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An Exploration of the Status of Psychological Well-Being of Transgender Persons Residing in Patna: A Multiple Linear Regression Analysis Approach

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Abstract

Though many consider transgender persons as abnormal people those at birth that have a mismatched sex and gender. Cisgender people discriminate against transgender individuals commonly because of their body, look, voice and more. In addition, this case puts a lot of pressure on their mental health and affects their overall/psychological well-being. The mental health of transgender people needs to be heard of and addressed more and more. The time has come to take a call on their mental health and give it proper solution in the same way as cisgender people are getting. In this study, an attempt is made to study the mental health of transgender people and the various factors that affect them. For this, the Mental Health Quality of Life Questionnaire has been used to assess the mental health status of transgender people. Dependent variable used is psychological well-being; independent variables are self-image, mood, independence, relationships, daily activities, physical health and future. Data has been taken from transgender people who lived in different areas of Patna and here multiple linear regression analysis is employed to study the interaction. The results indicate a significant direct effect of outcome with all the selected independent variables on transgender people's psychological well-being. The findings clearly imply that transgender people endure severe systemic prejudice, and access to healthcare and social assistance is often insufficient, all resulting in adverse mental health outcomes.

Keywords: Deterioration, Mental Health, Psychological Well-being, Stress, Transgender People.

Introduction

The issue of mental health quality for transgender individuals, is particularly pressing given the unique nature and substantial consequences many in this community face. Transgender people—those whose gender identification differs from the sex given to them at birth—are exposed to a number of stressors, including social stigma and discrimination; assault; absence in assurance that healthcare is affirming. As a result, transgender people are at increased risk for mental health concerns including depression, anxiety, substance use disorders and suicidality. So, the mental health care that transgender individuals receive is incredibly important, not only to improve their well-being, but also as part of a broader solution around some of these disparities we're seeing in society. Stigmatization and discrimination experienced by transgender individuals in multiple domains of their life is a significant contributor to poor mental health among this population. Such stigma is born from societal norms that privilege cisgender identities (those whose gender identity matches the sex they were assigned at birth) devalue, bring to margins or stigmatize transgender identities. Many transgender people are abandoned by their families, friends and community in general. Their inability to be accepted as they truly are predisposes them towards isolation and low self-esteem. It is significantly observed that discrimination against transgender people deteriorates their mental health and quality of life (1). Since rejection severs social supports that are fundamental to mental health, this is particularly damaging. Transgender people rejected by their families have significantly higher rates of mental health problems than those whose families are supportive, a 2010 study found (2). Education and employment discrimination were also found to be significant contributors toward negative mental health among transgender individuals. Trans-gender adolescents face discrimination, such as

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harassment, bullying, and exclusion in schools with adverse consequences for academic achievement possibly resulting in higher dropout rates (3). As a result of lesser educational opportunities, they have reduced choice in careers increasing financial instability leading to stress and economic insecurity associated with mental health problems (4). Though transgender individuals are able to secure employment, they often experience on-the-job discrimination — being denied promotions or raises because of their trans status and subjected to harassment by co-workers or bosses. They also reduce self-esteem which can exacerbate to chronic stress causing mental health problems such as depression and anxiety (4). There is a significant need to address the mental health of the transgender people by eradicating social and structural barriers and to provide targeted mental health services from the grass root level (5). Transgender people, particularly transgender women of colour too frequently experience violence in the form physical assault and rape among other forms, as well as homicide. The on-going threat of violence also increases terror and hyper vigilance, which may result in post-traumatic disorder as well as various anxiety disorders (6). Prior experiences of police officers that might be abusive or harassing means that many transgender are scared to contact law enforcement which makes it worse if they have been assaulted and increases their feeling of insecurity (7). Transgender people face a lot of racial discrimination in their life which subsequently impacts the mental health of these youth (8). They also face significant mental health challenges arising from the disability of access to healthcare. Gender-affirming medical care, such as hormone therapy and surgery are necessary for many transgender people to be able to live in a manner that aligns their physical appearance with gender identification. Unfortunately, a lack of skilled providers, cost prohibitive practices and discriminatory insurances policies frequently act as major barriers to this care (9). Without access to the care many transgender and gender-nonconforming people need, some experience intense body dysphoria, which are mental health related conditions like suicide ideation, depression or anxiety (6). Even for those who can access care, trans clients often experience deep reaching bias from health providers. In turn, this can lead to negative healthcare experiences such as being misgendered or receiving improper care (or no services at all), and one's identity is challenged/ignored. Negative experiences create a barrier of trust within the healthcare system, preventing transgender people from receiving necessary care when they need it and in turn contributing to their increased prevalence of mental health issues (10). Transgender people not only in India but at the world level experiences following type of mental health challenges: emotional distress, stigmatisation, victimisation, discrimination and barriers to access healthcare services (11). For transgender individuals, the confluence of multiple marginalized identities - like race or ethnicity on top of disability, and socioeconomic status for example - compounds these mental health challenges. For example, transracial individuals who are latino and transgender often face dual prejudice by others of both their gender identity as well as racial/ethnic background; this double dose of discrimination may lead to further stress related to poor mental health (12). Similarly, transgender people with disabilities may also face an additional set of barriers to obtaining mental health and gender-affirming care as well pay a greater cost in terms of poor mental health (13). These intersecting identities lead to multiple layers of oppression meaning that transgender people have unique and multi-faceted mental health needs, highlighting the importance of delivering intersectional models for supporting their mental well-being. Also, transgender patients had a statistically significant increase in prevalence for all psychiatric diagnoses queried, with major depressive disorder and generalized anxiety disorder being the most common diagnoses (14). Hence, on the basis of existing literatures, the status of Psychological Well-Being of transgender persons and the impact of different variables on psychological well-being of transgender persons have been studied (15).

