

Smartphone Usage as a Predictor of Psychological Wellbeing among College Students

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ABSTRACT

Wellbeing is a state of good physical, psychological and social functioning of an individual enabling him to function in coherence with self and society. While health indicates the state of the body and mind, wellbeing refers to the positive side of physical, psychological and social functioning. Physical and psychological wellbeing is concerned just with the individual and social wellbeing is the ability to be in coherence with the society and maintaining good social relationships. Smartphone usage is a very important factor that needs to be studied in relation to their wellbeing as college students spend most of their time with their smartphone. In the present study, correlational research design was used to study the relationship between smartphone usage and their psychological wellbeing based on the objectives and hypotheses which need not be a cause and effect relationship. The study was carried out in Kakinada (also popular as Co-Canada), Andhra Pradesh. The sample size was 400 college students. The age group of the sample ranged from 16-25 years. The findings of the study indicated that the total psychological wellbeing of the college students showed negative correlation with ritualistic and problematic smartphone usage but not instrumental usage where the students used it for goal directed activities. Autonomy was the only psychological variable which was not predicted by smartphone usage. Instrumental smartphone use positively predicted some of the dimensions of psychological wellbeing but other usage patterns i.e., ritualistic and problematic usage negatively affected the psychological wellbeing.

Keywords: Smartphone ,psychological, wellbeing , college Students

INTRODUCTION

Wellbeing is a state of good physical, psychological and social functioning of an individual enabling him to function in coherence with self and the society. While health indicates the state of the body and mind, wellbeing refers to the positive side of physical, psychological and social functioning. Psychological wellbeing is an important predictor of overall subjective wellbeing and happiness. According to Ryff's psychological wellbeing (PWB) theory, PWB includes self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth. However PWB is synonymous to Mental Health which is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community by World Health Organization. WHO also stresses that it is not the mere absence of mental illness. Optimal mental health is essential for optimal functioning of an individual and also to contribute as a productive member of the society. Apart from many factors affecting the mental health of the young people, usage of technology especially smartphones is also contributing to the major chunk of the problem.

This problem being a matter of concern throughout the globe, a vast research is going on to study the effect of smartphones and other mobile devices on the mental health of the young people.

Availability of smartphones at lower prices, low tariffs and uninterrupted internet connectivity are the fundamental causes for the increased usage of smartphones by college students. In the post pandemic scenario of digitalized education system, smartphone has become a wide teaching-learning tool. In view of this constant engagement with the smartphones, there is a need to study the wellbeing of the users in the light of smartphone usage. As per the studies conducted in various parts of the world, over usage of smartphones by the young people had many detrimental effects on their health like musculoskeletal problems (Gustafsson, 2017), vision problems (Sadagopan, 2017), sleep disturbances (Zencirci, 2018), headaches (Hillert et al., 2008), obesity (Kim, 2015), anxiety, withdrawal symptoms, impulsiveness (Aker, 2017), and stress (Körmendi, 2015). Also two peculiar behaviors, Nomophobia (No Mobile Phobia) and Ringxiety (Phantom Vibration Syndrome) were identified among the excessive users of smartphones (Sonu et al., 2013). Dasgupta (2017) identified that the engineering students were more nomophobic compared to medical students and especially females who owned smartphones for more than two years and spent more than 4 hours daily on smartphone. Similarly Tangmunkongvorakul et al., (2019) conducted a study on university students and found that excessive smartphone users had lower scores on psychological wellbeing compared to their counterparts which could also be bidirectional. The present study was an attempt to study and understand how the smartphone usage has affected the various dimensions of psychological wellbeing.

Objectives

1. To study the smartphone usage of College Students
2. To investigate the relationship between Smartphone Use and the Psychological wellbeing of the college students

Hypothesis

No relationship exists between smartphone usage and psychological wellbeing of colleges students

METHODOLOGY

Research design: A correlational research design was used to study the relationship between the independent and dependent variables based on the objectives and hypotheses. In the present study, the investigator's aim was to study the relationship between the smartphone usage of the college students and their psychological wellbeing.

Locale of the study: The study was carried out in Kakinada (also popular as Co-Canada), Andhra Pradesh which is globally famous for its sweet Kakinada kaja and Uppada Jamdani sarees. Kakinada is a hub of educational institutions with reputed medical, engineering, degree and PG colleges both government and private catering to the academic needs of the students from various villages and towns of the district. Due to good transportation facilities, students from nearby places commute to Kakinada for pursuing education.

Sample: The sampling method used in the present study was Purposive sampling. College Students of intermediate, vocational, Undergraduate and Post Graduate colleges were included in the study. Colleges for the study were selected through random sampling. The sample size was 400 college students. The age group of the sample ranged from 16-25 years.

