hartog & Van den Brink, 2007).

**New Home Economics Approach (NHE):** The New Home Economics Approach emphasizes the beneficial effects of education on women's maternal roles. It asserts that the autonomy of women is closely tied to increased education, serving as a fundamental element in the development of human capital. Highly educated women exhibit greater autonomy in marriage decisions and family planning, contributing to a shift in motherhood patterns with delayed childbirths. This approach aligns with research findings indicating that highly educated women in various countries tend to delay initial births, contributing to women's socio-economic and health empowerment (Lichtenstein & Ludwig, 2010; Rindfuss et al., 2022).

**Agency Resources and Achievement Approach (ARAA):** The Agency Resources and Achievement Approach highlights the favorable outcomes of education on women's standing, conduct, and ability to access knowledge, information, and innovations. Women with education are more adept at comprehending and utilizing information,

goods, and services, contributing to their own well-being and that of their families. Importantly, education enhances their ability to effectively use contraceptives, thereby contributing to women's health and safeguarding the well-being of their children (Kabeer, 1999).

In the context of Malakand Division, Pakistan, where gender dynamics and traditional norms may influence women's access to education and healthcare, this mixed theoretical framework provides a comprehensive lens. It clarifies the diverse ways in which education acts as a catalyst for promoting women's health empowerment in the area. By integrating these theories, the framework establishes a sturdy basis for examining the intricate relationship between education and women's health in Malakand Division. Together, these theories highlight the transformative capacity of education in augmenting women's autonomy, family planning, and overall well-being within the unique cultural and regional context.

### **Materials and Methods**

**Research Design:** The research employs a cross-sectional quantitative design to investigate the impact of education on the health of women in Malakand Division, Pakistan. This approach allows systematic collection and statistical analysis of numerical data, enabling robust inferences (Watson, 2015).

**Universe, Population and Target Population:** The research unfolds in Malakand Division, spanning seven districts, forming the universe. The population comprises educated women in the division, while the targeted subset focuses specifically on women with BS and above qualifications. This deliberate focus, as recommended by Daraz et al. Harper, ensures a concentrated approach for data collection and conclusive findings, enhancing the study's precision and relevance.

**Sampling and Sample Size:** The study employs probability sampling, employing a stratified random sampling technique with a disproportionate method. The seven districts within Malakand Division serve as distinct strata, with 100 samples drawn from each, resulting in a comprehensive sample size of 700

participants. This approach, as suggested by Cochran (1946), ensures representation from each district, acknowledging the heterogeneous

nature of the division and enhancing the study's external validity and generalizability. The overall sample frame are given as under:

**Table-1: Sample Frame**

S/N	Districts	Sample Size	Method
1	District Malakand	100	<b>Stratified Random Sampling Disproportionate Method</b>
2	District Dir Lower	100	
3	District Dir Upper	100	
4	District Chitral	100	
5	District Bunir	100	
6	District Swat	100	
7	District Shangla	100	
<b>Total</b>		<b>700</b>	

**Tool of Data Collection:** The survey employs a questionnaire as the primary data collection tool, tailored to the educational background of respondents for optimal comprehension. Focusing on educated women with BS and above qualifications, data is gathered from colleges and universities in the respective districts. This method ensures precision in capturing insights relevant to the study's educational context, fostering effective responses and enriching the overall data quality.

**Reliability and Validity of the Tool:** To ensure the reliability of the questionnaire, Cronbach's alpha is calculated using SPSS, resulting in values ranging from 0.6 to 0.9. Items below 0.6 are excluded based on pilot study results, enhancing the reliability of the instrument. Validity is assessed through factor loading, with items below 0.30 eliminated during factorization to enhance the instrument's validity (Field, 2013).

**Data Analysis:** Quantitative analyses utilize chi-square tests, directional and symmetric

measures, Pearson correlation, and regression models. These methods, conducted through SPSS, ensure a robust examination of the collected data, allowing for in-depth statistical insights. The comprehensive analytical approach enhances the study's reliability and provides a thorough examination of the relationships between education and women's health in Malakand Division, Pakistan.

**Ethical Guidelines:** The study adheres to ethical guidelines, prioritizing participant confidentiality, obtaining informed consent, and protecting participants' rights. Ethical approval is secured from relevant authorities.

**Limitations and Overcoming of the Limitations:** Possible limitations include sampling bias and reliance on self-reported data. These are addressed through diverse sampling methods and cross-validation of responses with external data sources. Efforts are made to minimize social desirability bias through anonymizing responses.

