## Impact of Mobile Phone Usage on Behavioral Change of Rural Youth in India - A Cross-Sectional Analysis

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#### ABSTRACT

The study was taken up among the rural youths in the age group of 15-35 to find out the impact of mobile phone use on their behavioral changes in Salem District of Tamil Nadu. The study was based on primary data. Five demographic variables such as age, gender, marital status, family size and education were used as background variables to understand their inter-relationship between them. One common finding emerged from the background variables that the majority of mobile phone users were unmarried and school and college going students. To determine the impacting factors on behavioral changes due to more use of mobile phones, factor analysis was used. The factor analysis was clearly indicated psychological factors (stress, anxiety and depression) attributed to more use of mobile phone followed by increasing possibility of health hazards like non-communicable diseases and sedentary behavior on behavioral changes of respondents. Therefore, it is understood that the mobile phone usage can cause behavioral changes of the age group between (15-35), as this group prone to accept anything without understanding the long-term effects. Although mobile phone has become an integral part of daily life, it cannot be avoided but its judicial use could overcome some of its negative effects.

*Keywords--* Mobile Phone, ICT, Primary Data, Demographic Variables, Behavioral Change, Factor Analysis, KMO, Bartlett's Test

## I. INTRODUCTION

Behavioral change refers to any transformation or changes of human behavior due to changes in thinking, emotions, relationships or addiction that can be for an individual or community as a whole. The change may be a positive or negative which depends on activities caused by individual. It can lead to increasing skills and performance or can work in opposite way. Information and Communication Technologies (ICTs) are increasingly accepted as a tool for improving the knowledge-base and skills of rural youths in recent years. Among ICTs, mobile phone has become a part of our life as well made a necessity in our day-day affairs.

In India, about 65 per cent of the total population lives rural villages. Among them, about 47 per cent of them are dependent on agricultural livelihood. There are several problems like low literacy; poor health care facilities; low income; poor infrastructure; etc. still persist in the country. With the advent of mobile technology, the aforesaid issues could be addressed at an affordable cost which is hitherto unreachable in the rural segment. It is the fact that mobile phone usage, particularly after COVID-19, had potentially increased among the rural youths. Although studies, such as Swaminathan Radhakrishnan and K.S.Chandrasekar (2012), Isha Nachiya (2016), Jingjing Chen (2021), Udit Maheshwar (2021), were attempted in the past on mobile phone usage in Indian context. However, those studies fail to address the impact of mobile use on behavioral changes of rural youths. Therefore, the present study addresses the issue and finding out factors contributing for behavioral changes of youths in rural India.

## II. MATERIAL AND METHODS

The study is based on cross-sectional data which were collected through a pre-tested questionnaire administered to the selected sample respondents. A total of 75 sample respondents were selected at random out of 263 households in Kangeyampalaiyam village of Attiyampatti rural block of Salem District in Tamil Nadu.

Data were classified into (both male and female) four age groups, viz., (15-20); (20-25); (25-30); and (30-35) years. Details of demographic variables were also collected during the study. A cross-tabulation analysis is used for analyzing demographic variables. Factor analysis is also applied to find out factors contributed for behavioral change of rural youths by usage of mobile phone. To assess the impact of mobile phone use, three social life related components, (psychological, technical and health) were considered by using four-point Likert scale. The four points ratings are: strongly agree (4), agree (3) disagree (2) and strongly disagree (1). The data were analyzed using SPSS software.

#### III. **RESULTS AND DISCUSSION**

The results of the study are presented in two parts. The first part discusses about demographic features of sample respondents. The second part highlights impact of mobile phone use among rural youths. Five demographic variables, such as age, gender, family size, marital status and education were considered in the study. The results of cross-tabulation analysis are presented in the subsequent paragraphs.