Methodology

Questionnaire Formation

For studying the status of mental health of transgender persons residing in Patna, the structured questionnaire, namely Mental Health Quality of Life, MHQoL, has been taken from the

literature in which the questions have been framed accordingly (15). The questionnaire contains variables like self-image, independence, mood, relationships, daily activities, physical health, future and psychological well-being. Only the psychological well-being variable ranges from 0 to 10, with 0 representing the worst-imaginable psychological well-being and 10 representing the best-imaginable psychological well-being. The rest variables have been converted into a five-point Likert scale in order to make the questions clearer and more understandable for the participants. The variable 'Self Image' has been displayed from scale 1 to 5, where 1 depicts 'I think very negatively about myself' and 5 depicts 'I think very positively about myself. Similarly, other variables have been displayed on the five-point scale taking into consideration the MHQoL questionnaire.

Data Collection

The areas were chosen based on the availability of transgender people, mostly via snowball sampling technique. It is a non-probability sampling technique that is commonly applied in social sciences, especially in researching difficult-to-reach or marginalized populations. This technique works by first identifying a small group of participants who meet inclusion criteria for the study (i.e., seed participants). Preliminary participants are then asked to recruit other people from their social network, generating a "snowball" effect as the sample size increases. This approach is particularly valuable when researchers lack a complete sampling frame or when prospective research participants are members of hidden or stigmatized populations, such as transgender individuals, drug users, or undocumented immigrants."But the technique has its limitations. Moreover, it may introduce sample bias, with an overrepresentation of well-connected individuals within their social network, and an underrepresentation of isolated individuals. Moreover, the findings are not generalizable to the general population because there was no randomization of the sample. In context to this study, the respondents, i.e., transgender persons were contacted from different areas of Patna District, both in online mode as well as in person. One transgender person was contacted on phone via which other contacts were collected. The location of the known transgender person helped to find the location and address of some other places where the respondents mostly reside. They were contacted as per their availability, and once they fully agreed to be part of this study, the work was escalated accordingly. For this, questionnaires were distributed among them and some time was given to them as per their will in order to fill them. Similarly, some respondents were contacted via telephone and after their full consentment, questionnaires were sent to them via the medium of Google Form. The time frame for filling out the questionnaires was given, but some extra were given to them, seeing their understanding and kind cooperation in the study. Therefore, around 220 questionnaires (both in hard copy and Google Form) were distributed to the targeted respondents. It took around one month to get the filled-in questionnaires. The properly filled-in questionnaire that was received was 196 in numbers, which are used in this study. The dataset used in this study included the information of 196 transgender persons residing in Patna District. The following variables were extracted from the framed questionnaire: -

- Age
- Religion
- Birth Gender
- Gender Role that describes them
- Income

From these variables, the demographic profile of transgender people was known. Apart from that, the Mental Health Quality of Life Questionnaire was used to formulate the dependent and independent variables for this study.

Dependent Variable

- Psychological Well-being

Independent Variables

- Self-Image
- Independence
- Mood
- Relationships
- Daily Activities
- Physical Health
- Future

Hypothesis

Following hypotheses have been framed for this study: -

- Null Hypothesis (H0): Self Image does not have a significant impact on Psychological Well-being.

Alternative Hypothesis (H1): Self Image has a significant impact on Psychological Well-being.

- Null Hypothesis (H0): Independence does not have a significant impact on Psychological Well-being.
  Alternative Hypothesis (H1): Independence has a significant impact on Psychological Well-being.
- Null Hypothesis (H0): Mood does not have a significant impact on Psychological Well-being.
  Alternative Hypothesis (H1): Mood has a significant impact on Psychological Well-being.
- Null Hypothesis (H0): Relationships do not have a significant impact on Psychological Well-being.
  Alternative Hypothesis (H1): Relationships have a significant impact on Psychological Well-being.
- Null Hypothesis (H0): Daily Activities do not have a significant impact on Psychological Well-being.
  Alternative Hypothesis (H1): Daily Activities have a significant impact on Psychological Well-being.
- Null Hypothesis (H0): Physical Health does not have a significant impact on Psychological Well-being.
  Alternative Hypothesis (H1): Physical Health has a significant impact on Psychological Well-being.
- Null Hypothesis (H0): Future outlook does not have a significant impact on Psychological Well-being.
  Alternative Hypothesis (H1): Future outlook has a significant impact on Psychological Well-being.

The Model

In this study, the model has been framed as follows:

$$Y= \beta 0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3+ \beta_4X_4+ \beta_5X_5+\beta_6X_6+\beta_7X_7 +€ \quad [1]$$

Where Y is the psychological wellbeing. B0 is the intercept value. X1 to X7 are the seven independent variables namely self-image, independence, mood, relationships, daily activities, physical health and future. β1 to β7 are the estimated regression coefficients of independent variables. € is the model error, i.e., the variation of our estimate of Y with respect to the real value.