Research Tools:

To measure the variables of the study, various tools used were as follows:

1. General Questionnaire to measure the demographic variables
2. Smartphone Usage Questionnaire (42 item) was developed by the investigator to study patterns and purpose for which the college students used their smartphone. The questionnaire was developed based on Uses and Gratification theory developed by Katz, Blumler, and Gurevitch in 1974. Based on the use or the gratification, the items were divided into three categories viz., Instrumental use (Goal directed and purposeful behavior), Ritualistic use (Stereotypical use without any significance attached to it) and Problematic use (Preoccupation with smartphone, excessive money and time spent on it and used in physically and psychologically inappropriate situation). Apart from the instrumental and ritualistic uses explained in Uses and Gratification theory, the investigator has added problematic use which covered the items that could not be included in those categories and which indicated the overuse and problematic behaviors with regard to smartphone use.
3. Ryff's psychological wellbeing scale was used to study the psychological wellbeing of the college students as it is grounded on a strong six factor model theory especially with an emphasis on the positive functioning of the individuals.

Statistical tools:

Statistical analysis was conducted in SPSS and advanced Excel Data Analysis. Means, Standard Deviations, Pearson's Correlation Coefficient and Multiple Regression Analysis were performed to study the relationship between the variables.

FINDINGS AND DISCUSSION

Table 1. Demographic profile of the respondents:

| Variable | | Frequency(n=400) | Percentage |
|--------------------|------------|------------------|------------|
| Age | 16-20 | 209 | 52 |
| | 21-25 | 191 | 48 |
| Gender | Male | 142 | 34 |
| | Female | 258 | 66 |
| No of siblings | 0 | 29 | 6 |
| | 1 | 210 | 51 |
| | 2 | 144 | 35 |
| | >2 | 29 | 7 |
| Type of family | Nuclear | 338 | 82 |
| | Joint | 45 | 11 |
| | Extended | 29 | 7 |
| Mother's Education | Illiterate | 189 | 46 |
| | Schooling | 165 | 40 |
| | College | 21 | 5 |
| | Graduation | 29 | 7 |
| | PG | 8 | 2 |

| | | | |
|--------------------|-------------------|-----|----|
| Father's Education | Illiterate | 161 | 40 |
| | Schooling | 107 | 26 |
| | College | 54 | 13 |
| | Graduation | 78 | 19 |
| | PG | 12 | 3 |
| Family Income | Less than 1 Lakh | 276 | 69 |
| | 1-7Lakhs | 108 | 27 |
| | 7 Lakhs and above | 16 | 4 |

The demographic profile (Table 1) indicated that the college students in the age group of 16-20 were 52 percent and 21-25 were 48 percent. Majority of the sample were females (258) and males 142. The table also indicated that only a six percentage of the respondents were single child in the family and the majority of them had 1 or 2 siblings. Nearly 82 percent of them belonged to nuclear families while the other 18 percent belonged to joint and extended families which was in tune with the trend in the present society. Both the mothers and fathers of majority students were illiterates (40%) and only 2 to 3 percent of the parents were post graduates in the present study. Nearly 70 percent of the sample belonged to very low income status and their family income was less than a lakh per annum and only a meagre percent of them had the annual income of 7 lakhs and above.

Relationship between smartphone usage and psychological wellbeing of college students

Smartphone usage has become so wide among the college students that they are continuously engaged with their smartphones for more time than intended and they are emotionally attached to their phones .They spent more time virtually than in the real world. Most of the time which would be otherwise spent for purposeful activities is spent on smartphone. The college student's wellbeing might get effected due to such behaviors for a longer period of time. Previous studies indicated that excessive smartphone usage was associated with depression, anxiety and stress (Boumosleh & Jaalouk, 2017).A significant negative correlation was found between smartphone usage and psychological wellbeing (Kumca?iz, 2016, Horwood, 2019). In the present study, using Ryff's Psychological Wellbeing scale, the multiple dimensions of psychological wellbeing were studied in relation to smartphone use. The results were categorized into low, medium and high and presented in table 2.

Table 2. Psychological wellbeing of the college students.