## Results

**Table-2: Cross Tabulation of Education and Women's Health Empowerment**

Indicators	Agree	Disagree	Total	$\chi^2$	p-value
Education boosts women's health awareness	698	02	700	86.9	0.000
Education enhances women's overall health	699	01	700	87.4	0.000
Educated women prioritize and value health	697	03	700	80.6	0.000
Educated women seek proper disease treatment	698	02	700	96.3	0.000
Educated women embrace modern health technology	699	01	700	92.5	0.000
Educated women seek medical care consistently	696	04	700	98.5	0.000
Education lowers women's fertility rates	698	02	700	98.2	0.000
Education and modern maternity care centers	697	03	700	90.7	0.000
Education lowers child mortality rates	699	01	700	84.5	0.000

In Table-2, a cross-tabulation is presented, illustrating the relationship between education and women's health empowerment. The subsequent section delves into the findings derived from this analysis.

This result indicates that a significant majority of women in Malakand Division (698 out of 700) agree that education plays a crucial role in enhancing health awareness. The extremely low p-value (0.000) strengthens the evidence that there is a substantial association between education and heightened health awareness among women in this region. Previous studies have often highlighted the positive impact of education on health awareness, as education tends to increase access to information and promote health literacy. This aligns with broader global research on the relationship between education and health awareness (Daraz, Nawab, et al., 2023).

A similar trend is observed here, with 699 out of 700 women agreeing that education contributes to improving overall health. The statistical significance (p-value of 0.000) reinforces the idea that educated women in Malakand Division perceive a positive impact of education on their general well-being. Numerous empirical studies have established a positive correlation between education and overall health outcomes, with educated individuals generally experiencing

better health and well-being (Ross & Wu, 1995).

The majority of women (697 out of 700) in Malakand Division acknowledge that education leads to a prioritization and heightened value of health. The strong association, supported by a low p-value (0.000), suggests that education encourages women to make health a priority in their lives. Research suggests that education influences individuals to place a higher value on health and well-being. Education can empower individuals to make informed decisions about their health, leading to a greater emphasis on preventive measures and healthy lifestyles (Onarheim et al., 2016).

Nearly all women (698 out of 700) believe that education influences them to seek proper treatment for diseases. The high chi-square value (96.3) and very low p-value (0.000) underscore the statistically significant connection between education and the inclination to pursue appropriate medical care. Empirical evidence indicates that education is associated with better healthcare-seeking behavior, including timely and appropriate disease treatment (Matthews et al., 2006).

The overwhelming agreement (699 out of 700) among women in Malakand Division indicates that education fosters an acceptance of modern health technology. The high chi-square value (92.5) and low p-value (0.000) emphasize the

substantial relationship between education and the adoption of contemporary health practices. Studies have shown that education is a key factor influencing the adoption of modern health technologies. Educated individuals are more likely to engage with and utilize technological advancements in healthcare (Hu et al., 2003).

The majority of women (696 out of 700) recognize that education is associated with consistent seeking of medical care. The high chi-square value (98.5) and very low p-value (0.000) highlight the statistically significant role of education in promoting regular access to healthcare services. - Empirical research consistently demonstrates a positive relationship between education and consistent healthcare utilization. Educated individuals are more likely to engage in regular health check-ups and preventive care (Babalola & Fatusi, 2009).

The data show that a significant proportion of women (698 out of 700) in Malakand Division believe that education is linked to lower fertility rates. The high chi-square value (98.2) and very low p-value (0.000) suggest a strong statistical association between education and reduced fertility. Research has shown that education, particularly for women, is associated with delayed childbearing and lower fertility rates.

Increased educational attainment is often linked to family planning and smaller family sizes (Lutz, 2017).

The majority of women (697 out of 700) perceive a connection between education and the presence of modern maternity care centers. The chi-square value (90.7) and low p-value (0.000) emphasize the statistical significance of this association, indicating that education is correlated with the availability of advanced maternal care facilities. Educational attainment is frequently linked to improvements in maternal and child health outcomes, including the availability and utilization of modern maternity care centers (Tew, 2013).

The overwhelming agreement (699 out of 700) among women in Malakand Division suggests a strong belief that education contributes to lowering child mortality rates. The high chi-square value (84.5) and very low p-value (0.000) underscore the statistically significant relationship between education and reduced child mortality. Numerous studies have demonstrated a strong association between maternal education and child health outcomes. Higher maternal education is linked to reduced child mortality rates and improved child health (Caldwell, 1994).

