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# Impact of Income on Happiness: Evidence from District Swat, Pakistan

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**ABSTRACT**

Happiness and well-being are key aspects in human life and important indicators of social progress as they reflect overall quality of life. In economics, research about happiness increasingly got importance. The study examines the impact of income on happiness among the residents of District Swat, Pakistan. Dependent Variable is happiness, measured through life satisfaction while independent variable is income, which has been divided into six categories and then coded accordingly. Using cross sectional survey, data was collected from 384 participants through structured questionnaire. Ordinal logistic regression model was used to estimate the relationship. Appropriateness of the model was assessed through test of goodness of fit. The result showed that income positively and significantly influenced the happiness of people in District Swat. Policy aimed at support income generating activities which contribute more effectively to overall happiness.

## Introduction

Happiness is mostly considered as the ultimate goal of life (Frey & Stutzer, 2002). Happiness is important indicator of social progress and fundamental aspect of well-being. The study of happiness got importance after the publication of various international reports on happiness like Gallop World Poll (GWP) and World Happiness Report (WHP) which measure happiness or life satisfaction through a Likert-scale. This study, therefore, has been designed to show the impact of income on happiness in District Swat. It examines that whether income actually increases happiness of people in District Swat. According to Layard (2005), happiness is enjoying life and feeling good. Happiness means life satisfaction, pleasures, positive emotions and meaningful life (Diener & Sligman, 2004). Happiness is also measured as reported subjective well-being (Frey & Stutzer, 2002). Subjective well-being is a broad concept including domains satisfaction (cognitive and affective), emotional responses of people and global judgement of life satisfaction (Diener, Suh, Lucas, & Smith, 1999). Life satisfaction is the global judgement of the quality of life of a persons as a whole (Veenhoven, 1996). Easterlin (1974), by using self-reported happiness level in analyzing cross countries survey data, found that rich individuals are happier than poorer, but across time, GDP growth does not increase the happiness of nation. Faraz and Hyder (2024) found positive effect of income on happiness. Anwar and Awan (2023) found that per capita income (PCI) is positively related to happiness. Moreover, Hasan (2016) found that income increases happiness in Pakistan without adaptation. Mehmood et al. (2025) also concluded that income growth is positively related to happiness level in Pakistan. Pedersen and Schmidt (2011) also found that income positively and significantly affects happiness in Southern European countries. However, some studies like Kushlev et al. (2014), Shahbaz and Amir (2006) and similarly Altaf et al. (2021) found that income does not significantly affect happiness. The theoretical foundation of the study is based on Easterlin paradox (1974) which states that increase in income increase well-being up to specific point, but after that point non-monetary factors and relative income matter more than absolute income.

The study holds significant social, academic and policy relevance, especially in the context of developing countries and culturally rich areas like Swat in Pakistan. Pakistan is a country in which there are many social and economic problems like poverty, illiteracy, inequality in income distribution etc. Swat is a district located in Khyber Pakhtunkhwa, Pakistan. Despite these problems, examining the impact of income on happiness can provide insights that how income contributes to happiness. Despite of the importance of this topic, several research gaps exist in the current literature. First much of the research on the said topic focuses on the developed countries (Jantsch et al., 2024; Mohanty, 2014; Kushlev et al., 2014) while rural and semi-urban regions like Swat have different socioeconomic condition which may affect happiness differently. Developing countries have not been considered so much. Moreover, work about happiness of the people is very limited in District Swat. District Swat is unique area with different culture, social and economic situation. Therefore, it is necessary to know that what actually determines the happiness and satisfaction of people in District Swat.

## Literature Review

This section provides the work of previous literature related to our topic, impact of income on happiness. Some studies like Faraz and Hyder (2004), Anwar and Awan (2023), Behera et al. (2024), Keshf and Nadeem (2024), Mohanty (2014), Jabeen and Khan (2018), Hasan (2016) and Salinas-Jimenez et al. (2010) showed positive relationship between income and happiness while other studies like Kushlev et al. (2014), Shahbaz and Amir (2006) and Tala and MacCulloch (2008) indicated negative relationship.

