



# **A DESCRIPTIVE STUDY TO ASSESS THE PREVALENCE OF NOMOPHOBIA AND KNOWLEDGE AND EFFECT OF USING SMARTPHONE AMONG COLLEGE STUDENTS OF DESH BHAGAT UNIVERSITY MANDI GOBINDGARH, FATEHGARH SAHIB, PUNJAB WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET**

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## **ABSTRACT**

A descriptive study to assess the prevalence of nomophobia and knowledge and effect of using smartphone among college students in Mandi Gobindgarh, Punjab, with a View to develop an information booklet was conducted with the objectives:

To assess the prevalence of nomophobia among college students, to assess the knowledge level regarding smartphone use among college students, to assess effect of using smartphones among college students, to find the association between level of Nomophobia among college students with their selected demographic variables, to find the association between level of knowledge regarding smartphone among college students with their selected demographic variables, to find out the correlation between level of nomophobia and effect of using mobile phone among college students, to find out the correlation between level of knowledge and effect of using mobile phone among college students.

Conceptual framework selected for this study is based on health belief model developed by Rosenstock,

Becker and Miama in 1988. It is developed to address non-compliance with health screening programs, mostly concerning disease prevention. Three key components were identified as influential aspects towards an individual's likelihood to following health recommendations.

An exploratory research approach with descriptive research design was adopted for the study. Sample size were 250 college students of District Fatehgarh Sahib Punjab. Colleges are selected convenient by lottery method. Data was collected through nomophobia scale, knowledge questionnaire and checklist.

Major findings shows that majority 140 (56.06) of samples has moderate level of Nomophobia. 203 (81.20) of samples have good knowledge level regarding smartphone, 29 (11.6%) have poor knowledge level. Majority 188 (75.29%) of samples has moderate level of effect on their life due to smartphone use, 49 (19.6%) have mild level of effect.

There is significant association between level of nomophobia of samples with years of using mobile phone and there is also a significant association between level of nomophobia of samples with their frequent reason of using mobile phone.

The association between level of knowledge of samples with their age is significant at 0.05 level of significance and the association between level of knowledge of samples with their educational level is significant at 0.05 level of significance. There is a positive correlation between levels of nomophobia and effects of using smartphone among college students. There is a negative correlation between levels of knowledge and effects of using smartphone among college students.

Recommendations were that a similar study can be conducted among students of other stream and with different usage pattern of smartphone.

# CHAPTER-1



## INTRODUCTION

**“It’ s easier for a rich man to ride that camel through the eye of a needle directly into the kingdom of Heaven, then for some of us to give up our cell phone.”**

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**- Vera Nazarian**

Today, technology has become an irreplaceable part of our lives. Technological inventions have been carried out by people in casing their life to be more flexible and reasonable in order to be able to overcome upcoming challenges and compatible to the globe.<sup>1</sup> Technology has helped in the growth and development of the mankind as a whole with technologies in our hands, the environments are totally mixed, the limits clearly established are now totally broken. As a result, one can see not only the positive effects, but the negative ones as well in the lives of most people. Today, we can see in the doctors and psychologists’ offices a new demand of patients presenting specific characteristics, such as the “technological dependents”, that also need treatment Nevertheless, we do not have as yet a traced

profile related to this population, in order to define an efficient model for treatment, preparing us as professionals of the Mental Health segment for this type of consultation.<sup>2</sup>

From the times of pigeons, letters, Morse codes, telegraphs and telephones, communication has been an integral part of human social life. Building relations, expression of emotions, sharing of thoughts, knowledge of current happenings etc. have been essential forms of interaction amidst our fast-paced life. Marching along with the digitally transforming world, today we live in an era of wireless communication. As soon as the Smartphone set its foot into the garden of electronic gadgets, it exerted its spell on the conscious and intelligent part of human brain.<sup>3</sup>

In the last 20 years, worldwide mobile phone subscriptions have grown from 12.4 million to over 5.6 billion, penetrating about 70% of the global population. Its usage has also become an important public health problem as there have been reports of plenty of health hazards, both mental and physical, in people of all age groups. On 31 May 2011 the World Health Organization confirmed that cell phone use indeed represents a health means, and classified mobile phone radiation as a carcinogenic hazard, possibly Carcinogenic to humans.<sup>4</sup>