Data Analysis

One of the most commonly used statistical techniques is Multiple Linear Regression, which uses multiple explanatory variables to predict the outcome of a response variable. Multiple linear regressions are an expansion of the simple linear regression model, which has only one explanatory variable. IBM SPSS (Statistical Package for Social Sciences) ver. 26 was used to build a multiple linear regression model to predict the psychological well-being.

Results and Discussion

The data collected from 196 respondents have been arranged systematically and demographic profile has been found out in the following table.

Demographic Profile of the Respondents

Table 1: Demographic Profile of Transgender People

Demographics	Categories	Frequency	Percent (N=196)
Age (Years)	15-24	91	46.42
	25-34	35	17.85
	35-44	39	19.89
	45-54	16	8.00
	55 years or older	15	7.84
Religion	Hindu	151	77.04
	Muslim	45	22.96
Birth gender	Male	102	52.04
	Female	88	44.90
	Intersex	06	3.06
Gender Role that describes you	Female to Male	85	43.36
	Male to Female	89	45.40
	Genderqueer	10	5.10
	Binary	7	3.50

	Intersex	5	2.64
	Gender Non-conformity	0	0
Income	0-25000	189	96.42
	25000-50000	07	3.58
	50000-75000	0	0
	75000 and above	0	0

The demographic profile of respondents as shown in table 1 gives a vivid picture of their status. 46.42% of them are in the age group of 15-24 years. 77.04% of them follow Hinduism. 52.04% of them are male, 44.90% of them are female whereas only 3.06% of them are intersex. 43.36% of them are FtM and 45.40% of them are MtF. A very large portion of them, that is, 96.42% have income in the range of Rs.0-25000 which displays their financial constraints.

Overview of Sample for Psychological Well-Being and Its Predictors

Table 2: Descriptive Statistics

Variables	Mean	Standard Deviation	N
Psychological Well-being	5.54	1.978	196
Self_Image	2.96	1.059	196
Independence	3.40	1.011	196
Mood	2.79	1.093	196
Relationships	2.97	.897	196
Daily_Activities	3.19	.992	196
Physical_Health	2.91	1.193	196
Future	3.51	.914	196

In table 2, the highest mean score (5.54), reflecting relatively stronger ratings, was for psychological well-being, whereas the lowest (2.79), was for mood, indicating a domain with lower self-reported satisfaction. Psychological well-being displayed the most variability (SD = 1.978), and relationships the least (SD = 0.897). Here's a detailed interpretation:

Dependent Variable

Psychological Well-Being

- Mean: 5.54 -The average score of Psychological Well-Being among the participants is 5.54 on a scale from 0 to 10. This suggests that, on average, participants perceive their psychological well-being to be slightly above the midpoint of the scale, indicating a moderate level of well-being.
- Standard Deviation: 1.978 (A standard deviation of 1.978, shows that the psychological well-being scores of participants are somewhat varying) Scores are distributed 2 units from the average in all directions, indicating equal amount of variation.

Independent Variables (Range 1 to5)

Self-Image

- Mean: 2.96- This suggests a medium self-image.
- Standard Deviation: 1.059 — The standard deviation is 1.059, indicating a fairly wide spread of participant ratings with respect to their self-image.

Independence

- Mean: 3.40- Independence falls right above the midpoint of the scale with an average score of 3.40. This suggests that participants generally experience a moderate level of mean.
- Standard Deviation: 1.011 – This indicates a moderate amount of variance in participants experience of independence during transition.

Mood

- Mean: 2.79-The average Mood score is 2.79, which falls just below the middle of a basic Feeling Better/Worse scale, implying that participants are reporting a slightly less positive mood overall.
- Standard Deviation: 1.093 - The standard deviation of 1.093 suggests that there was a fair bit of variability within participants' mood ratings.

Relationships

- Mean: 2.97 — The mean score of 2.97 is near the middle of the scale so the participants rather consider their relationship more average.

- Standard Deviation: 0.897 — With a standard deviation, people on average have relatively similar perceptions of relationships with less variability between responses than other variables

Daily Activities

- Mean 3.19- The mean score of 3.19 means that people are somewhat pleased in Daily Activities, i.e., it's just a bit more than mid-level satisfaction.
- Standard Deviation: 0.992 -There is a moderate level of variability in the satisfaction of participants with their daily activities, as indicated by the standard deviation of 0.992.

Physical Health

- Mean: 2.91- The average score for Physical Health is 2.91, which approaches the midpoint of the scale. The value of 13.84 is at or around the middle and shows that this group of participants answers neutrally to how well they feel about their physical health while being slightly negative in favour, suggesting preferably low satisfaction with it.
- Standard Deviation: 1.193- The large standard deviation of 1.193 indicates wide variation in how people perceive their physical health

Future

- Mean: 3.51- The mean score for the Future is higher than 2.5 which is the midpoint on the scale. This is a sign of good sentiment for the future among the participants.
- Standard Deviation: 0.914 — moderate consistency in future outlook among participants