Faraz and Hyder (2024) studied the relationship between income and socioeconomic factors among 564 university students across Pakistan. Using simple linear regression model (SLRM), it was found that is positively correlated with happiness. Anwar and Awan (2023) studied the relationship of social safety network, Per Capita Income (PCI) and other socioeconomic factors with happiness. Primary data from 250 respondents was collected from different universities in Punjab, Pakistan. Data was collected through a structured questionnaire. The simple linear regression (SLRM) was used to estimate the model. PCI was found positively related with happiness. Behera et al. (2024) studied the relationship of happiness with PCI and other social and economic factors. Data of 166 economies was taken from World Happiness Report (WHR), World Development Indicator (WDI), World Development Report (WDR) for 15 years (2005-2020). The result showed that PCI was positively related with happiness in both developed and developing countries. Keshf and Nadeem (2024) studied the relationship between economic demographic and well-being of young adults in collectivist culture. Data was collected through stratified random sampling from 1563 young adults in universities of different cities in Punjab, Pakistan. Dependent variable was subjective well-being, measured through a standardized well-being scale. Independent variables were monthly household income, father's occupation, number of earning members in the household, individual income and employment status. The result showed that average household income and father's job were the most significant determinants of subjective well-being as compare to employment and personal income. Mohanty (2014) investigated to know whether income or attitude significantly determines personal happiness. The study utilized panel data from the National Longitudinal Survey of Youth (NLSY), USA. The data set consists of three different age groups (15 to 22years old in 1980, 22 to 29 years old in 1987 and 41 to 48 years old in 2006). The result showed that income has positively associated with happiness but this effect diminishes as income increases and further increase in income adds less and less to happiness. However, the relationship between positive attitude and happiness were found very strong as compare to income. Kushlev et al. (2014) studied to observe the relationship between higher income, more daily happiness and less daily sadness. This study focused on daily emotions separately. The study used data from 2010 American Time Use Survey (ATUS) which included different household across U. S. They found no significant relationship (even at lower level of income) between higher income and more daily happiness($r=0.00$) while the relationship between higher income and less daily sadness is statistically significant ($r=-0.15$, $p<0.001$). The relationship remained the same after controlling for demographics, stress and time use. This showed that higher income does not affect daily happiness but reduces daily sadness. Jabeen and Khan (2018) examined the determinants of individuals happiness in Pakistan. They used data from the three waves (1995-1998, 1999-2004 and 2010-2014) of World Value Survey (WVS). Total 3933 individuals were selected as a sample. It was found that higher income level leads to great happiness particularly in 2010-2014 wave. Shahbaz and Amir (2006) utilized time series data from the sources of Pakistan's Economic Survey (PES), and WDI from 1973 to 2006 to find out main determinants of the happiness of poor in Pakistan. It was found that increase in income decreases happiness in poor which is contrary to the expectation. Hasan (2016) studied the relationship between income and happiness to know whether happiness adapts to increase in income level over time in Pakistan. The study used data from Pakistan Socioeconomic Survey conducted by Pakistan Institute of Development Economics (PIDE). The result showed that changes in income positively and significantly affect happiness while lag income is statistically insignificant with negative coefficient (-0.0163) showing no adaptation. The study concluded that income increases happiness in Pakistan with no adaptation. Lakshmanasamy (2010) Studied the relationship between income and happiness to find whether people are satisfied with their income. Data was collected through a primary data survey conducted in 2007 in two divisions (Triplicane and chepauk) of Chennai Corporation in India. Happiness was dependent

variable and both absolute and relative income were independent variables. Demographic factors (age, education, employment status etc.) were also included in the model. The study concluded that both types of income (relative and absolute) have positive impact on life satisfaction. The results also showed that beyond a certain threshold, higher income leads to higher desires and aspirations which offset the gain in happiness. Moreover, the study showed that despite the fact that money does buy some happiness, the effect was complicated by relative income, the relative income comparison plays important role in the income-happiness relationship. Salinas-Jimenez et al. (2010) examined the relationship between income and happiness. The study used data from WVS, 2015-16 wave. The sample consisted of respondents from 10 developed countries with 10,800 observations. The study concluded that individuals in high-income groups and middle-income groups have higher life satisfaction as compare to low-income groups. Tala and MacCulloch (2008) investigated to find whether individuals (rich vs poor individuals and individuals in rich vs poor countries) adapt to income beyond a certain point as income increases or income may have lasting effect on happiness. The study used data from Euro-Barometer Survey (1975-2002), German Socioeconomic Panel (1985-2000) and Gallup World Poll (2005). The study found that for rich individuals and rich countries, the impact of income on happiness disappears as income increases over time. This is adaptation to income. However, the study showed that in case of poor individuals and poor countries, happiness is increased with increase in income. The study further showed that period of adaptation (disappearance of happiness from income increase) is at least five years in rich countries while there is no adaptation in poor countries. The study further found that post economic growth (1960-2005) increased the happiness of poor countries, but did not increase the happiness of rich counties.