### 1. Demographic Features (a) Gender

The sample respondents were grouped into age group-wise against gender. The results showed (Table-1a) that out of 75 sample respondents, 52 per cent were male and 48 per cent were female. About 70 per cent of female and 30 per cent of male were from age group (15-20 years); for group (20-25 years), it was 54.5 per cent of male and 45.5 per cent of female. For age group (25-30 years), it was 65.2 per cent of male and 34.8 per cent of female. In fourth age group (30-35 years), male had 60 per cent and female had 40 per cent respectively.

| Table 1(a): Gender by Age of respondents |               |                            |       |       |       |           |
|--|---------------|----------------------------|-------|-------|-------|-----------|
|  |               | Age of respondents (Years) |       |       |       | Total (%) |
| Age versu                                | is Gender (%) | 15-20                      | 20-25 | 25-30 | 30-35 |           |
| Gender                                   | Male          | 30.0                       | 54.5  | 65.2  | 60.0  | 52.0      |
|  | Female        | 70.0                       | 45.5  | 34.8  | 40.0  | 48.0      |
| Total (%)                                |               | 100.0                      | 100.0 | 100.0 | 100.0 | 100.0     |

# Source: Primary data

## (b) Family Size

The findings of family-sizes over age-groups of respondents are presented in Table 1(b). The sample respondents were grouped into four family-sizes, viz. 1-2 members; 3-4; 5-6 and more than 6 in a family. The study revealed that 1.3 per cent of total respondents had familysize (1-2); 56 per cent of them had (3-4); 37.3 per cent of them had (5-6); and 5.3 per cent of them had more than 6 persons. It is also observed that none of them fell in the first, second and third age groups against family size group (1-2). However, 10 per cent of them were in the fourth age group (30-35). For family-size (3-4), 40 per cent of them fell in the age group (15-20), 68.2 per cent in the age group (20-25), 60.9 per cent in the age group (25-30) and 50 per cent in the age group (30-35). For the family-size group (5-6), 55 per cent were from age group (15-20); 22.7 per cent were in the age group (20-25); 34.8 per cent were from age group (25-30) and 40 per cent were from (30-35). For family-size (group than 6), it had very few members across age groups.

| Table 1(b): Size of family | y by Age of respondents |
|----------------------------|-------------------------|
|----------------------------|-------------------------|

|                            |       |       | <u> </u> |       |           |
|----------------------------|-------|-------|----------|-------|-----------|
|                            |       |       |          |       |           |
| Age versus family size (%) | 15-20 | 20-25 | 25-30    | 30-35 | Total (%) |
| family 1-2<br>size         | 0     | 0     | 0        | 10.0  | 1.3       |
| 3-4                        | 40.0  | 68.2  | 60.9     | 50.0  | 56.0      |
| 5-6                        | 55.0  | 22.7  | 34.8     | 40.0  | 37.3      |
| > 6                        | 5.0   | 9.1   | 4.3      | 0     | 5.3       |
| Total (%)                  | 100.0 | 100.0 | 100.0    | 100.0 | 100.0     |

Source: Primary data

## (c) Marital Status

The marital status of respondents (Table-1c) reveals that 95 per cent of them were unmarried in the age group (15-20). The number of persons unmarried got decreased as age group increased. It was quite opposite in the case of married persons. As the age group increased, the numbers of persons married were also increased. It is because of the fact that majority of the age groups (15-20) and (20-25) were school-going or collegiate students. The overall analysis shows that 62.7 per cent were unmarried and 37.3 per cent were married persons.

| Table 1(c). Martial status by Age of respondents |                            |       |       |       |           |  |
|--|----------------------------|-------|-------|-------|-----------|--|
|  | Age of respondents (Years) |       |       |       | Total (%) |  |
| Age versus Marital status (%)                    | 15-20                      | 20-25 | 25-30 | 30-35 |           |  |
| Marital status<br>Married                        | 5.0                        | 31.8  | 52.2  | 80.0  | 37.3      |  |
| Unmarried  | 95.0                       | 68.2  | 47.8  | 20.0  | 62.7      |  |
| Total (%)  | 100.0                      | 100.0 | 100.0 | 100.0 | 100.0     |  |