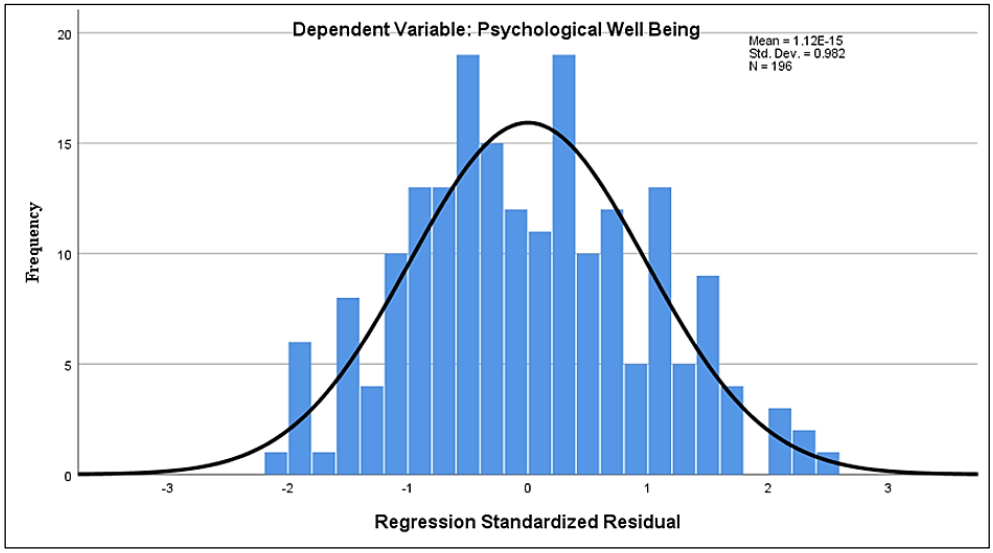

Figure 1: Histogram of Regression Standardized Residuals

The histogram displayed in figure 1 shows regression standardized residuals for the dependent variable, "Psychological Well-Being" (N = 196). As we see with the bell-shaped curve laid over the histogram, the residuals are approximately normally distributed. The average of the residuals is close to 0 (1.12E−15), and its standard deviation is 0.982, indicating that the regression model fits the data fairly well.

Histogram Chart Interpretation

Shape of the Distribution: Bell-shaped curve for the histogram shows that residuals may be normally distributed. This is a great sign since it suggests that the assumption of normality of residuals in our regression model is likely fulfilled.

Mean and Standard Deviation: Because the residuals are supposed to be centered on zero in a well-fitting regression model, we expect that the mean of the residuals is near zero (1.12E-15)**.** The standard deviation S is 0.982, which matches the residual standard deviation in the residuals statistics table. This tells us that the residuals from the mean are mostly well-behaved, and form some kind of regular shape.

Skewness and Kurtosis: There seems to be a slant of histograms towards the right, although it doesn't appear to be very high. Even a fairly skewed distribution is often okay in regression models. There is no sign of too much/not enough weight in the tails of the distribution (no significant kurtosis).

Frequency Distribution: The most likely residuals are concentrated near 0 and become less frequent as the residuals move further from the centre going in either direction. The residuals are evenly normally distributed around the mean as well, with the frequencies about equally spaced from either side of one. Hence, the normality assumptions is met.

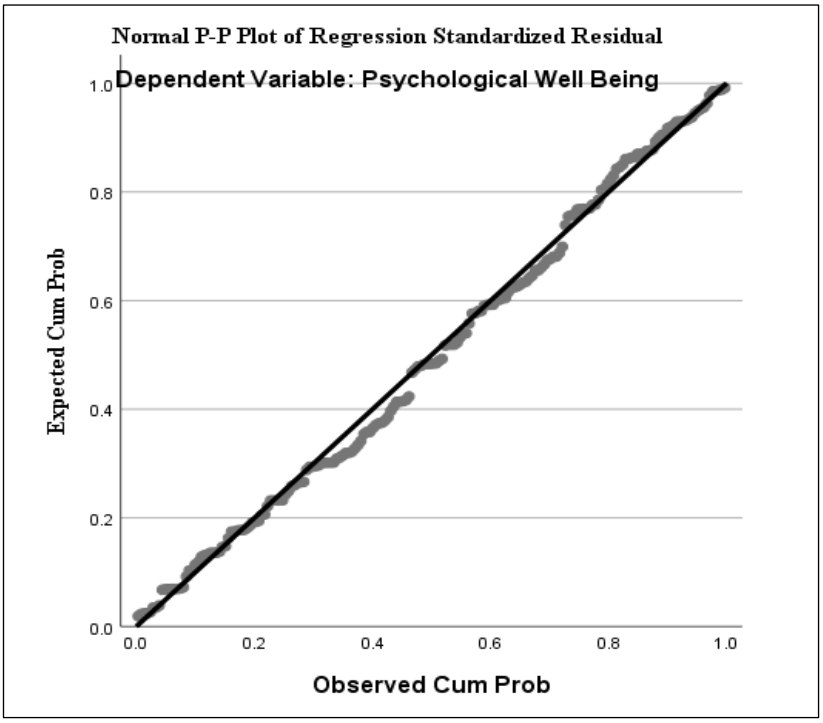

Figure 2: Normal P-P Plot of Regression Standardized Residuals

Figure 2 shows the relationships between the observed cumulative probabilities and the expected cumulative probabilities of the regression standardized residuals for the dependent variable "Psychological Well-Being". The points lie close to a diagonal line, indicating that the residuals are approximately normally distributed. This helps to assume normality in the regression model.

P-P Plot Interpretation

Purpose of the P-P Plot: A P-P plot is used to check whether the residuals from regression model are normally distributed. This compares the observed cumulative probabilities of the residuals to those we would expect from a normal distribution.

The Diagonal Line: The straight diagonal line is the scenario that most closely approximates observation and expectation (that the observed residuals conform to their expected values under a tight normal distribution around 0). This is the normality reference line.