## Research Methodology

This chapter presents methodological framework to examine the impact of income on happiness among the residents of Districts Swat. The study has cross sectional, quantitative, correlational and explanatory research design. A structural questionnaire was used to collect responses at a single point of time.

### Target Population and Sampling Strategy

Population considered in this research is consisted of all residents of District Swat, Pakistan (aged 18 years and above). The population includes various individuals from different socioeconomic, cultural and educational background. The sample size was chosen using Cochran's sample size formula at 95 % confidence level. According to the given formula, sample size for the target population is 384 respondents. To select the sample from population, the convenience sampling techniques was used. Questionnaire was sent via email or WhatsApp to easily accessible and willing respondents.

### Method of Data Collection

Information was collected through a structured questionnaire. The questionnaire was constructed in google form. Then the link was sent to respondents via email or WhatsApp and responses were recorded. Before the data collection process, a pilot survey was undertaken to check reliability and clarity of the questionnaire. The questionnaire was consisted of 3 main sections. Section A of the questionnaire was about demographic details like gender, age, marital status etc. In section B, questions about income were asked. In section C there were questions about happiness/life satisfaction.

### Variables and their Measurement

There are two main variables in the study. They are happiness (measured through life satisfaction), and income level. Dependent variable of the study is happiness which is measured through life satisfaction, which serves as a proxy variable for happiness. Life satisfaction is measured on 11 points Likert scale, ranging from 0 to 10. Higher score on this scale indicates higher satisfaction from life and hence higher level of happiness while lower score shows lower level of satisfaction from life and hence lower level of happiness. Many studies in the literature (Jantsch et al., 2024; Salinas-Jimenez et al., 2010) have used the same method for the measurement of happiness. Income is measured through monthly household income in Pakistani rupees (PKR). It was divided into 6 categories ranging from less than 20,000 PKR to more than 100,000 PKR. Responses were then coded accordingly, from 1 to 6. Faraz and Hyder (2024) have used the same method for measurement of income.

### Model Specification

After introducing the variables, our model will be specified as follow.

$HP = \beta o + \beta 1\ (IN) + \varepsilon$

Where HP= Happiness (measured through Life Satisfaction),

IN= Income,

βo and β1are parameters estimates.

and ε = error term.

**Descriptive analysis**

There are two types of variables in our study: categorical and continuous. Income level is categorical variable while life satisfaction scale is treated as continuous variable. Descriptive analysis of income (categorical variable) has been shown in the form of frequencies and percentages while descriptive analysis of life satisfaction scale (continuous variable) has been shown by its mean, standard deviation, maximum and minimum values, skewness and kurtosis.

**Validity of Data**

To check validity of the data, Spearman's rank correlation test is used. This test measures the validity of the data by ensuring that whether the variable have same type of relationship in real life or not. The Spearman's rank correlation test is applied because the data is not normally distributed.

**Diagnostic Tests**

Most of the diagnostic tests are not applied to our study due to nature of data. Main diagnostic tests are multicollinearity, autocorrelation and heteroscedasticity test. Multicollinearity is not applied because there is only one explanatory variables in our model. Autocorrelation test is not used because the data is cross-sectional while auto-correlation problem is found in time series data. Heteroscedasticity test is also not used because the dependent variable is ordinal and in case of ordinal dependent variable, heteroscedasticity test is inappropriate. Heteroscedasticity test is designed for linear regression model where the dependent variable is continuous. This study is designed to estimate the ordinal logistic regression model (OLRM). In OLRM, the error term is not normally distributed and the variance of the random term is not assumed constant. Moreover, OLRM does not produce numerical residuals whose variance can be examined. Therefore, testing of heteroscedasticity is meaningless. Hence, instead of heteroscedasticity, the test of goodness of fit (TGF) is used to ensure the appropriateness and robustness of the OLRM. Atinafu et al. (2023) used the test instead of heteroscedasticity in ordinal logistic regression while studying the level of social support among cancer patients in cancer center in Ethiopia.