**Table-3: Directional and Symmetric Measures**

Level of Measures	Tests	Value	Asymp. Error	Std.	Approx. Tb	Approx. Sig
Nominal by Nominal	Phi	0.75**				.000
Nominal by Nominal	Contingency C	0.75**				.000
Nominal by Nominal	Cramer's V	0.75**				.000
Nominal by Nominal	Lambda	0.65*	.015		.650	.000
Nominal by Nominal	Goodman & K.	0.75**	.015		.650	.000
Nominal by Nominal	tau	0.70*	.016		.636	.000
Nominal by Ordinal	Gamma					
Ordinal by Ordinal	Somers'd	0.80**	.016		.636	.000
Ordinal by Ordinal	Kendall's tau-b	0.87**	.032		.636	.000
Ordinal by Ordinal	Kendall's tau-c	0.86**	.015		.636	.000
N Valid Cases		700				

(The values of directional and symmetric measures are  $P=.000^{**}<0.05$  less than .05 and purifies the association between education and women's improved health status)

Table-3 presents directional and symmetric measures to analyze the association between education and women's improved health status in Malakand Division, Pakistan. The results in the context of how education empowers women's health based on directional and symmetric measures:

Phi ( $\phi$ ): 0.75 indicates a strong association between nominal variables related to education and women's health improvement. A phi coefficient of 0.75 suggests a high degree of correlation. Similar to Phi, Contingency C reinforces the strong association between nominal variables. The value of 0.75 suggests a significant and positive relationship. The strong association revealed by both Phi and Contingency C indicates that there is a noteworthy connection between categorical variables related to education and women's improved health status in Malakand Division. Cramer's V is a measure of association for ordinal variables. A value of 0.75 indicates a strong association. Lambda measures the strength and direction of the relationship between ordinal variables. A value of 0.65

suggests a moderate association.

Goodman & Kruskal's tau: 0.75, this is a measure of association for ordinal variables. The value of 0.75 indicates a strong association. Gamma measures the strength and direction of association between ordinal variables. A value of 0.70 indicates a moderate to strong association. The results of these measures collectively show a significant and positive association between ordinal variables representing education and women's improved health status. The strength of association varies slightly between measures, with Cramer's V and Goodman & Kruskal's tau indicating a stronger relationship.

Somers'd measures the ordinal association between variables. A value of 0.80 indicates a strong association. Kendall's tau-b measures the association between ordinal variables. A value of 0.87 suggests a strong positive association. Kendall's tau-c is another measure of ordinal association. The value of 0.86 indicates a strong positive association. These measures reinforce the strong and positive association between ordinal variables related to education and women's improved health status in Malakand Division. The consistency among these measures enhances the reliability of the findings.

**Table-4: Correlation**

IV&DV	Measure	Education	Women Empowerment in Health
<b>Education</b>	Pearson Correlation	1	0.93**
	Sig. (2-tailed)		.000
	<b>N</b>	<b>700</b>	<b>700</b>
<b>Women Empowerment in Health</b>	Pearson Correlation	.93**	1
	Sig. (2-tailed)	.000	
	<b>N</b>	<b>700</b>	<b>700</b>

(\*\*Correlation is highly significant at the 0.05 level (2-tailed),  $r(700) = 0.93^{**}$ ;  $p < .05$ .  $r^2 = 0.87$ )

(Since 87% of the variance is shared, the association is obviously a strong one)

Table-4 presents correlation coefficients between education and women's empowerment in health in Malakand Division, Pakistan. The interpretation of the results using correlation measures are given as under:

The correlation coefficient of 0.93 indicates a very strong positive relationship between education and women's empowerment in health. The correlation is highly significant at the 0.05 level (2-tailed), as indicated by the p-value of .000. The positive correlation of 0.93 suggests that as the level of education increases, there is a corresponding increase in women's empowerment in health. In other words, educated women in Malakand Division are more likely to be empowered in terms of their health decisions, practices, and overall well-being. The

coefficient of determination ( $r^2$ ) is 0.87, indicating that 87% of the variance in women's empowerment in health can be explained by the variance in education. The high  $r^2$  value implies that a substantial proportion (87%) of the variability in women's empowerment in health can be attributed to the level of education. This further emphasizes the strength and significance of the association between education and women's health empowerment in the context of Malakand Division.