| Dimensions of Psychological Wellbeing | Girls | | Boys | | Total | | Mean Scores and Standard deviation |
|---------------------------------------|-------|----|------|----|-------|----|------------------------------------|
| | n | % | n | % | n | % | |
| Autonomy | | | | | | | |
| Low(7-16) | 23 | 9 | 24 | 17 | 47 | 12 | 21.78±4.75 |
| Medium(17-25) | 169 | 65 | 92 | 65 | 261 | 65 | |
| High(26-35) | 66 | 26 | 26 | 18 | 92 | 23 | |
| Environmental Mastery | | | | | | | |
| Low(7-16) | 43 | 17 | 20 | 14 | 62 | 15 | 21.86±5.10 |
| Medium(17-25) | 147 | 57 | 95 | 67 | 243 | 61 | |
| High(26-35) | 68 | 26 | 27 | 19 | 95 | 24 | |
| Personal Growth | | | | | | | |
| Low(7-16) | 18 | 7 | 14 | 10 | 32 | 8 | 22.36±5.31 |
| Medium(17-25) | 168 | 65 | 96 | 68 | 264 | 66 | |
| High(26-35) | 72 | 28 | 32 | 22 | 104 | 26 | |

| Positive Relations in Life | | | | | | | |
|--------------------------------------|-----|----|-----|----|-----|-------|--------------|
| Low(7-16) | 16 | 6 | 11 | 8 | 27 | 7 | 23.62±5.56 |
| Medium(17-25) | 144 | 56 | 100 | 70 | 244 | 61 | |
| High(26-35) | 98 | 38 | 31 | 22 | 129 | 40 | |
| Purpose in Life | | | | | | | |
| Low(7-16) | 19 | 7 | 13 | 9 | 32 | 8 | 22.64±4.61 |
| Medium(17-25) | 164 | 64 | 98 | 69 | 262 | 65.5 | |
| High(26-35) | 75 | 29 | 31 | 22 | 106 | 26.5 | |
| Self-Acceptance | | | | | | | |
| Low(7-16) | 18 | 7 | 17 | 12 | 35 | 8.75 | 22.72±4.71 |
| Medium(17-25) | 158 | 61 | 98 | 69 | 256 | 64 | |
| High(26-35) | 82 | 32 | 27 | 19 | 109 | 27.25 | |
| Total Psychological Wellbeing | | | | | | | |
| Low | 10 | 4 | 3 | 2 | 13 | 3 | 134.53±21.94 |
| Medium | 192 | 74 | 125 | 88 | 317 | 79 | |
| High | 56 | 22 | 14 | 10 | 70 | 18 | |

Table 2 indicated that Autonomy, a sense of independence and self-determination was found to be neither high nor low.65 percent of both boys and girls were found to have medium levels of autonomy. Mean score was 21.78 which indicated that majority of the respondents were having medium levels of Autonomy.

Environmental mastery, the ability to manage oneself and surroundings was medium in majority of both boys (57%) and girls (67%). Out of the total respondents, 15 percent had low Environmental mastery, 61 percent had medium Environmental Mastery and 24 percent of them had high Environmental Mastery. Mean scores of Environmental Mastery was 21.86 which showed that the majority of the respondents had medium levels of Environmental Mastery.

The age group of the sample were mostly in adolescent and young adult stage of development, a phase where they were not completely independent nor completely dependent which could be the reasons for medium levels of autonomy and environmental mastery.

Personal Growth which referred to the need for continuous personal improvement was found to be low among 7 and 10 percent of girls and boys respectively. More than 90 percent of the respondents had medium to high levels of personal growth which could be explained by the fact that majority of the respondents were first generation learners which might have motivated them to seek constant and continuous personal growth.

Positive Relations in Life is the ability to maintain warm and satisfying relations with others and caring and concern for others. In the present study, less than 10 percent of them were low on positive relations in life. Nearly half of the girls (56%) scored medium on Positive Relations in Life while three fourth of the boys scored medium on this construct. More girls (38%) were having high positive relations in life compared to boys (22%).It was inferred that almost 90 percent of them had the ability to maintain positive relations with others which was the most important aspect for good psychological wellbeing.

Purpose in Life is a construct indicating goal orientedness and a sense of direction in life. In this construct, less than 10 percent of both the boys and girls scored low and nearly one third of both boys and girls scored high. Mean score was 22.64 which fell under medium category indicating that the majority of them had

medium levels of this construct. It was very positive to note that more than 90 percent had a sense of direction and goal orientedness in life which is very important for positive functioning of an individual.

Self-Acceptance is a trait of accepting self with both the positives and negatives. Nearly 10 percent of the respondents had low self-acceptance and boys a little higher in number compared to the girls. In the medium category, girls and boys were 61 and 69 percent respectively. Thirty two percent of the girls scored high Self-acceptance while only 19 percent of the boys scored high. However Kalantarkousheh (2012) found that males and females were in good condition with relation to autonomy and self-acceptance and males scored higher on Ryff’s self-acceptance compared to females.