**Test of Goodness of Fit**

Pearson's chi-square and deviance test are used as measure of goodness of fit, showing that how the predicted values from the ordinal regression match the actual observed data. The test of goodness of fit replaces residuals-based fit diagnostic.

**Estimating parameters Through Ordinal Logistic Regression**

After providing the above test, the ordinal regression has been applied, values of parameter have been obtained and statistical significance of variable has been checked. Ordinal regression is used because the dependent variable (happiness measured through life satisfaction) is ordinal.

**Coefficient of Determination (R-Squared)**

Coefficient of determination (R-Squared) shows that how much of the total variation in dependent variable is collectively explained by the set of explanatory variables. Since the dependent variable is ordinal, therefore, the Pseudo coefficient of determination is suitable. In Pseudo coefficient of determination, Cox and Snell and Nagelkerke methods are used.

## Data Analysis and Results

**Descriptive Statistics of categorical Variables**

**Table 1. Gender of the Respondents**

| Variable | Categories | Frequency (n) | Percentage % |
|---|---|---|---|
| Gender | Male | 360 | 93.75% |
| Gender | Female | 24 | 6.25% |


**Figure 1. Gender of the Respondents**

**Table 2. Marital Status of the Respondents**

| Variable | Categories | Frequency (n) | Percentage % |
|---|---|---|---|
| Marital Status | Single | 193 | 50.26% |
| | Married | 187 | 48.70% |
| | Other | 4 | 1.04% |

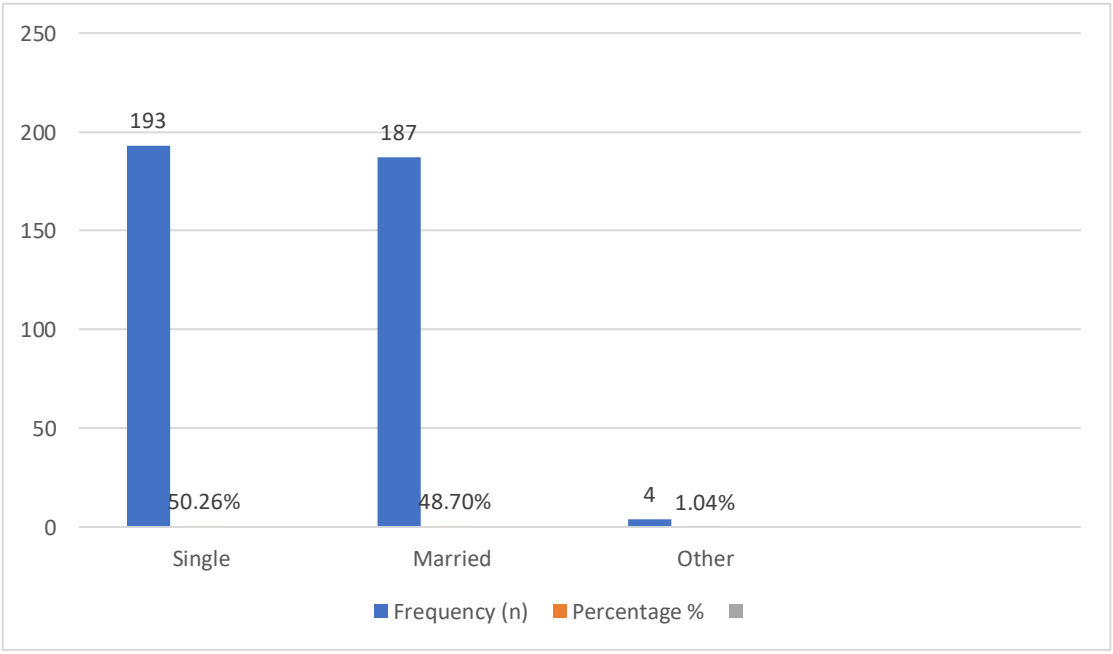


**Figure 2. Marital Status of The Respondents**

**Table 3. Income of the Respondents**

| Variable | Categories | Frequency (n) | Percentage % |
|---|---|---|---|
| Income Level | Less than 20,000 | 63 | 16.41% |
| | 20,000 to 39,999 | 51 | 13.28% |
| | 40,0000 to 59,999 | 49 | 12.76% |
| | 60,000 to 79,999 | 51 | 13.28% |
| | 80,000 to 99,999 | 46 | 11.98% |
| | 100,000 or above | 124 | 32.29% |