Data Points: The scatter points on the plot illustrate standardized residuals against each instance. Now if the residuals are normally distributed, the points will be close to the diagonal line.

Examination of the Plot:

- Alignment with Line: The points tend to be approximately aligned along the diagonal line, which is a sign of normally distributed residuals. There appear to be some slight differences but nothing too worrying in relation to the assumption of normality.
- Not Systematic: There is no systematic pattern or major deviations from the line, meaning our normality assumption might be good.

It would appear that the standardized residuals from the regression model for Psychological Well-Being are approximately normally distributed based upon the Normal P-P Plot. This also validates the results from the regression to some extent because one of the main assumptions about normality of residuals before conducting Multiple Linear Regression was met. These slight deviations from the line are common, but do not indicate a serious problem with our model.

Table 3: Multicollinearity Identifying for Predictors in the Regression Model

Variables	Tolerance	VIF
Self-Image	.701	1.427
Independence	.636	1.573
Mood	.750	1.333
Relationships	.711	1.406
Daily Activities	.607	1.647
Physical Health	.768	1.302
Future	.766	1.305

In table 3, Tolerance values close to 1 and VIF values below 10 indicate that multicollinearity is not a concern in this model. All variables have acceptable Tolerance and VIF values, meaning they are not highly correlated with each other, and each provides unique information to the model.

Table 4: Residual Statistics

	Minimum	Maximum	Mean	St. Deviation	N
Predicted Value	1.77	9.24	5.54	1.860	196
Residual	-1.418	1.641	.000	.671	196
Std. Predicted Value	-2.025	1.986	.000	1.000	196
Std. Residual	-2.075	2.401	.000	.982	196

(Dependent Variable: Psychological Well-Being)

In table 4, mean values of predicted values vary from 1.77 to 9.24 where residuals (differences between observed and predicted values) with a mean of 0; this shows an unbiased model. Predicted values and residuals also have means of 0 and standard deviations of 1.000 and 0.982 respectively, which indicates appropriate scaling and an adequate model fit.

Interpretation of the Residual Statistics

Predicted Value

Predicted values were values of the dependent variable (Psychological Well-Being) expected by a regression model. The model has a relatively heterogeneous range of predicted values (1.77–9.24), suggesting the model predicts psychiatric mental health status over a wide range. The estimated mean corresponds to a moderate level of psychological well-being.

Residual

Residuals are the differences between the observed values and the predicted values of the dependent variable. The range of residuals (-1.418 to 1.641) shows that the differences between the actual and predicted values are relatively small. The mean residual is 0, which is expected in a well-fitting model. The standard deviation of the residuals (0.671) indicates the average distance that the residuals fall from the mean of the residuals.

Standardized Predicted Value

Standardized predicted values are the predicted values expressed in standard deviation units. The range of standardized predicted values (-2.025 to 1.986) indicates that the predicted values are within approximately ±2 standard deviations from the mean. The mean of the standardized predicted values is 0, and the standard deviation is 1, which aligns with the expected properties of standardized values.

Standardized Residual

Standardized residuals are the residuals expressed in standard deviation units. The range of standardized residuals (-2.075 to 2.401) suggests that most residuals are within ±2.5 standard deviations, which is generally considered acceptable. However, any residuals beyond ±3 standard deviations could be potential outliers. The mean of standardized residuals is 0, indicating that the residuals are centered around 0, as expected in a well-fitting model.

Overall Interpretation

We see from the residuals statistics that the regression model appears to fit the data well. The residuals are evenly distributed and have no very large outlying values, indicating that the model is not badly mis-specified. The standardized residuals and predicted values are within an acceptable range as well indicating that the assumptions of regression model (homoscedasticity & normality) are met.

Table 5: Model Summary for Regression Analysis

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Df1	Df2	Sig. F Change
1	.941[a]	.885	.881	.683	.885	206.407	7	188	.000

a. Predictors: (Constant), Future, Self Image, Mood, Physical Health, Relationships, Independence, Daily Activities. b. Dependent Variable: Psychological Well-Being

In table 5, the R value of 0.941 indicates a high correlation between predictors and the output variable in the model. R Square is 0.885 which indicates 88.5% of the variance in dependent variable can be explained by the model. The model's robustness is validated by the Adjusted R Square (0.881) considering the number of predictors. The standard error of the estimate is 0.683. Sig. F Change (p =. 000) indicates that the model fits better.

Model Summary Interpretation

R (.941): The R value is a multiple correlation coefficient which shows the strength and the direction of a capabilities of linear connection among dependent variable in equation and independent variable set. An R value of 0.941, close to 1 indicates a very strong positive relationship, which means the model is doing a good job of fitting the data.

R Square (.885): R Square (or the coefficient of determination) indicates us how much of the variance in the dependent variable can be explained by the independent variables in our model. An R Square of. 885, i.e., 88.50 % of the variance in Psychological Well-being is explained by the other variables that is, a large value, suggesting the model explains much of the variance.

Adjusted R Square (.881): The Adjusted R Square value is the same as the R Square but has been corrected for the number of predictors in the model. This measure offers a better gauge of the performance of the model – particularly where there are multiple predictors. An Adjusted R Square of 0.881 implies that even after controlling for the number of predictors, Psychological Well-being values remain in model constitutes 88.1% variance explained by baseline. This agrees with the model not having broken yet, and that adding predictors has not added a ton of extra explanatory power.