Psychological wellbeing of the college students

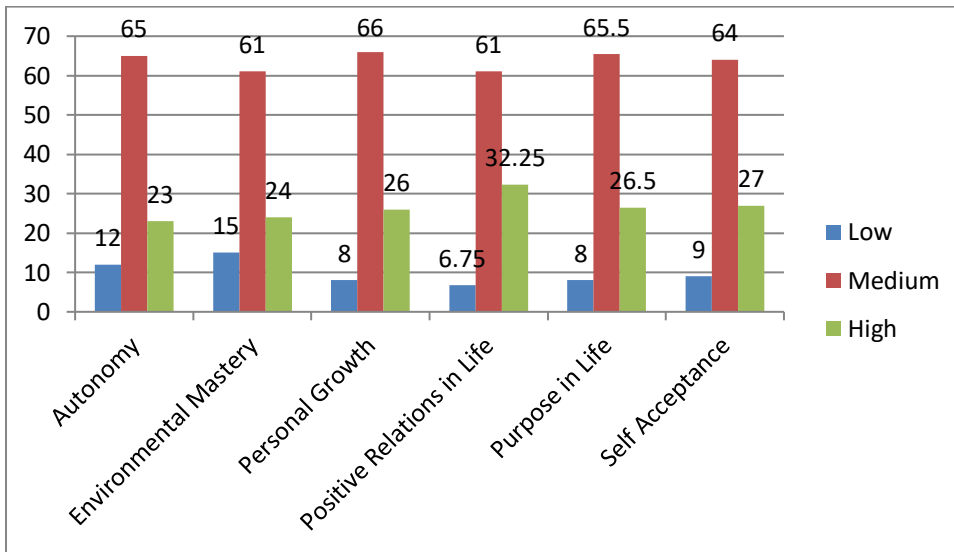


Figure 1. Psychological wellbeing of the college students

Figure 1 indicated that the respondents scored medium in almost all the dimensions of psychological wellbeing. Very few were found scoring low indicating that the college students had good psychological wellbeing. However, the long term and excessive usage of smartphone might have affected the wellbeing of the college students. To find out whether there existed any relationship between smartphone usage and psychological wellbeing of college students, Pearson Correlation Coefficients were calculated and the results were presented in table 3.

Table 3. Relationship between smartphone usage and psychological wellbeing of college students

| Dimensions of Wellbeing | Instrumental Use | | Ritualistic Use | | Problematic Use | | Total Smartphone Use | |
|-------------------------------|------------------|--------------|-----------------|---------------|-----------------|---------------|----------------------|----------------|
| | R Value | P Value | R Value | P Value | R Value | P Value | R Value | P Value |
| Autonomy | -.078 | .118 | -.093 | .062 | -.091 | .068 | -0.096 | 0.055 |
| Environmental Mastery | -.103 | .039* | -.182 | .000** | -.213 | .000** | -.189 | 0.000** |
| Personal Growth | -.028 | .572 | -.137 | .006** | -.143 | .00488 | -.122 | .0148 |
| Positive Relations | -.040 | .425 | -.148 | .003** | -.157 | .002** | -.135 | .007** |
| Purpose in Life | -.087 | .084 | -.133 | .008** | 195 | .000** | -.157 | .002** |
| Self-Acceptance | -.040 | .427 | -.100 | .046* | -.141 | .005** | -.109 | .029* |
| Total Psychological Wellbeing | -.093 | .064 | -.192 | .000** | -.229 | .000** | -.197 | .000** |

The table 3 indicated that Instrumental Smartphone usage which is a goal oriented and purposeful usage of

smartphone was negatively correlated with Environmental mastery at 0.5 level of significance ($p=0.039$). For all the other constructs, no significant relationship was found with instrumental use.

Ritualistic Smartphone Use which indicated stereotypical use without any significant purpose was found to be negatively correlated with all the dimensions of psychological wellbeing except Autonomy.

Problematic Smartphone use where the users were preoccupied with their smartphone and exhibited problematic smartphone behaviors was found to be negatively correlated with all the dimensions of psychological wellbeing except Autonomy.

Total smartphone usage was found to be negatively correlated with all dimensions of psychological wellbeing except Autonomy and Environmental mastery.

Autonomy as per Ryff's psychological wellbeing model indicates one's capacity to be in-charge of their life and to resist psychological pressures to behave in a negative way. In the present study, Autonomy did not show any relationship with smartphone usage. This indicated that smartphone usage did not affect the autonomy of college students. The possible explanation for these results could be that the majority of the college students participating in the study were first generation learners and hailed from low socioeconomic backgrounds. Parent's illiteracy, being young adults and pursuing higher education, might demand to take not only personal decisions but also family decisions developing strong autonomy and also the ability to resist psychological pressures.