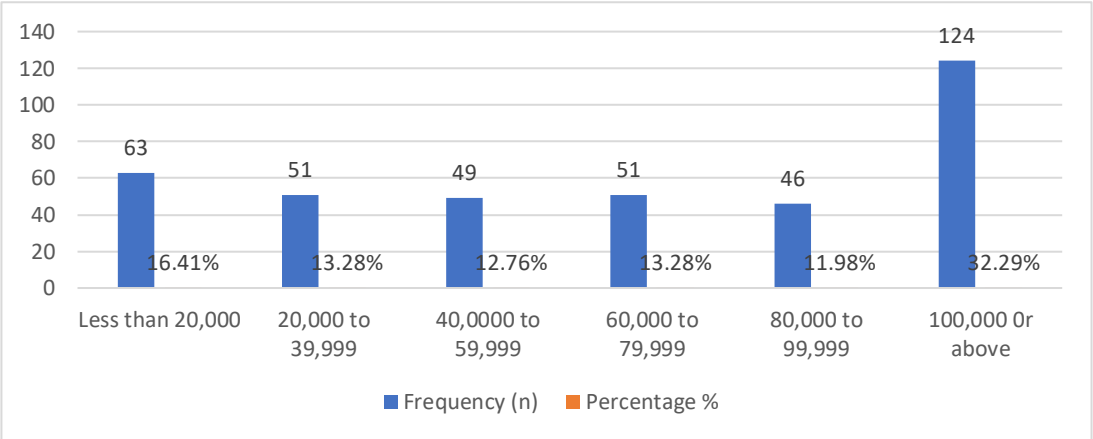


**Figure 3. Income of the Respondents**

**Table 4. Employment Status of the Respondents**

| Variable | Categories | Frequency (n) | Percentage % |
|---|---|---|---|
| Employment Status | Employed | 233 | 60.68% |
| | Unemployed | 20 | 5.21% |
| | Students | 109 | 28.39% |
| | Others | 22 | 5.73% |