**Table-5: Regression**

Regression Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Regression F	Sig.
	B (Intercept)	Std. Error	Beta (Slope)				
<b>DV (Constant)</b>	.234	.045		3.456	.000	873.2	.000
<b>IV Education</b>	.784	.014	.937	45.63	.000		.000

(The values of R: .937 and  $R^2$ : 0.877 are highly significant at the 0.05 level of significance (2-tailed), Predictor (x) Education, Predictand (y) Women's Empowerment in Health)

Table-5 presents the results of a regression analysis aimed at understanding how education empowers women in health in Malakand Division, Pakistan. The results are given as under:

The dependent variable in this analysis is Women's Empowerment in Health. The independent variable is Education, which is assumed to influence Women's Empowerment in Health. The intercept (B): 0.234 represents the value of the dependent variable (Women's Empowerment in Health) when the independent variable (Education) is zero. In practical terms, this value may not have a meaningful interpretation, as education is not expected to be zero in this context. The coefficient for Education (B) is 0.784. This represents the change in the dependent variable (Women's Empowerment in Health) for a one-unit change in the independent variable (Education). In other words, for each additional unit of education, Women's Empowerment in Health is expected to increase by 0.784 units. The standardized coefficient

(Beta) provides a measure of the strength and direction of the relationship between the independent variable (Education) and the dependent variable (Women's Empowerment in Health). In this case, a Beta value of 0.937 suggests a very strong positive relationship. The t-value tests the null hypothesis that the coefficient for Education is equal to zero. The high t-value of 45.63 indicates that the coefficient is significantly different from zero, reinforcing the strong association between education and women's empowerment in health. The intercept's significance level is 0.000, indicating that the intercept is significantly different from zero. However, the practical interpretation of the intercept in this context may not be meaningful. The significance level for the coefficient of Education is 0.000, reinforcing that the relationship between education and women's empowerment in health is highly significant. The multiple correlation coefficient (R) represents the strength and direction of the linear relationship between the independent variable (Education) and the dependent variable (Women's Empowerment in Health). A value of 0.937 indicates a very strong positive correlation. The coefficient of determination ( $R^2$ ) represents the proportion of variance in the dependent variable

(Women's Empowerment in Health) that is predictable from the independent variable (Education). In this case,  $R^2$  of 0.877 suggests that 87.7% of the variability in Women's Empowerment in Health can be explained by the level of education. The F-value is used to test the overall significance of the regression model. The extremely high F-value of 873.2 indicates that the overall model is highly significant. The significance level of the model is 0.000, reinforcing that the overall regression model is highly significant.

## Discussion

A detailed discussion of the results from Table-2 is presented below:

The high agreement among women in Malakand Division (698 out of 700) regarding the role of education in enhancing health awareness implies that education serves as a catalyst for informed decision-making. Empirical evidence, as highlighted by Daraz, Nawab, et al. (2023), supports the idea that education equips individuals with the knowledge and skills needed to understand health-related information. In Malakand Division, this suggests that educated women are likely to possess a greater awareness of health issues, enabling them to make informed choices about their well-being.

The substantial agreement (699 out of 700) that education contributes to improve the overall health aligns with well-established empirical findings. Ross and Wu (1995) argue that education is positively correlated with better health outcomes. In the context of Malakand Division, educated women may experience improved overall health due to factors such as increased access to healthcare resources, better health practices, and a proactive approach to well-being.

The recognition by the majority of women (697 out of 700) that education leads to the prioritization and heightened value of health aligns with Onarheim et al. (2016) argument that education influences individual values. This implies that education in Malakand Division empowers women to prioritize health as a fundamental aspect of their lives. The result suggests that education encourages a mindset that

places a high value on health, leading to a proactive and preventive approach.

The belief among nearly all women (698 out of 700) that education influences them to seek proper treatment for diseases is consistent with Matthews et al. (2006) findings on education and healthcare-seeking behavior. This result suggests that educated women in Malakand Division are more likely to engage in timely and appropriate disease treatment, contributing to better health outcomes and a reduction in the severity of illnesses.

The overwhelming agreement (699 out of 700) that education fosters an acceptance of modern health technology is in line with Hu et al. (2003) research on the role of education in technology adoption in healthcare. In Malakand Division, this suggests that educated women are more inclined to embrace and utilize modern health technologies, potentially leading to improved access to advanced healthcare services and better health monitoring.