Mobile phone because of the ever availability and its mobility application has created a dramatic interest for youth in comparison with other communication technologies and has also provided the communication status from everywhere or in every time and people can also be online all the time, responsive and available with (short message system), while chatting needs facilities like computer, internet-connection and interaction of two persons that one may not be online at the same time. Addiction to internet and new communicational tools as a health problem has recently been considered as a mental disorder.<sup>5</sup>

The Orissa government (September 16 2008) announced that it has banned the use of mobile phones in college campus. The mobile phones are found to be a disturbing element in college campus. Therefore, we have banned it in the campus, said higher education minister Samir Dey, adding that the order would be implemented in both Government and nongovernment Colleges cross the state, In the first instance of its kind in the country, Gujarat Government has banned use of mobile phones in schools and colleges, saying it was affecting educational activities in the institutes.<sup>6</sup>

It is difficult to say mobile phone use as problematic like addictions to alcohol, drugs or gambling. Almost every people have a mobile phone and use it regularly, but there are people who can't take their dinner without texting or furiously typing on a personal digital assistant during a meeting. These types of users become anxious when they are separated from the phone, they can't enjoy whatever they are doing without their mobile phones and they often check their phones for voice mails and text messages.<sup>7</sup> This type of behaviour may lead to nomophobia.

Phobia is defined as an irrational fear. In an effort to reduce the intense anxiety attached to phobic objects and Situations, people do their best to avoid the feared stimuli. Common types of phobias are

social phobia, specific phobia and agoraphobia. In specific phobia, persistent, irrational fears are provoked by specific stimuli e.g., fear of height-acrophobia, fear of dogs- cynophobia.<sup>8</sup>

Therefore, Nomophobia is a “specific phobia” is the fear of being out of mobile phone contact. People, especially teenagers get very anxious when they lose their mobile phone, run out of battery or credit or due to less network coverage.<sup>9</sup>

The case report by King et al. (2010), considered one of the first research studies on nomophobia, describes nomophobia as a 21<sup>st</sup> century disorder connected with new technologies. The researchers define nomophobia as a condition denoting “discomfort or anxiety when out of mobile phone or computer contact. It is the fear of becoming technologically incommunicable distant from the mobile phone or not connected to the Web.<sup>10</sup>

It is a fact that, millions of people suffer from nomophobia around the globe. The most affected are from 18-24 years of age. A typical Nomophobia can be identified by some characteristics such as never turning off the phone, obsessively checking missed texts and calls, bringing the phone everywhere, using phones at inappropriate times and missing opportunities for face-to-face interaction while preferring over the phone contact. In some severe cases, people may also face physical side effects such as panic attacks, shortness of breath, trembling, sweating, accelerated heart rate, pain in the hand joints, neck and back pain, etc. when their phone dies or is otherwise unusable.<sup>3</sup>

Nomophobia can have adverse effects on a person’s health as well as his/her social life. And the fact that it is a phobia makes it bad anyway. With the massive worldwide growth in mobile connections, it has made us dependent on the usage of mobile phones to stay in contact with our near and dear ones 24 hours in 7 days. Studies from United Kingdom revealed that 53% tend to be anxious and a study from Mumbai reports 58% could not manage without a mobile phone even for a day.<sup>5</sup>

As a situation-specific phobia, Nomophobia has recently been suggested to lead to strong perceptions of anxiety and distress. In fact, some suggested that Nomophobia could be so stressful that it warrants to be considered a psychopathology. Recent empirical Research supported this idea, indicating that nomophobia individuals suffer from stress when their smartphones are out of reach. Stress, in turn, has various negative consequences for individuals and organizations, including reduced well-being, acute and chronic health problems, as well as diminished organizational productivity.<sup>11</sup>

Researchers from Korea University in Seoul used brain imaging to study the brains of 19 teenage boys who were diagnosed with internet or smartphone addiction. Compared with 19 teenagers who were not addicted, the brains of the addicted boys had significantly higher levels of GABA. A neurotransmitter in the cortex that inhibits neurons, then levels of glutamate-glutamine, a neurotransmitter that energizes brain signals.<sup>12</sup>

## NEED FOR STUDY

India is one of the fastest-growing Smartphone markets in the world and is set to outpace the US as the second-largest market by 2017 as smart mobile devices become affordable. According to a report by Internet and Mobile Association of India Klynveld Peat Marwick Goerdeler, India had about 116 million internet-enabled Smartphone at the end of 2014, a number that's expected to more than triple to 369 million by 2018.<sup>3</sup>