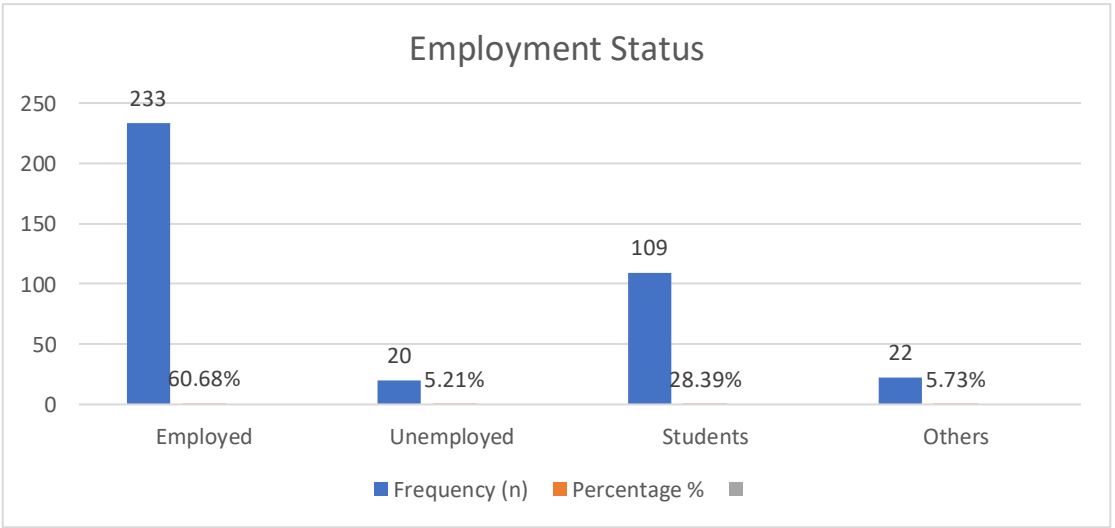


**Figure 4. Employment Status of the Respondents**

**Descriptive Statistics of Continuous Variables**

The following table shows descriptive statistics of continuous variables of the study. There are two continuous variables in the study. They are happiness (measured through life satisfaction scale) and age, In Table 4.5 number of observations, mean, maximum and minimum values, skewness and kurtosis, and standard deviation have been shown for both variables.

**Table 5. Descriptive Statistics of Continuous Variables**

| Column1 | N | Minimum | Maximum | Mean | Std. Deviation | Skewness | Column2 | Kurtosis | Column3 |
|---|---|---|---|---|---|---|---|---|---|
| | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Life Satisfaction Scale | 384 | 0 | 10 | 7.14 | 2.471 | -0.819 | 0.125 | 0.331 | 0.248 |
| Age | 384 | 18 | 65 | 30.02 | 10.608 | 0.901 | 0.125 | 0.047 | 0.248 |

**Criterion Validity Test (Spearman's Rank Correlation)**

To check the validity of data, criterion validity (Spearman's rank correlation) test is applied. The test ensure that independent variable is related to dependent variable in real life. Since the data is non-normally distributed; therefore, Spearman's rank correlation (SRC) is used. The SRC coefficient was used to measure the direction and strength between the new developed variable/scale (independent variable) and the benchmarks scale (dependent variable). A significant positive relationship would indicate that the variables are related in real life and therefore, valid for analysis. Table 4.6 shows values of SRC and corresponding p-values between dependent variable, happiness (measured through life satisfaction scale), and income.

**Table 6. Spearman's Rank Correlation and Corresponding P-values**

| Column1 | Column2 | Column3 | Life_satisfaction_scale | Income |
|---|---|---|---|---|
| Spearman's rho | Life_satisfaction_scale | Correlation Coefficient | 1 | .176** |
| | | Sig. (2-tailed) | . | 0.001 |
| | | N | 384 | 384 |

The table shows that correlation of dependent variable is significant with income at 0.01 level of significance. It means that criterion's validity test is satisfied.

Heteroscedasticity test is designed for linear regression model where the dependent variable is continuous. This study is designed to estimate the OLRM. In OLRM, the error term is not normally distributed and the variance of the random term is not assumed constant. Therefore, testing of heteroscedasticity is not meaningful because the model already has non-constant variance. So instead of heteroscedasticity, another diagnostic test is used to ensure the appropriateness and robustness of the OLRM. It is TGF.

**Test of Goodness of Fit (TGF)**

TGF is used to ensure that whether the predicted values from the ordinal regression model match the actual observed values/data. Pearson and deviance tests are used as a goodness of fit. If p-value is greater than 0.05, both tests suggest that the difference between predicted values and actual values is not significant and the model is good fit to the given data. Table 4.7 shows the values of Pearson and Deviance tests of goodness of fit.

**Table 7. Values of Pearson and Deviance Tests of Goodness of Fit.**

| Column1 | Chi-Square | Df | Sig. |
|---|---|---|---|
| Pearson | 48.295 | 45 | .341 |
| Deviance | 54.347 | 45 | .160 |

In both test, p-values are greater than 0.05 which means that ordinal regression model is a good fit to observed data of life satisfaction based on all independent variables.

**Ordinal Regression and Parameter Estimates**

After running all necessary tests, now ordinal logistic regression model is used for parameter estimates and statistical test of significance. Table 4.8 shows the value of parameters estimates and statistical significance of the variable (income).

**Table 8. Parameters Estimates and Statistical Significance of the Variable (income)**

| Column1 | Column2 | Estimate | Std. Error | Wald | Df | Sig. | 95% Confidence Interval | Column3 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound |
| Location | Income | 0.105 | 0.062 | 2.841 | 1 | 0.092 | -0.017 | 0.226 |

Link function: Logit.
Dependent Variable: Life Satisfaction Scale

The variable income is statistically significant at confidence level of 90 % (α = 0.10%) showing that income significantly affect life satisfaction and happiness of people at 90% confidence level.