The majority of women (696 out of 700) recognizing the association between education and consistent seeking of medical care corresponds with the consistent findings in empirical research (Babalola & Fatusi, 2009). In Malakand Division, this indicates that education plays a statistically significant role in promoting regular access to healthcare services. Educated women are more likely to engage in routine health check-ups and preventive care, contributing to the maintenance of good health.

The belief among women (698 out of 700) that education is linked to lower fertility rates is consistent with research by Lutz (2017). This suggests that in Malakand Division, higher levels of education, particularly for women, are associated with delayed childbearing and family planning. Education may empower women to make informed choices about family size and spacing, contributing to lower fertility rates.

The perception among women (697 out of 700) of a connection between education and the presence of modern maternity care centers aligns with the evidence presented by Tew (2013). This suggests that educated women in Malakand Division may have better access to and utilization

of advanced maternal care facilities. Education may play a role in improving maternal and child health outcomes through enhanced care during pregnancy and childbirth.

The overwhelming agreement (699 out of 700) that education contributes to lowering child mortality rates is consistent with numerous studies (Caldwell, 1994). In Malakand Division, this implies that higher maternal education is associated with reduced child mortality rates and improved child health outcomes. Education may empower women to adopt healthier practices during pregnancy, childbirth, and child-rearing, leading to improved child survival.

The detail discussion of the results presented in Table-3, focusing on the logical, justifiable, and evidence-based interpretation of the directional and symmetric measures in the context of how education empowers women's health in Malakand Division, Pakistan.

The high values of Phi (0.75) and Contingency C (0.75) indicate a strong association between nominal variables related to education and women's improved health status. This aligns with the understanding that education plays a crucial role in shaping health outcomes. Studies (Kim, 2023; Najibi & McLachlan, 2023) have consistently shown that education enhances health literacy and awareness, contributing to better health practices. The strong associations revealed by Cramer's V (0.75) and Goodman & Kruskal's tau (0.75) confirm the positive relationship between ordinal variables representing education and women's health improvement. These findings align with extensive research demonstrating that higher education levels are associated with better health outcomes (Lopuszanska-Dawid, 2023). The moderate association indicated by Lambda (0.65) suggests that the relationship is not only statistically significant but also of practical importance. The high values of Somers'd (0.80), Kendall's tau-b (0.87), and Kendall's tau-c (0.86) provide further evidence of a strong positive association between ordinal variables related to education and women's improved health status. These results are consistent with studies emphasizing the positive impact of education on health awareness and healthcare utilization

(Reshi et al., 2022).

The consistent and high values across various measures indicate a robust and statistically significant association between education and women's health empowerment in Malakand Division. The logical rationale behind these findings is supported by previous empirical evidence. Education is a key determinant of health outcomes, influencing health behavior, healthcare utilization, and overall well-being (Mankelkl & Kinfe, 2023). The results align with established empirical evidence that links education to improved health awareness, healthcare-seeking behavior, and positive health outcomes (Daraz, Nawab, et al., 2023). The low p-values ( $<0.05$ ) associated with these measures reinforce the statistical significance of the observed associations. This further validates the reliability of the results. The consistency among various directional and symmetric measures enhances the credibility of the findings. Different measures capturing different aspects of association all point towards a strong and positive relationship between education and women's health in Malakand Division.

The discussion of the results from Table-4, utilizing correlation analysis, sheds light on how education empowers women's health in Malakand Division.

The correlation coefficient of 0.93 is very close to 1, suggesting an extremely strong positive relationship between education and women's health empowerment. The p-value of .000 indicates that this correlation is highly statistically significant. The results align with the understanding that education serves as a key factor in empowering women in various aspects, including health. Educated women are more likely to make informed health decisions, access healthcare services, and adopt healthier lifestyles. The high  $r^2$  value (87%) signifies that education explains a substantial portion of the variation in women's empowerment in health. This reinforces the idea that education plays a dominant role in influencing women's health outcomes in Malakand Division. These results have practical implications for policy-making and interventions in Malakand Division. Investing in educational initiatives for women is likely to have a

significant impact on improving their health empowerment, leading to better health outcomes and overall well-being. The findings are consistent with a wealth of research demonstrating the positive correlation between education and health outcomes, emphasizing the importance of education as a determinant of health (Daraz, Nawab, et al., 2023; Mankelkl & Kinfе, 2023).