Environmental Mastery, the ability to manage the surrounding environment and able to effectively utilize the opportunities in the surrounding environment was found to have highly significant negative correlation with Instrumental use ($p=0.039$) at 0.05 level of significance and at 0.01 level of significance with Ritualistic Use ($p=0.001$), Problematic Use ($p=0.001$) and Total Smartphone Use ($p=0.001$). This indicated that as the smartphone increased, the environmental mastery decreased. This would be justified by the fact that as college students excessively used their smartphones for longer time, they tend to lose control over their management of the surroundings and also lag in utilizing the available opportunities in the surrounding environment. These results were in congruence with the findings of Afradi (2017) who found that dependence on modern communication tools negatively affected the environmental mastery of students in Iran. There was also extensive literature indicating that excessive smartphone usage was a strong predictor of depression, anxiety, insomnia and daytime dysfunction (Demirci, 2015) indirectly affecting environmental mastery.

Personal Growth is a sense of improvement over time, openness to new experiences, changing the ways that reflect more self-knowledge and effectiveness. In the present study, personal growth was found to be significantly negatively correlated with both Ritualistic and ($p=0.006$), Problematic Smartphone Use ($p=0.004$) but did not show any significant correlation with instrumental use. So ritualistic and problematic smartphone use negatively affected the personal growth. These findings were in congruence with the previous study by Afradi (2017) who also found a negative correlation between excessive dependence on communication tools and their personal growth. Previous literature on smartphone usage also revealed that excessive smartphone usage decreases the concentration span and the ability to focus among the users. (Kushlev, 2016, Gupta, 2016). A study also found that excessive smartphone usage led to digital overload which distracted the information processing capacity leading to other negative outcomes (King & Dong, 2017).

Positive Relations in Life is an important dimension of psychological Wellbeing which refers to the sense of warm and trusting relationship with others and having strong empathy, affection and intimacy. The findings of the present study revealed that Ritualistic Use ($p=0.03$), Problematic use ($p=0.02$) and Total Smartphone Use ($p=0.007$) were having statistically high negative correlation with Positive Relations in Life. Spending

more time with smartphones might have limited the time for face to face interaction affecting their capacity to maintain positive relations in life. Studies indicated that extreme behaviours like narcissism and withdrawal symptoms were found to be increasing in users with excessive smartphone usage (Hussain, 2017). George (2018) found that adolescents who spent more time online were found to be exhibiting more conduct and self-regulation problems.

Purpose in Life indicates the sense of goal oriented-ness and a sense of direction in Life which forms a major trait to achieve success in life. In the present study Purpose in Life was found to be statistically negatively correlated with Ritualistic Use ($p=0.008$), Problematic Use ($p=0.000$), and Total Smartphone Use ($p=0.002$) which indicated that as the smartphone use increased, purpose in life decreased. These findings were in accordance with a study by Afradi (2017) who also found that excessive dependence on communication tools negatively affected purpose in life among the students.

Self-Acceptance is a trait of accepting oneself whether good or bad and feeling positive about the past which highly determines the personality of a human being. The present study indicated that Self-Acceptance was negatively correlated with Ritualistic Smartphone Use ($p=0.46$), Problematic Smartphone Use (0.05) and Total Smartphone Use (0.029) at 0.05 level of statistical significance. Hence more the smartphone usage, less was the self-acceptance. On social media, college student’s tendency to compare themselves with global peers on long run might have affected the self-acceptance.

Total Psychological Wellbeing was found to be negatively correlated with Ritualistic Smartphone Use (0.001), Problematic Smartphone Use (0.001) and Total Smartphone Use (0.001) with a statistically high level of significance. Previous literature was in line with the findings as it was found that wellbeing and mental health were negatively affected by excessive smartphone usage (Akashe, 2014).

It was an important finding that instrumental smartphone use has not affected the psychological wellbeing but ritualistic and problematic use negatively affected the psychological wellbeing.

H₀: No relationship exists between smartphone usage and psychological wellbeing of college students

Null hypothesis rejected at 0.01 level of significance

Prediction of psychological wellbeing with smartphone use

It was found that except autonomy, all the other dimensions of psychological wellbeing had shown significant negative relationship with smartphone usage. Multiple regression analysis was carried out to study the strength and magnitude of the relationship.

Prediction of Autonomy with Smartphone Usage

Table 4 a. Model summary of prediction of autonomy with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---------|----------|-------------------|----------------------------|
| 1 | .096(a) | .009 | .002 | 4.70495 |

A Predictors: (Constant):Smartphone usage patterns Dependent variable: Autonomy

The model summary indicated that R^2 value was 0.009 which was a low variation (0.9%) caused in the dependent variable autonomy by the independent variable smartphone usage. The R value 0.096 indicated

the simple correlation between the observed variables and a predicted variable which was very low (9.6%).