 Table 1(c): Marital status by Age of respondents

Source: Primary data

#### (d) Education

The educational status of respondents is classified into six categories, namely, illiterates, primary (1-5 years), middle (1-8 years), high school (1-10 years), higher secondary schooling (1-12 years) and collegiate (more than 12 years). Among them, 2.7 per cent were illiterates followed by 1.3 per cent for primary schooling; 5.3 per cent for middle schooling; 10.7 per cent for high schooling; and 25.3 per cent for higher secondary schooling and 54.7 per cent for collegiate education. When we look at age group-wise against level of education, majority of them had collegiate, higher secondary and high schooling in the order.

|                          |                  | Age of respondents (Years) |       |       |       |           |
|--------------------------|------------------|----------------------------|-------|-------|-------|-----------|
| Age versus Education (%) |                  | 15-20                      | 20-25 | 25-30 | 30-35 | Total (%) |
| Education                | Illiterate       | 0                          | 4.5   | 0     | 10.0  | 2.7       |
|                          | Primary          | 0                          | 0     | 4.3   | 0     | 1.3       |
|                          | Middle level     | 5.0                        | 0     | 8.7   | 10.0  | 5.3       |
|                          | High school      | 0                          | 13.6  | 4.3   | 40.0  | 10.7      |
|                          | Higher Secondary | 20.0                       | 36.4  | 21.7  | 20.0  | 25.3      |
|                          | Collegiate       | 75.0                       | 45.5  | 60.9  | 20.0  | 54.7      |
| Total (%)                |                  | 100.0                      | 100.0 | 100.0 | 100.0 | 100.0     |

Source: Primary data

#### 2. Behavioral Change of Mobile Phone Usage

To assess the behavioral changes of mobile phone users, three important aspects are considered. They are psychological, technological and health. Those aspects could directly or indirectly influence on mobile phone users and in turn may affect their behavior change in their life style. For each aspect, some statements are prepared which are closely related to each other and are measured by appropriate scaling. Factor analysis, which is one of the important multivariate statistical techniques helps to identify important factors that makes them into groups or components based on their inter-relationship among the variables.

#### 2 (a) KMO and Bartlett's Test

The factor analysis is used with certain preconditions, such as KMO (Kaiser-Meyer-Olkin) value and Bartlett's test. KMO measure of sampling adequacy is used to assess the appropriateness of using factor analysis. KMO is a statistic that indicates proportion of variance in the variables. Higher values of KMO (more than 0.5) generally indicate that a factor analysis may be useful. Bartlett's test of sphericity is used to test the null hypothesis, that the variables in the population correlation matrix are uncorrelated. A pre-requisite for factor analysis to work is the correlation matrix has significant correlations among at least some of the variables in a data set.

In the present study, three behavioral components are considered, Psychological, Technical and Health status of mobile phone users. The results of KMO and Bartlett's test are presented in Table 2.1. All the three components satisfied the prerequisite to use factor analysis. For instance, KMO of sampling adequacy for psychological statements was 0.694; for technological and health were 0.599 and 0.712 respectively. More so, all the values were greater than 0.5 which shows the variables considered were suitable for factor analysis. Likewise, Bartlett's tests for all the three items were statistically significant. It implies that it had significant correlations among the variables.

| Table 2.1: KMO and Bartlett's Test |                          |                             |                                  |  |  |  |
|------------------------------------|--------------------------|-----------------------------|----------------------------------|--|--|--|
| Sl. No.                            | Behavioral<br>components | KMO of sampling<br>adequacy | Bartlett's Test of<br>Sphericity |  |  |  |
| 1                                  | Psychological            | 0.694                       | 74.467 *                         |  |  |  |
| 2                                  | Technological            | 0.599                       | 57.848*                          |  |  |  |
| 3                                  | Health                   | 0.712                       | 96.883*                          |  |  |  |

\* indicates significant Source: Primary Data

#### 2(b) Factors Influencing on Mobile Phone Usage (a) Psychological

The VARIMAX results are shown in Table 2.2. It could be seen that the total amount of variance extracted from the five variables together (statements) was 69.01 per cent. In the VARIMAX rotated factor solution, the first and second components accounted for 40.09 per cent and 28.91 per cent respectively. It is reported that stress (0.762), anxiety (0.740) and depression (0.880) loaded significantly on component one as primary factors; the secondary factors were 0.878 (positive urgency) and 0.719 (negative urgency) were loaded significantly on component two. It can be inferred that stress, anxiety and depression were the prime causes for more use of mobile phone among the sample respondents.