The discussion of the results from Table-5, employing regression analysis, provides insights into how education empowers women's health.

The positive coefficient for Education (0.784) suggests that for each additional unit of education, Women's Empowerment in Health is expected to increase by 0.784 units. This indicates a direct and substantial impact of education on women's health empowerment. The high standardized coefficient (Beta) of 0.937 reinforces the strong positive relationship between education and women's empowerment in health. This standardized coefficient allows for a comparison of the relative importance of different predictors, and in this case, education stands out as a highly influential factor. The R value of 0.937 indicates a very strong positive correlation between education and women's empowerment in health. The  $R^2$  of 0.877 signifies that 87.7% of the variability in Women's Empowerment in Health can be explained by the level of education. This suggests that education is a dominant factor in explaining the observed variance in women's health empowerment. The extremely high F-value and the associated low significance level indicate that the overall regression model is highly significant. This suggests that the inclusion of education as a predictor significantly improves our ability to predict Women's Empowerment in Health.

### **Conclusion**

The comprehensive analysis of Tables 2 to 5 provides robust evidence supporting the notion that education plays a pivotal role in empowering women's health in Malakand Division, Pakistan. The findings are consistent across various statistical measures, reinforcing the strong association between education and women's health empowerment. Here are the key

conclusions drawn from the presented results and discussion:

The high agreement among women (Table-2) regarding the positive impact of education on health awareness and overall health underscores the transformative influence of education. Educated women are more likely to prioritize health, seek proper treatment, and embrace modern health technologies, as evidenced by the overwhelming agreement in these areas. The statistical tests in Table-3 confirm the significance of the associations between education and women's improved health status. Phi, Contingency C, Cramer's V, Lambda, Goodman & Kruskal's tau, Somers'd, and Kendall's tau all consistently point to a strong and positive relationship between educational attainment and women's health improvement. The correlation coefficient (Table-4) of 0.93 and the regression analysis (Table-5) with an  $R^2$  of 0.877 highlight the substantial correlation and predictive power of education in women's health empowerment. These findings indicate that education explains a significant proportion of the variance in women's health outcomes, emphasizing the critical role of education in shaping health-related behaviors.

The outcomes presented in the tables collectively suggest that education empowers women in making informed decisions about their health, seeking proper medical care, and embracing modern health practices. This empowerment is multifaceted, encompassing increased health awareness, proactive healthcare-seeking behavior, and a positive influence on health-related values.

In conclusion, the evidence presented strongly supports the idea that education is a key driver of women's health empowerment in Malakand Division, Pakistan. As women gain access to education, they become more informed, proactive, and empowered in managing their health. Recognizing the centrality of education in shaping health outcomes is crucial for designing effective policies and interventions aimed at improving the overall well-being of women in the region.

### **Policy Implications**

The empirical findings presented in the analysis carry substantial policy implications for Malakand Division, Pakistan. Given the robust evidence demonstrating the positive association between education and women's health empowerment, policymakers should prioritize initiatives that promote and enhance educational opportunities for women. Investing in accessible and quality education can serve as a potent strategy for improving health outcomes among women in the region. Policymakers may consider implementing targeted programs that focus on increasing female enrollment, reducing barriers to education, and providing support for continued learning. Additionally, efforts should be directed towards fostering a supportive educational environment that encourages the development of health literacy, emphasizing the importance of preventive health practices. Collaborative initiatives between the education and health sectors can be instrumental in creating comprehensive policies that address the interplay between education and women's health. By recognizing education as a key determinant of women's health empowerment, policymakers have an opportunity to enact transformative measures that contribute not only to individual well-being but also to the overall health resilience of the community in Malakand Division.

### **Limitations and Future Research Perspectives**

While this study illuminates the positive correlation between education and women's health empowerment in Malakand Division, Pakistan, it is imperative to recognize certain constraints and identify directions for future research. Firstly, the cross-sectional design of the study limits our capacity to establish causation, and longitudinal studies would offer a more nuanced comprehension of the evolving relationship between education and women's health over time. Secondly, relying on self-reported data introduces the potential for social desirability bias, as respondents may provide answers perceived as socially acceptable. Future research might incorporate more objective measures or employ mixed-methods approaches to bolster the robustness of findings. Additionally, focusing solely on women in Malakand Division may not encompass the full

spectrum of diverse experiences within the region, warranting further exploration into potential variations based on socio-economic factors or cultural contexts. Furthermore, while the analysis explores the association between education and women's health empowerment, it does not delve into specific mechanisms or interventions that might augment this relationship. Subsequent research could investigate the efficacy of educational programs or policies aimed at enhancing women's health outcomes in Malakand Division. Addressing these limitations and probing these research gaps will contribute to a more comprehensive understanding of the intricate interplay between education and women's health in the region.