Table 4 b. ANOVA (b) of Prediction of autonomy with smartphone usage

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|---------|
| 1 | Regression | 81.916 | 3 | 27.305 | 1.233 | .297(a) |
| | Residual | 8766.074 | 396 | 22.137 | | |
| | Total | 8847.990 | 399 | | | |

A Predictors: (Constant) :Smartphone usage patterns b. Dependent variable: Autonomy

The ANOVA table indicated that the regression model did not predict the dependent variable Autonomy as the level of significance was 0.297 >0.05

Table 4 c. Coefficients (a) of Prediction of autonomy with smartphone usage

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | t | Sig. |
|-------|--------------|-----------------------------|------------|---------------------------|-------|------|------|
| | | B | Std. Error | Beta | B | | |
| | Instrumental | .002 | .070 | .003 | .030 | .976 | |
| | Ritualistic | -.008 | .075 | -.021 | -.112 | .911 | |
| | Problematic | -.012 | .040 | -.079 | -.307 | .759 | |

Predictors: (Constant) : Smartphone usage patterns Dependent variable: Autonomy

From the table it was evident that there was no statistically significant relationship between the independent variable smartphone usage and the dependent variable autonomy as p value was greater than the level of significance.

Prediction of Environmental Mastery with Smartphone Usage

Table 5 a. Model summary for prediction of environmental mastery with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---------|----------|-------------------|----------------------------|
| 1 | .226(a) | .051 | .044 | 4.99760 |

Predictors: (Constant):Smartphone usage patterns

Independent variable: Environmental mastery

The model summary indicated that the R² value was 0.051 which indicated that the independent variable smartphone usage was causing 5.1 percent variation in the dependent variable Environmental Mastery. R value showed the correlation between the observed values and the values predicted by the regression model. R value 0.226 indicated that the prediction was moderate (22.6 percent).

Table 5 b. ANOVA (b) for Prediction of environmental mastery with smartphone usage

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|---------|
| 1 | Regression | 533.958 | 3 | 177.986 | 7.126 | .000(a) |
| | Residual | 9890.482 | 396 | 24.976 | | |

Predictors: (Constant): Smartphone usage patterns

Dependent Variable: Environmental Mastery

ANOVA table indicated that the regression model predicted the dependent variable significantly well as the p value (0.0001) was less than the level of significance 0.01.

Table 5 c. Coefficients (a) for Prediction of environmental mastery with smartphone usage

| Predictors | | Unstandardized Coefficients | | Standardized | T | Sig. |
|------------|--------------|-----------------------------|------|--------------|--------|------|
| | | | | Coefficients | | |
| 1 | (Constant) | 24.529 | .992 | | 24.717 | .000 |
| | Instrumental | .188 | .074 | .286 | 2.540 | .011 |
| | Ritualistic | .103 | .080 | .243 | 1.299 | .195 |
| | Problematic | -.114 | .043 | -.662 | -2.648 | .008 |

Predictors: (Constant) :Smartphone usage patterns

1. Dependent variable: Environmental Mastery

From the table, B values indicated that problematic smartphone usage predicted 0.114 percent variation in the dependent variable environmental mastery .? value (.662) indicated that the strength of the prediction of dependent variable by the independent variable problematic smartphone usage was high.

Prediction of Personal Growth with Smartphone Usage

Table 6 a. Model summary for prediction of personal growth with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---------|----------|-------------------|----------------------------|
| 1 | .188(a) | .035 | .028 | 5.02179 |

1. Predictors: (Constant): Smartphone usage patterns
2. Dependent Variable: Personal Growth

The above model summary indicated that the variation caused by the independent variable smartphone usage on the dependent variable personal growth was 3.5 percent as R2 value was 0.035.R value 0.188 indicated that the prediction was moderate.

Table 6 b. ANOVA (b) for Prediction of personal growth with smartphone usage

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|----------|
| 1 | Regression | 367.437 | 3 | 122.479 | 4.857 | .002(a)* |
| | Residual | 9986.460 | 396 | 25.218 | | |
| | Total | 10353.898 | 399 | | | |

a Predictors: (Constant) :Smartphone usage patterns b Dependent Variable: Personal Growth

The ANOVA table indicated that the regression model predicted the dependent variable well as the p value was 0.02 <0.01 level of significance.

Table 6 c. Coefficients (a) for prediction of personal growth with smartphone usage

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|-------|--------------|-----------------------------|------------|---------------------------|--------|------------|
| | | B | Std. Error | Beta | B | Std. Error |
| 1 | (Constant) | 23.858 | .997 | | 23.925 | .000 |
| | Instrumental | .192 | .074 | .293 | 2.579 | .010* |
| | Ritualistic | .032 | .080 | .075 | .396 | .692 |
| | Problematic | -.075 | .043 | -.442 | -1.752 | .081 |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Personal Growth

The table indicated that Ritualistic Use and Problematic Use did not predict the Personal growth but Instrumental Use predicted the personal growth positively at 0.5 level of significance. β value(0.293) indicated that the strength of the prediction was very low.