**Interpretation of the Parameters Estimates**

To interpret the parameters estimates, we will convert it to odds ratios. The following table shows odds ratios of predictor (income) according to its parameter estimate.

**Table 9. Odd Ratios of Predictors According to Parameter Estimate**

| Predictors | Parameter Estimates | Odds Ratio | % Change in Odd |
|---|---|---|---|
| Income | 0.105 | 1.11 | 11.1% |

The table shows variable (income) with parameter estimate, odd ratio and percentage change in odd. Income has parameter estimate 0.105 with odds ratio 1.11 and percentage change in odds is 11.1%. This means that for each one step increase in income category, the odd of being happy increases be 11.1% keeping other factors constant.

**Coefficient of Determination**

Cox and Snell coefficient of determination is used in case of ordinal regression.

**Table 10. Pseudo R-Squared**

| | |
|---|---|
| Cox and Snell | 0.051 |
| Nagelkerke | 0.052 |

The value of Cox and Snell R-Squared is 0.051. This means that 5.1 % of the variation in dependent variable which is happiness (measured through life satisfaction) is due to independent variable which is income. Nagelkerke R-Squared is the adjusted version of Cox and Snell coefficient of determination. The value of Nagelkerke R-Squared is 0.052 which means that 5.2 % of the variation in dependent variable, which is happiness (measured through life satisfaction), is due to independent variable, which is income.

**Hypothesis Evaluation**

**Table 11. Hypothesis Evaluation**

| Hypothesis | Statement | Result |
|---|---|---|
| Hypothesis. | Income positively affects life satisfaction and happiness in district Swat | Supported |

The study supports our hypothesis of the study that income positively affects life satisfaction and happiness of people in district Swat.

## Discussion

Income has parameter estimate 0.105 which is statistically significant at confidence level of 90 % (α = 0.10%) showing that income significantly affects life satisfaction and happiness of people at 90% confidence level. It means that income

significantly and positively affects happiness and life satisfaction of people in District Swat. Income has odds ratio 1.11 and percentage change in odds is 11.1%. This means that for each one step increase in income category, the odd of being happy increases by 11.1% keeping other factors constant. The study supports the Estarlin paradox to some extent. Estarlin paradox states that increase in income increases happiness of people up to some extent and beyond that point people adopt to increase in income. Our study also found that increase in income increases happiness and life satisfaction of people. The people of Swat are mostly categorized from low to middle-income; therefore, the result is according to Estarlin paradox. The result is also similar to Faraz and Hyder (2024) whose findings show positive correlation between income and happiness. Anwar and Awan (2024) found similar result that per capita income is positive related to happiness. Moreover, Hasan (2016) also found that income positively affects happiness, suggested that income increases happiness in Pakistan without adaptation. Similarly, the result is according to the study of Mehmood et al. (2024) that income growth is positively related to happiness level in Pakistan. Pedersen and Schmidt (2011) also found that income has positive and significant impact on happiness in Southern European countries. However, the result is against Kushlev et al. (2014). They found that higher income does not affect daily happiness. Similarly, the result is also against the finding of Shahbaz and Amir (2006), whose findings show that increase in income decreases happiness in poor which is contrary to the expectation. The result also does not support the study of Altaf et al. (2021) who reanalyzed the association between money and happiness and couples' perspective in Pakistan and among the participants 73% reported that happiness could not be increased with money.

## Conclusion

This study investigated the impact of income on happiness among the residents of District Swat. The study concluded that income positively and significantly affect happiness of people in District Swat. The result of the study support Estarlin paradox by verifying that income increases life satisfaction and happiness more at lower level, such as in District Swat.

## Policy Implication and Recommendations for Future Research

Since, income is significant indicator of happiness and life satisfaction, the government should support income generating activities. It must also provide opportunities of income generation to the people. The disables, old and those who unable of income generation must be funded from government fund. This will increase the income of the people which will increase life satisfaction and happiness of people. The study recommended Conducting studies based on longitudinal data, inclusion of more factors as independent variables, using mix-method approach by combining questionnaire with interview and comparing the results of studies across different regions and different countries to understand differences among people.

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