### **References**

- Ahinkorah, B. O., Hagan, J. E., Ameyaw, E. K., Seidu, A.-A., Budu, E., Sambah, F., . . . Schack, T. (2020). Socio-economic and demographic determinants of female genital mutilation in sub-Saharan Africa: analysis of data from demographic and health surveys. *Reproductive health, 17*, 1-14.
- Ahinkorah, B. O., Hagan, J. E., Seidu, A.-A., Bolarinwa, O. A., Budu, E., Adu, C., . . . Schack, T. (2023). Association between female genital mutilation and girl-child marriage in sub-Saharan Africa. *Journal of Biosocial Science, 55*(1), 87-98.
- Babalola, S., & Fatusi, A. (2009). Determinants of use of maternal health services in Nigeria-looking beyond individual and household factors. *BMC pregnancy and childbirth, 9*, 1-13.
- Caldwell, J. C. (1994). How is greater maternal education translated into lower child mortality? *Health transition review, 4*(2), 224-229.
- Chan, K., Spaid Miedema, S., Naved, R. T., & Yount, K. M. (2023). Beyond Girls' Education: Pathways to Women's Post-Marital Education in Matlab, Bangladesh. *Feminist economics, 29*(1), 38-69.
- Cochran, W. G. (1946). Relative accuracy of systematic and stratified random samples

- for a certain class of populations. *The Annals of Mathematical Statistics*, 17(2), 164-177.
- Daraz, A. N., Khan, W., & Sheikh, I. (2013). Physical and Infrastructural Obstacles to Women's Education in Khyber Pakhtunkhuwa Pakistan. *FWU Journal of Social Sciences*, 7(2).
- Daraz, U., Khan, Y., Alnajdawi, A. M., & Alsawalqa, R. O. Empowering Hearts and Shaping Destinies: Unveiling the Profound Influence of Education on Women's Mate Selection in Pakistan-A Comprehensive Mixed-Methods Study. *Frontiers in Sociology*, 8, 1273297.
- Daraz, U., Nawab, H. U., & Mulk, J. U. (2023). Illuminating The Path: Unleashing The Power Of Education For Women's Empowerment In Health. *Journal of Positive School Psychology*, 7(6), 889-902.
- Daraz, U., Ullah, R., & Ullah, H. (2023). Women's Education and Its Impact on their Political Empowerment in Malakand Division Khyber Pakhtunkhwa, Pakistan. *Human Nature Journal of Social Sciences*, 4(2), 94-104.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. sage.
- Gakidou, E., Cowling, K., Lozano, R., & Murray, C. J. (2010). Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: a systematic analysis. *The Lancet*, 376(9745), 959-974.
- Gillies, D. (2015). Human capital theory in education. In *Encyclopedia of educational philosophy and theory*. Springer Science+ Business Media.
- Glewwe, P. (1999). Why does mother's schooling raise child health in developing countries? Evidence from Morocco. *Journal of human resources*, 124-159.
- Gumà-Lao, J., & Arpino, B. (2023). A machine learning approach to determine the influence of specific health conditions on self-rated health across education groups. *BMC Public Health*, 23(1), 1-11.
- Hartog, J., & Van den Brink, H. M. (2007). *Human capital: Advances in theory and evidence*. Cambridge University Press.
- Hosny Abd-Elhakam, F., Ibrahim, E.-s., Zakaria Mohamed, M., & Elzeblawy Hassan, H. (2023). Prevalence of Female Genital Mutilation at Beni-Suef Governorate, Egypt. *Egyptian Journal of Health Care*, 14(1), 564-577.
- Hu, P. J.-H., Clark, T. H., & Ma, W. W. (2003). Examining technology acceptance by school teachers: A longitudinal study. *Information & management*, 41(2), 227-241.
- James, S. L., Jorgensen Wells, M. A., Larsen Gibby, A., Njue, J. R., Rarick, T. M., Vogrinec, W., & Rautenbach, J. V. (2023). Contextualizing Maternal Education and Child Health in Sub-Saharan Africa: The Role of Intimate Partner Violence. *Social Sciences*, 12(6), 324.
- Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and change*, 30(3), 435-464.
- Kebede, E., Striessnig, E., & Goujon, A. (2022). The relative importance of women's education on fertility desires in sub-Saharan Africa: A multilevel analysis. *Population Studies*, 76(1), 137-156.
- Kim, J. (2023). Female education and its impact on fertility. *IZA World of Labor*.
- Lau, P. L., Nandy, M., & Chakraborty, S. (2023). Accelerating UN sustainable development goals with ai-driven technologies: A systematic literature review of women's healthcare. *Healthcare*,
- Lichtenstein, A. H., & Ludwig, D. S. (2010). Bring back home economics education. *Jama*, 303(18), 1857-1858.
- Lopuszanska-Dawid, M. (2023). Trends in Health Behavior of Polish Women in 1986–2021: The Importance of Socioeconomic Status. *International Journal of Environmental Research and*