Std. Error of the Estimate (. 683): The standard error of the estimate is simply the average distance that our observed values fall from the regression line. Having a low standard error generally means our model fits well with the data. In this case, a value of 0.683 indicates the predictions of Psychological Well-being are on average 0.683 units away from the actual observed values.

Change Statistics Interpretation

R Square Change (.885): The R Square Change is the same as the R Square in this case because this is the full model with all predictors included. It confirms that the model explains 88.5% of the variance in Psychological Well-being.

F Change (206.407): The F change value is the F statistic for the significance of the model as a whole. It tests if the explained variance in the dependent variable from the model is significantly greater than what it would be by chance. The model as a whole is statistically significant.

df1 (7) and df2 (188): These are the degrees of freedom associated with the F statistic. df1 represents the number of independent variables (7 in this case), and df2 represents the total number of observations minus the number of predictors minus 1 (196 - 7 - 1 = 188).

Sig. F Change (.000): The p-value — significance value for the F statistic tests the null hypothesis that the model has no explanatory power. A p-value of .000 means that there must be a real relationship between dependent variable and predictors, happening only by 0-1% chance. This high p-value suggests that the model fits the data well. The model is highly effective in explaining the variance in Psychological Well-being, with Self Image, Mood, Physical Health, Relationships, Independence, Daily Activities and Future as significant predictors. The strong R, high R Square, and statistically significant F statistic indicate that the model is a good fit, explaining 88.5% of the variance in the dependent variable. The low standard error further supports the reliability of the model's predictions.

Table 6: ANOVA Table for Regression Model for Predicting Psychological Well-Being

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	674.862	7	96.409	206.407	.000[b]
Residual	87.811	188	.467		
Total	762.673	195			

a. Dependent Variable: Psychological Well-Being
b. Predictors: (Constant), Future, Self Image, Mood, Physical Health, Relationships, Independence, Daily Activities

In table 6, the regression explains much of the variance in the dependent variable (674.862 with 7 df) Residual sum of squares (unexplained variance) is 87.811 with 188 degrees of freedom. The model's F-statistic is 206.407, with a p-value of .000 tells that the predictors are statistically significant on the dependent variable. The listing of the ANOVA results reveals that that the regression model is highly significant (p <. 001), suggesting that the set of our independent variables (Future, Mood, Self-Image, Relationships, Physical Health, Independence and Daily Activities) together explains large proportion of variance in Psychological Well-being. The high F-statistic and the large regression sum of squares compared to the residual sum-of-squares indicate that this model fits the data well, and that a significant amount of the variance in Psychological Well-being is collectively accounted for by all predictors.

Table 7: Coefficients Table (Final Regression Model Predicting Psychological Well-Being)

Model	B	Std. Error	Beta	t	Sig.
(Constant)	-3.112	.248		-12.538	.000
Self-Image	.340	.055	.182	6.161	.000
Independence	.397	.061	.203	6.532	.000
Mood	.332	.052	.184	6.432	.000
Relationships	.584	.065	.265	9.022	.000
Daily Activities	.433	.063	.217	6.833	.000
Physical health	.470	.047	.284	10.042	.000
Future	.251	.061	.116	4.112	.000

In table 7, the intercept is -3.112 and significant contributions of each independent variable can be seen to the dependent variable (p <. 001). "Physical Health" is most prominent among predictors with Beta value (.284), suggesting it has the most relative weightiness impact. Other factors are also significant. The t-values provide evidence that contributions of predictors are overall statistically significant.

Interpretation of Coefficients Table

- **Intercept (Constant)**
- **B = -3.112, Sig. =.000**

Here, the negative intercept is statistically significant at the 0.05 level, indicating that the baseline level of Psychological Well-being would be negative without the contribution of the independent variables.

- **Self-Image**
- **B =. 340, Beta =. 182, t = 6.161, Sig. =. 000**

The positive coefficient (.340) indicates that as Self Image increases, Psychological Well-being also increases. The significance level (.000) shows that the null hypothesis (1) is rejected, meaning Self Image has a statistically significant positive impact on Psychological Well-being.

- **Independence**
- **B =. 397, Beta =. 203, t = 6.532, Sig. =. 000**

The coefficient (.397) and statistically significant (.000), which is more bivariate evidence that higher Independence improves psychological well -being. Thus, null hypothesis (2) is rejected

- **Mood**
- **B =. 332, Beta =. 184, t = 6.432, Sig. =. 000**

The positive coefficient (.332) was used to index Mood and correlated positively with Psychological Well-being. The significance level (.000) rejects null hypothesis (3) i.e. Mood influences Psychological Well-being significantly.

- **Relationships**
- **B =. 584, Beta =. 265, t = 9.022, Sig. =. 000**

The largest positive coefficient (.584) and high Beta value (.265) show that Relationships have a strong and significant positive impact on Psychological Well-being. The null hypothesis (4) is rejected.

- **Daily Activities**
- **B =. 433, Beta =. 217, t = 6.833, Sig. =. 000**

The positive coefficient (.433) indicates that greater satisfaction with Daily Activities improves Psychological Well -Being. The null hypothesis (5) is rejected due to the significant p-value (.000).

- **Physical Health**
- **B =. 470, Beta =. 284, t = 10.042, Sig. =. 000**

The positive coefficient (.470) and high t-value (10.042) suggest that Physical Health strongly and significantly influences Psychological Well-Being. The null hypothesis (6) is rejected.