The term is an abbreviation for “no-mobile-phone phobia” which was during a 2010 study by the UK Post Office. The Post Office commissioned You Gov, a research organization, to look at anxieties suffered by mobile phone users. The study found that nearly 53 % of mobile phone users in Britain tend to be anxious when they “lose their mobile phone, run out of battery or credit, or have no network coverage.” The study found that about 58 % of men and 47 % of women suffer from the phobia, and an additional 9% feel stressed when their mobile phones are off.<sup>13</sup>

A study conducted in Philadelphia found that since 2008 to 2012, the amount of people who fear of being without a mobile phone has grown from 53% to 66%. Study surveyed 1000 people and found that people not only fear being without a cell phone, but almost half of respondents said they would be upset if their partner looked through their messages. The study also found that 18-24 age group ranks first in nomophobia.<sup>14</sup>

A comparative study was conducted on 729 students 368 (50.5%) of which were from Turkey (Ankara university) and 361 (49.5%) from Pakistan (Islamia university of Pakistan) to examine prevalence of nomophobia and the relationship among nomophobia, self-esteem, loneliness and self-happiness with respect to gender and year of study. Data was collected by using Nomophobia Scale (NMP-Q), UCLA loneliness scale (ULS-8), Self-Happiness Scale, and Rosenberg „Self-Esteem Scale Results in revealed that nomophobia had highest correlation with loneliness and it was followed by self-happiness and self-esteem. Moreover, nomophobia appeared to be positively correlated with loneliness and self-esteem, while negatively correlated with self –happiness.<sup>15</sup>

A descriptive study to evaluate the threat of mobile phones addiction was conducted among 160 students from Belarus University, China. The data was collected using questionnaire which also included the test of mobile phone addiction. 1/10th of the students had the symptoms of addiction. Nearly, half (43.16%) of the sample had knowledge about mobile phone addiction and only 28.8% were familiar with the term Nomophobia. Hence, it was concluded that, majority of youngsters are being addicted to mobile phones and were unaware of Nomophobia. There is a need to sensitize and educate about this dreaded disorder.<sup>3</sup>

A Study was conducted to examine the overall impact of mobile phone and determine the role mobile phone are playing in effecting interpersonal relationship and gender differences among youth in Lahore. Data was collected through survey comprised 50 young adults (ageing 16 to 30 years) with the help of



self-structured questionnaire. Quantitative analysis of the data revealed that there is strong relationship between mobile phone usage and interpersonal relationship. Continuous use of mobile phone negatively effect on and distort the relationship with their families and close friends.<sup>16</sup>

A study was designed to investigate the predictive relationship between impulsiveness and behavioral addiction. The study comprised of 100 male and female. Mobile phone Involvement Questionnaire which is based on Behavioral Addiction components was used to measure behavioral addiction as manifested by addictive cell phone usage. The results indicated impulsiveness and it's all three facets: attention impulsiveness, motor impulsiveness and non-planning impulsiveness to be the significant predictors of behavioral addiction as manifested by cell phone usage.<sup>17</sup>

A cross sectional study was conducted among 200 M.B.B.S students from M.G.M Medical college, Indore to find out the prevalence of nomophobia. The sample group belongs to 17-28 years of age. A pre-tested questionnaire designed on the lines of one developed by Dr. Marcus L. Raines was used to study mobile phone dependence among study subjects. The results revealed that overall, 18.5% (i.e., 19% male and 18% female) students were found to be nomophobic. Approximately 73% students responded that they keep their mobile phones with them while sleeping. Moreover 20% students responded that they lose their concentration and become stressed when they do not have their mobile phones with them. About half of the respondents kept their mobile phones in the pocket or close to the body to have a feel of constant touch with their mobile phones.<sup>18</sup>

Considering the tremendous growth in the Smartphone market, it is but threatening to imagine the dependency that Indians would face with their mobile device. Thus, this emerging trend excessive Smartphone usage challenges the well-being of the population. At this point, Knowledge of prevalence of Nomophobia in India and an understanding of ill effects of using smartphones is required to self-monitor the dependent behaviour.<sup>3</sup>

On the whole the previous research studies related to mobile phones suggested that the prevalence of mobile phones dependency, nomophobia and other ill effects are increasing day by day. The researcher's personal experiences also support the fact that college students may affected with nomophobia and other ill effects of using mobile phone and the reason behind it may be the lack of knowledge regarding mobile phones usage. Excessive usage of mobile phone effects them in different aspects of the life like academically, personally, socially. Hence, as a researcher I felt that, the study to assess the prevalence of nomophobia and knowledge and effect of using smartphone among students in colleges will be useful since the younger generation is largest consumer of mobile phones and they use mobiles more frequently.