## (b) Technological

The technological factors influencing on mobile phone users are presented in Table 2.3. The VARIMAX rotated factor solution extracted two components from the data. Both components together accounted for 54.49 per cent of total variation in the model. The first component accounted for 33.51 per cent and the second accounted for 20.98 per cent. The primary technological factors influenced on mobile phone use were reliability (0.776), suitability (0.769), connectivity (0.682) and stability (0.590). The secondary factors were security (0.796) and low cost (0.674). The findings show that the use of mobile phone was mainly due to its reliability, suitability, connectivity and stability factors.

## (c) Health

The assessment of health condition of mobile phone users are made by relevant variables and the results are presented in Table 2.3. The model showed 63.54 per cent of variation captured from the variables considered. The variation shares of two components were 32.48 and 31.05 per cent respectively. Out of six variables, the primary factors were poor quality diet (0.848), sedentary behavior (0.772) and non-communicable diseases (0.590). Next to them, Tobacco use and drug use (0.879) and drinking alcohol (0.832) were considered as secondary factors causing behavioral changes of mobile phone usage.

The factor analysis reveals clearly that the use of mobile phone causes directly (health issues) and indirectly (psychological) to a larger extent as evident from the opinion of sample respondents.

| Sl. No | Factors   | Rotated Component<br>Factors |                   |               |
|--------|---|------------------------------|-------------------|---------------|
|        |   | 1                            | 2                 | Communalities |
| 1      | I use more when I have stressful mind (Stress)  | <mark>.762</mark>            | .231              | .633          |
| 2      | Wherever something goes wrong to affect my mood, I feel to use (anxiety)                    | <mark>.740</mark>            | .318              | .649          |
| 3      | When I have hopeless and feeling of disorder, I prefer to use it continuously (Depression)  | <mark>.880</mark>            | 067               | .778          |
| 4      | When I upset, I often act without thinking (negative urgency) tendency to prefer to use     | .322                         | <mark>.719</mark> | .621          |
| 5      | I tend to lose control when I am in a great mood that induce to use more (Positive urgency) | .010                         | <mark>.878</mark> | .770          |
| (a)    | Eigen values  | 2.005                        | 1.446             | 3.451         |
| (b)    | Percentage of Trace   | 40.098                       | 28.914            | 69.013        |

**Table 2.2:** Psychological Factors of Mobile Phone Usage Among Rural Youths

Note: 1. Extraction Method: Principal Component Analysis

2. Rotation Method: Varimax with Kaiser Normalization

| SL No | Factors   |                   | Component<br>ctors |               |  |  |  |
|-------|---|-------------------|--------------------|---------------|--|--|--|
|       |   | 1                 | 2                  | Communalities |  |  |  |
| 1     | I often prefer to buy new model phones due to lower cost (Low cost)         | 019               | <mark>.674</mark>  | .455          |  |  |  |
| 2     | I feel with mobile phone as a security in life (security)                   | 064               | <mark>.796</mark>  | .638          |  |  |  |
| 3     | The branded phones are highly reliable (reliability)                        | <mark>.776</mark> | .009               | .602          |  |  |  |
| 4     | I purchase new phones whenever I feel it meets my requirement (suitability) | <mark>.769</mark> | 211                | .635          |  |  |  |
| 5     | I like to use mobile phone for its durability (Stability)                   | <mark>.590</mark> | .343               | .466          |  |  |  |
| 6     | I prefer to use mobile phone due to its better network (connectivity)       | <mark>.682</mark> | 088                | .473          |  |  |  |
| (a)   | Eigen values  | 2.011             | 1.259              | 3.270         |  |  |  |
| (b)   | Percentage of Trace   | 33.510            | 20.980             | 54.490        |  |  |  |