- **Future**
- **B =. 251, Beta =. 116, t = 4.112, Sig. =. 000.**

The coefficient for Future (.251) indicates that a more positive outlook on the Future leads to better Psychological Well -Being. The null hypothesis (7) is rejected based on the significant p-value.

Key Findings

The p-values (Sig. 0.000) indicate that all independent variables—Self Image, Independence, Mood, Relationships, Daily Activities, Physical Health, and Future—have a statistically significant positive relationships with psychological well-being. Here are the main findings:

Strongest Predictors: It is found that out of all the seven variables, Physical Health has maximum impact on psychological well-being showing highest standardized coefficient. This underscores the importance of the end physical health component in improving psychological health. Relationships come next after physical health. This highlights how crucial support systems and social networks are for ensuring mental well-being.

Moderate Predictors: Both Daily activities and Independence emerge as moderate predictors, indicating that consistent involvement in daily activities and perceived independence play substantial roles in enhancing psychological health. Another significant positive effect is that of Mood and Self Image, illustrating the significance of emotion regulation and high self-perception.

Weakest Predictor: Future has the lowest standardized coefficient and has the least impact on psychological well-being, but it is still statistically significant.

In Summary, all variables have a positive effect on psychological well-being, which is strongest for Physical Health and Relationships, and weakest for Future. The findings in this study are in accordance with the several other studies where it is depicted that discrimination was negatively related to mental health and quality of life (1). Mental health of transgender people is mostly ignored as has been pointed out by (17). They are mostly deprived of the basic health care facilities which deteriorate their physical as well as psychological well-being. (18). There is an urgent need to address both physical and mental health in gender-diverse communities by not only raising awareness of their healthcare rights but also removing social and structural barriers to health programs, increasing targeted health interventions, grassroots activism, and government advocacy (5).

Conclusion

All the independent variables as used in the equation no. [1] i.e., Self Image, Independence, Mood, Relationships, Daily Activities, Physical Health, and Future—have a statistically significant positive impact on Psychological Well-being. Among these, Relationships and Physical Health have the strongest impacts, as evidenced by their higher standardized coefficients (Beta) and t-values. Future has the least impact on Psychological Well-being, though it is still significant. These results suggest that improving any of these aspects can enhance the transgender individual's Psychological Well-being, with a focus on Relationships and Physical Health providing the most substantial benefits. For affirmative mental health care specific to transgender people, this includes managing the special issues they face while also affirming their identification and helping them in self-acceptance. Examples of such a strategy may include gender transition support, addressing the effects of prejudice and violence while building resilience and coping skills in transgender individuals who live with ongoing social problems. Transgender people provided care that affirms gender identity are found to be healthier and significantly less likely to report symptoms of depression, anxiety, suicidal; at least if able to access it (16). This includes the support from the LGBTQ community at large. Transgender people who have family, friends or are connected to transgender-specific organisations will often

present with better mental health outcomes than those that don't have. These groups promote a sense of community by celebrating, upholding and respecting the underlying answer overlooked or misunderstood: there is no wrong way to be queer — only judged for it. In particular transgender peopled gain a lot from peer support as it provides them space to discuss their experiences, informing them and building solidarity with others who have faced similar challenges (6).

Resource-based on added that the high prevalent of mental disorders among transgender people highlights a "critical need for available and culturally competent trans-affirmative health services. Old mental health treatments that disregard trans lives only add to the suffering, and they may lead not just to ineffective treatment but also further harm. For instance, mental health professionals who are not well-versed in transgender issues might reinforce derogatory stereotypes or neglect the more fundamental social determinants of mental health—things like discrimination and violence (6). This shows that mental health practitioners need to receive training in transgender health so they can engage with affirmative care, not just any affirmations of identity. Another important area for intervention is research. There should be more exploration of mental health care needs among transgender individuals, including those who live with intersecting marginalized identities. While there has been an increase in the number of studies describing mental health issues among transgender people, few have examined intervention strategies for addressing these negative outcomes. More research is needed to determine the most effective means of promoting mental health among transgender individuals, along with a better understanding of how best to tailor interventions for subgroups within this community (e.g., trans people of colour, youth and those living with disabilities) as well. This identity specific community faces unique challenges i.e., stigma, discrimination & assault without access to affirming healthcare resulting in an increased likelihood of experiencing mental health conditions. The only way to rectify these disparities is by delivering culturally competent, affirmative mental health care that recognizes and addresses transgender people's individual needs. Even more broadly, this will demand systemic changes like anti-discrimination laws and public awareness campaigns about transgender identity or gender health disparities as a whole. This dual focus, on both individual- and structural-level variables that impact transgender people's mental health is necessary to ensure a world in which all peoples—regardless of gender identity—have the ability to lead healthy lives.

Study's Limitations

Given that the study demonstrates a statistically significant positive influence of Self-Image, Independence, Mood, Relationships, Daily Activities, Physical Health, and Future on Psychological Well-Being, it is noteworthy to mention the limitations of using a cross-sectional design in this context that should be taken into account when interpreting the results.

Lack of Causality: One of the major shortcomings of cross-sectional studies is that they do not establish cause and effect relationship between variables. While this study finds significant associations between psychological well-being and the independent variables, it does not ascertain whether enhancing these elements leads to improvements in well-being or whether those with higher well-being are also those more inclined to score higher on one or more of these independent variables.