Prediction of Positive Relations in Life with Smartphone Usage

Table7 a. Model summary for prediction of positive relations in life with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---------|----------|-------------------|----------------------------|
| 1 | .197(a) | .039 | .032 | 5.43115 |

Predictors: (Constant): Smartphone usage patterns

Dependent Variable: Positive Relations in life

The table showed that R^2 value was 0.039 indicating that 3.9 percent of variation could be explained in the dependent variable positive relations by the independent variable smartphone usage.

Table 7 b. ANOVA (b) for prediction of positive relations in life with smartphone usage

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|----------|
| 1 | Regression | 472.132 | 3 | 157.377 | 5.335 | .001(a)* |
| | Residual | 11680.978 | 396 | 29.497 | | |
| | Total | 12153.110 | 399 | | | |

1. Predictors: (Constant) :Smartphone usage patterns
2. Dependent Variable: Positive Relations

ANOVA table indicated that the regression model predicted the dependent variable well with a high level of statistical significance. (p=0.001)

Table 7 c. Coefficients (a) for prediction of positive relations in life with smartphone usage

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|-------|--|-----------------------------|------------|---------------------------|---|------------|
| | | B | Std. Error | Beta | B | Std. Error |

| | | | | | | |
|---|-----------------|--------|-------|-------|--------|--------------|
| 1 | (Constant) | 25.380 | 1.078 | | 23.533 | .000 |
| | Instrumental | .212 | .080 | .299 | 2.636 | .009* |
| | Ritualistic | .045 | .087 | .097 | .515 | .607 |
| | Problematic Use | -.089 | .047 | -.481 | -1.911 | .05* |

Predictors: (Constant): Smartphone usage patterns

Dependent Variable: Positive Relations

The above table indicated that Instrumental use of smartphone and Problematic Use of smartphone significantly predicted the dependent variable Positive Relations in Life. While Instrumental use predicted the dependent variable positively, problematic use of smartphone negatively predicted the dependent variable. Degree of prediction was very low for instrumental use ($r=0.299$ & $p=0.009$) while it was comparatively high for problematic use ($r=0.481$ & $p=0.05$) with a statistical significance of 0.01 and 0.05 respectively.

Prediction of Purpose in Life with Smartphone Usage

Table 8 a. Model summary for prediction of purpose in life with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|----------|----------|-------------------|----------------------------|
| 1 | .218 (a) | .048 | .040 | 4.44942 |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Positive Relations

Based on the model summary, R^2 0.048 indicated that 4.8 percent of the observed variation in the dependent variable purpose in Life could be explained by the independent variable smartphone usage. The R value (0.218) which explained the correlation between the observed variables and the predicted variables by the regression model, was low i.e., 21.8 percent.

Table 8 b. ANOVA (b) for prediction of purpose in life with smartphone usage

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|---------|
| 1 | Regression | 392.697 | 3 | 130.899 | 6.612 | .000(a) |
| | Residual | 7839.743 | 396 | 19.797 | | |
| | Total | 8232.440 | 399 | | | |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Purpose in Life

The ANOVA table indicated that the regression model explained the dependent variable well with a statistically high level of significance ($p=0.0001$).

Table 8 c. Coefficients (a) for prediction of purpose in life with smartphone usage

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | T | Sig. |
|-------|-----------------|-----------------------------|------------|---------------------------|---|--------|--------|
| | | B | Std. Error | Beta | B | | |
| 1 | (Constant) | 24.452 | .884 | | | 27.675 | .000 |
| | Instrumental | .192 | .066 | .329 | | 2.916 | .004** |
| | Ritualistic | .179 | .071 | .473 | | 2.521 | .012* |
| | Problematic use | -.135 | .038 | -.884 | | -3.530 | .000** |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Purpose in Life

From the above table, the B values indicated that Instrumental, Ritualistic and Problematic Use significantly predicted the dependent variable with a high level of statistical significance. While Instrumental use (B=0.192) and Ritualistic use (0.179) predicted positively, Problematic use (-.0.135) predicted the dependent variable negatively. While the degree of prediction was low for Instrumental use ($\beta = 0.329$) and Ritualistic use ($\beta = 0.473$), it was very high for problematic use ($\beta = 0.884$).

Prediction of Self-Acceptance with Smartphone Usage

Table 9 a. Model summary for prediction of self-acceptance with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---------|----------|-------------------|----------------------------|
| 1 | .170(a) | .029 | .022 | 4.66695 |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Self-Acceptance

As per the above model summary, R² value was 0.029 indicating that 2.9 percent observed variation in the dependent variable Self-Acceptance could be explained by the independent variable.