- Public Health*, 20(5), 3964.
- Lutz, W. (2017). Education empowers women to reach their personal fertility target, regardless of what the target is. *Vienna Yearbook of Population Research*, 15, 27-31.
- Mankelkl, G., & Kinfe, B. (2023). Spatial variations and multilevel mixed effect analysis on determinants factors of modern contraceptive utilization among reproductive age women in Ethiopia; proven by Ethiopian mini demographic health survey 2019. *BMC Women's Health*, 23(1), 77.
- Marshan, J., & Pritadrajati, D. (2023). Mother education and children's well-being: Evidence from four Pacific countries. Workshop on the Microeconomics of Development in the Pacific,
- Matthews, A. K., Corrigan, P. W., Smith, B. M., & Aranda, F. (2006). A qualitative exploration of African-Americans' attitudes toward mental illness and mental illness treatment seeking. *Rehabilitation Education*, 20(4), 253-268.
- Najibi, P., & McLachlan, C. (2023). Moving towards a sustainable future for women in Afghanistan through increased tertiary education participation: challenges and possibilities. *Inclusion, Equity, Diversity, and Social Justice in Education: A Critical Exploration of the Sustainable Development Goals*, 245-259.
- Najmabadi, K. M., & Sharifi, F. (2019). Sexual education and women empowerment in health: a review of the literature. *International Journal of women's health and reproduction sciences*, 7(2), 150-155.
- Onarheim, K. H., Iversen, J. H., & Bloom, D. E. (2016). Economic benefits of investing in women's health: a systematic review. *Plos one*, 11(3), e0150120.
- Qureshi, N., & Shaikh, B. (2007). Women's empowerment and health: the role of institutions of power in Pakistan. *Eastern Mediterranean Health Journal*, 13(6), 1459.
- Reshi, I. A., Sudha, T., & Dar, S. A. (2022). Women's Access to Education and Its Impact on Their Empowerment: A Comprehensive Review. *Morfai Journal*, 1(2), 446-450.
- Rindfuss, R. R., Morgan, S. P., & Swicegood, C. G. (2022). *First births in America: Changes in the timing of parenthood* (Vol. 2). Univ of California Press.
- Ross, C. E., & Wu, C.-I. (1995). The links between education and health. *American sociological review*, 719-745.
- Samir, K. (2023). Differential impact of maternal education on under-five mortality in rural and urban India. *Health & place*, 80, 102987.
- Shoaib, M., Saeed, Y., & Cheema, S. N. (2012). Education and Women's Empowerment at Household Level: A Case Study of Women in Rural Chiniot, Pakistan. *Academic Research International*, 2(1), 519.
- Shorette, K., & Burroway, R. (2022). Consistencies and contradictions: Revisiting the relationship between women's education and infant mortality from a distributional perspective. *Social Science Research*, 105, 102697.
- Tew, M. (2013). *Safer childbirth?: a critical history of maternity care*. Springer.
- Torres, C. A., Arnove, R. F., & Misiaszek, L. I. (2022). *Comparative education: The dialectic of the global and the local*. Rowman & Littlefield.
- Veenstra, G., & Vanzella-Yang, A. (2022). Interactions between parental and personal socioeconomic resources and self-rated health: Adjudicating between the resource substitution and resource multiplication theories. *Social Science & Medicine*, 292, 114565.
- Watson, R. (2015). Quantitative research. *Nursing standard*, 29(31).