Snapshot Nature of the Design: One limitation of cross-sectional studies is that they only measure an association at a single point in time which makes determining a change in the association over time impossible. Psychological well-being and what affects it are in constant flux, subject to the variances of life events, environment, or interventions. The absence of longitudinal data means such a study can say nothing about the directionality of these variables, or whether positive change in variables such as Relationships or Physical Health might, in turn, improve psychological wellbeing over the long term.

Potential for Bias: Findings should be assessed in the context of biases underlying cross-sectional designs. If the sample is not representative of the larger transgender population, selection bias may occur. For instance, people taking part may be skewed towards certain socio-economic categories or geographic locations or networks of support that are not representative of the broader population of trans people.

Effect of Confounding Variables: The associations identified between the independent variables and psychological well-being could also be susceptible to the influence of confounding variables that were neither measured nor factored into the analysis. To illustrate, socio-economic status, access to healthcare, and societal stigma may have consequences on Relationships, Physical Health and psychological well-being at the same time. Although the study adjusts for certain variables, it's been stated that there are many confounding variables that cannot be adjusted for, leading to a modest robustness in the findings. In addition, the relationships may be moderated by cultural and environmental factors, making generalizations even more complex.

Different Types of Measurement Scales: The scales for measurement used can also affect how the results are interpreted. Variability in ratings due to differences in how participants perceive and rate constructs (such as Independence or Mood) may not accurately reflect the actual impact of these variables. The measures cannot resolve the problem of nature of the constructs being very subjective to quantify and standardize as the measure such as standardized coefficients and t-values denotes only relative strength.

Policy Implications

The lower mental health from transgender people highlights critical public health and social justice attention required, calling for holistic and inclusive policy interventions. Transgender people experience severe systemic discrimination, and access to healthcare and social support are often lacking, all leading to adverse mental health outcomes. To counter these challenges, specific policies that foster equity, inclusion, and the needs of the transgender community are essential.

Enhancing Anti-Discrimination Laws

Transgender people also routinely encounter discrimination in employment, education, housing and public life. Such discrimination compounds feelings of isolation, stress, and inadequacy, with a significant adverse effect on psychological well-being.

Workplace Protections: Policies should clearly ban workplace discrimination based on gender identity. Transgender people often experience higher rates of unemployment and economic insecurity because of discrimination and exclusion. Working towards more equitable work environments and more financially stable populations through strengthening anti-discrimination laws and holding employers accountable through diversity and inclusion training will contribute to stable mental health.

Education and Housing Protections: Harassment or exclusion in educational institutions and housing is reported by many transgender people. Policy should create safe and affirming environments in schools and universities by including anti-bullying strategies and supporting gender-affirming practices. Housing laws should also include protections against being evicted or denied housing because of gender identity.

Public Accommodations: Anti-discrimination laws on a broad basis must protect transgender people from harassment or denial of access in any public space, including healthcare, work, and recreation. If policymakers implement strong anti-discrimination laws to remove the root cause of lower psychological well-being in transgender persons, they could foster a healthy thriving environment.

Broaden the Access to Health Care

Access to healthcare is one of the most basic determinants of psychological well-being. Transgender patients often face formidable obstacles to accessing appropriate medical care, including stigma, inadequate cultural competence among health care professionals, as well as financial barriers.

Gender-Affirming Care: Policymakers must make gender-affirming care, including hormone therapy, surgeries, and mental health counselling, accessible and covered by insurance. Affirmative care has been scientifically proven to improve mental health outcomes by reducing gender dysphoria and improving self-esteem for transgender individuals.

Culturally Competent Care: Healthcare providers should be trained to deliver culturally competent, respectful and affirming care to transgender patients. This means, understanding different health risks and combating institutional biases within medical frameworks.

(Transgender) Mental Health Services: Development of comprehensive mental health care services based on the needs of transgender

individuals. Policies need to expand access to affordable therapy, crisis intervention and support groups, especially for those who are experiencing depression, anxiety or trauma related to discrimination.

Work with Policymakers to Reduce Financial Barrier: Policymakers need to reduce financial barrier by mandating coverage for gender-affirming treatments and mental health services under public and private insurance plans. Uninsured or low-income people should likewise have access to subsidized or low-cost options.

Expanding Social Support Services

Social supports are critical elements of psychological well-being. But stigma and rejection by family, peers or communities often leave transgender people socially isolated.

Community-Based Support Programs: Governments and organizations must have centres and peer support for transgender individuals. These spaces provide a sense of belonging, norms, and shared experience, all of which have proven important for mental health.

Family Support Initiatives: Aligning with family support principles, policies should prioritize gender inclusivity programs designed to educate families on gender identity as well as to empower family members to support their transgender loved ones. Family acceptance is a major factor influencing the psychological well-being of transgender individuals. Elder Transgender youth are particularly at risk for mental health issues due to bullying, rejection, and struggles with identity.

Public Awareness Campaigns: Large-scale campaigns can be held to combat transphobia and promote understanding and acceptance of transgender individuals within society. These efforts should emphasize the value of inclusivity and the mental health benefits of social acceptance. Enhanced social support services can mitigate the negative consequences of isolation and discrimination, arming transgender persons with the structure and networks necessary for psychological to perseverance. Tackling these challenges is not only a question of social justice but also an urgent task for public health. It is vital for policymakers to prioritize these measures, enabling transgender people to have a life of dignity, respect, and equal access to psychosocial well-being.

Abbreviation

Nil.

Author Contributions

All authors have contributed equally.

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Conflict of Interest

There was no conflict of interest between the authors.

Ethics Approval

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