Table 9 b. ANOVA (b) for prediction of self-acceptance with smartphone usage

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|---------|
| 1 | Regression | 258.152 | 3 | 86.051 | 3.951 | .009(a) |
| | Residual | 8625.038 | 396 | 21.780 | | |
| | Total | 8883.190 | 399 | | | |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Self-Acceptance

The ANOVA table indicated that the regression model predicted the dependent variable well at 0.05 level of significance (p=0.009).

Table 9 c. Coefficients (a) for prediction of self-acceptance with smartphone usage

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|-------|-----------------|-----------------------------|------------|---------------------------|--------|------------|
| | | B | Std. Error | Beta | B | Std. Error |
| 1 | (Constant) | 23.809 | .927 | | 25.691 | .000 |
| | Instrumental | .182 | .069 | .300 | 2.628 | .009* |
| | Ritualistic | .127 | .074 | .323 | 1.703 | .089 |
| | Problematic Use | -.106 | .040 | -.669 | -2.646 | .008* |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Self-Acceptance

From the above table, the B values indicated that Instrumental use (B=0.182) significantly predicted the dependent variable self-Acceptance positively at 0.05 level of significance (p=0.009) while Problematic Use (B=-0.106) predicted the dependent variable negatively at 0.05 level of significance (p=0.08). β values indicated that the degree of prediction for problematic use was higher (0.669) than the instrumental use (0.300) which was low.

Prediction of total psychological wellbeing with smartphone usage

Table 10 a. Model summary for prediction of psychological wellbeing with smartphone usage

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---------|----------|-------------------|----------------------------|
| 1 | .253(a) | .064 | .057 | 19.87374 |

Predictors: (Constant): Smartphone usage patterns

Independent variable: psychological wellbeing

The above model summary indicated that 6.4 percent of the observed variation in the dependent variable was explained by the independent variable. R value of 0.253 explained the correlation between the observed values and the predicted values by the regression model.

Table 10 b. ANOVA (b) for prediction of wellbeing with smartphone usage

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|-------|---------|
| 1 | Regression | 10679.945 | 3 | 3559.982 | 9.013 | .000(a) |
| | Residual | 156406.295 | 396 | 394.965 | | |
| | Total | 167086.240 | 399 | | | |

Predictors: (Constant): Smartphone usage patterns Dependent Variable: Wellbeing

The ANOVA table indicated that the regression model predicted the dependent variable wellbeing well with a high level of statistical significance (p=0.0001).

Table 10 c. Coefficients for prediction of wellbeing with smartphone usage

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|-------|-----------------|-----------------------------|------------|---------------------------|--------|------------|
| | | B | Std. Error | Beta | B | Std. Error |
| 1 | (Constant) | 145.385 | 3.946 | | 36.840 | .000 |
| | Instrumental | .957 | .294 | .364 | 3.251 | .001** |
| | Ritualistic | .501 | .317 | .294 | 1.582 | .114 |
| | Problematic Use | -.538 | .170 | -.784 | -3.157 | .002* |

Predictors: (Constant): Smartphone usage patterns

Dependent Variable: Wellbeing

From the above table, the B values indicated that Instrumental use and Problematic use significantly predicted the dependent variable wellbeing at 0.01 and 0.05 level of significance. While Instrumental use (B=0.957) predicted the dependent variable positively, problematic use (-0.538) predicted negatively. The β values indicated that the degree of relationship was high between the problematic smartphone use ($\beta = 0.784$) and the wellbeing was high whereas it was low for the instrumental use.

CONCLUSIONS

Total psychological wellbeing showed significantly negative correlation with ritualistic, problematic and total smartphone use but not instrumental use. Autonomy was the only psychological variable which was not predicted by smartphone usage indicating that the smartphone usage did not affect the autonomy of the college students. Problematic smartphone use showed strong negative prediction of Environmental mastery, Purpose in life, the Self-acceptance and total psychological wellbeing. Instrumental smartphone use positively predicted the Personal growth, Purpose in life, Self-acceptance and total psychological wellbeing. Ritualistic smartphone use positively predicted purpose of life and negatively predicted positive relations with others. In the present study, it was an important finding that instrumental smartphone use positively predicted some of the dimensions of psychological wellbeing but other usage patterns i.e., ritualistic and problematic usage negatively affected the psychological wellbeing.

Implications of the Study

1. Awareness programmes can be designed for the college students, parents and teachers about the negative consequences of smartphone usage and the precautions to be taken to minimize the negative effect.
2. The findings of the present study helps the policy makers in education sector to design the online education programmes without affecting the wellbeing of the students.

RECOMMENDATIONS FOR FUTURE RESEARCH

1. Longitudinal studies can be taken up to study the cause and effect relationship between smartphone usage and wellbeing.
2. Studying the perceptions of teachers and parents also provides a broader picture of the problem.
3. Similar study can be taken up with different age groups to study how different age groups are affected by smartphone usage.

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