**Table 2.3:** Technological factors of Mobile Phone usage among Rural Youths

**Note:** 1. Extraction Method: Principal Component Analysis.

2. Rotation Method: Varimax with Kaiser Normalization

| Sl. No | Factors  | Rotated C<br>Fac  | omponent<br>tors  |               |
|--------|--|-------------------|-------------------|---------------|
|        |  | 1                 | 2                 | Communalities |
| 1      | Lack of regular exercise due to more time on mobile phone use leads to risk of non-communicable diseases   | <mark>.590</mark> | .449              | .550          |
| 2      | Poor quality of diet due to increasing use of mobile phone   | <mark>.848</mark> | 059               | .723          |
| 3      | Sleep deprivation causes health hazards due to increasing use of mobile phone  | .470              | .426              | .403          |
| 4      | There is a relative response due to mobile phone use and drinking alcohol  | .242              | <mark>.832</mark> | .751          |
| 5      | Tobacco use and drug use causes addition of mobile phone use   | 080               | <mark>.879</mark> | .779          |
| 6      | Sedentary behavior like time spent sitting for mobile<br>phone for playing games, watching movies etc. leads<br>to increasing body weight and decreases sleeping | <mark>.772</mark> | .106              | .607          |
| (a)    | Eigen values   | 1.949             | 1.863             | 3.812         |
| (b)    | Percentage of Trace  | 32.487            | 31.057            | 63.544        |

 Table 2.4: Health factors of Mobile Phone usage among Rural Youths

Note: 1. Extraction Method: Principal Component Analysis. 2. Rotation Method: Varimax with Kaiser Normalization

## IV. CONCLUSION AND IMPLICATION

The study was taken up among the rural youths in the age group of 15-35 to find out the impact of mobile phone use. The demographic variables such as age, gender, marital status, family size and education were used as background variables to understand their interrelationship between them. Firstly, the study grouped four age categories (15-20), (20-25), (25-30) and (30-35) as potential users of mobile phone. Then, the background variables such as gender, marital status, family size and level of education were analyzed their relationship with age groups. One common finding emerged from the background variables that the majority of mobile phone users were unmarried and school and college going students. The factor analysis was clearly indicated psychological factors (stress, anxiety and depression) attributed to more use of mobile phone. This has led to possibility of increasing health hazards like noncommunicable diseases and sedentary behavior of sample respondents. Therefore, it is understood that the mobile phone usage could cause behavioral change of the age group largely between (15-35), as this group could be a potential to prone to accept anything without understanding the long-term effects. Although mobile phone has become an integral part of daily life, it cannot be avoided but its judicial use can overcome some of its negative effects. It is suggested that youths (rural segments), and their parents should be demonstrated the evil effects of mobile phone usage by organizing parents and students meet at schools and colleges frequently.

## REFERENCES

[1] Isha Nachiya. (2016). Smart phone usage among the rural people in thiruvarur district, tamil nadu. *Indian Journal of Applied Research*, 6(3), 26-27.

- [2] Jingjing Chen. (2021). Do mobile phones empower women? A perspective from rural India. Warwick Monash Economics Student Papers 2021/09, Department of Economics, University of Warwick Monash Business School, Monash University, Australia.
- [3] Government of India. (2023). *Economic survey*. Ministry of Finance, New Delhi.
- [4] Swaminathan Radhakrishnan & K.S. Chandrasekar. (2012). The mobile phone in India: Usage and social impact on everyday decisionmaking, control, autonomy and connectedness in the family and amongst youth. SS International Journal of Business and Management Research, 2(3), 111-124.
- [5] Udit Maheshwar. (2021). Mobile phone usage pattern among youth in the urban and rural area, *International Journal of Advanced Research*, 9(02), 691-693.
- [6] UNESCO. (2015). Mobile phones and literacy: Empowerment in women's hands- A cross case analysis of nine case experiences. Paris 07 SP, France.