## **STATEMENT OF THE PROBLEM**

“A descriptive study to assess the prevalence of nomophobia and knowledge and effect of using smartphone among college students in Desh Bhagat University Mandi Gobindgarh, Fatehgarh Sahib,

Punjab, with a view to develop an information booklet.”

## OBJECTIVES

Objectives of the study are:

1. To assess the prevalence of nomophobia among college students.
2. To assess the knowledge level regarding smartphone use among college students.
3. To assess of using smartphones among college students.
4. To find the association between level of nomophobia among college students with their selected demographic variables
5. To find the association between level of knowledge regarding smartphone among
6. College students with their selected demographic variables
7. To find out the compellation between level of nomophobia and effect of using mobile phone among college students.
8. To find out the correlation between level of kiosk ledge and effect of using mobile phone among college students

## OPERATIONAL DEFINITIONS

### Descriptive

In this study descriptive refers to objectively analyzing and describing about prevalence of nomophobia, knowledge and effect of using smartphone.

### Assess

It refers to the measurement of prevalence of nomophobia, knowledge and effect of using smartphone among college students by using self-structured questionnaire and checklist.

### Prevalence

It refers to the level of nomophobia that is present in students of colleges of Fatehgarh Saheb, Punjab at a given time.

### Knowledge

In this study it refers to the responses of the students to the questions related to smartphones, ill effects, of using smartphone, ideal use of smartphone prevention from ill effects of smartphone use.

### Effects

In this study it refers to the changes that occur because of using smartphone in academic performances. Personal life, social life and addiction of smartphones.



## Nomophobia

In this study nomophobia is a fear of being out of mobile phone contact.

### College student

In this study college students are the students between the age group of 18 years to 24 years who are perceiving bachelor's degree in arts.

### Information booklet

In this study it refers to written and valid information about smartphones, ill effects of using mobile phones, ideal ways of using mobile phone and measures to reduce effect of using smartphones.

## ASSUMPTIONS

Assumptions of the study are:

- The adults have more fear of being out of mobile phone
- Using mobile phone for longer duration might develop nomophobia
- College students use mobile phone more frequently.
- College students will have less knowledge regarding usage of mobile phones and their effects

## HYPOTHESIS

Hypothesis of the study are:

H<sub>1</sub>: There will be a significant association between level of nomophobia among college students and their selected demographical variables at 0.05 level of significance.

H<sub>2</sub>: There will be a significant association between level of knowledge among college students and their selected demographical variables at 0.05 level of significance.

H<sub>3</sub>: There will be a significant correlation between the level of nomophobia and effect of using Smartphone among students at 0.05 level of significance.

H<sub>4</sub>: There will be a significant correlation between the level of knowledge and effect of smartphone among college students at 0.05 level of significance.

## DELIMITATIONS

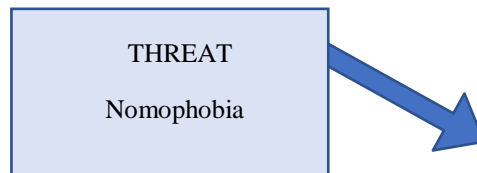
Delimitations of the study are:

1. Study is delimited to college students perceiving bachelor's degree in arts.
2. Sample size is delimited to 250 students.
3. Study is delimited to college students between age group of 18 to 24 years in Desh Bhagat University Mandi Gobindgarh, Punjab.

### CONCEPTUAL FRAMEWORK

Conceptual framework selected for this study is based on health belief model developed by Rosenstock, Becker and Miama in 1988. It is developed to address non- compliance with Health screening programs, mostly concerning disease prevention. Three key components were identified as influential aspects towards in individual’s likelihood to following health recommendations. They included:

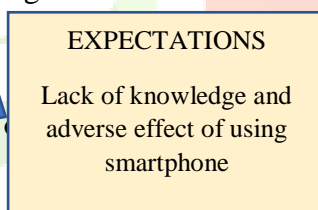
- Background
- Perception
- Actions<sup>19</sup>



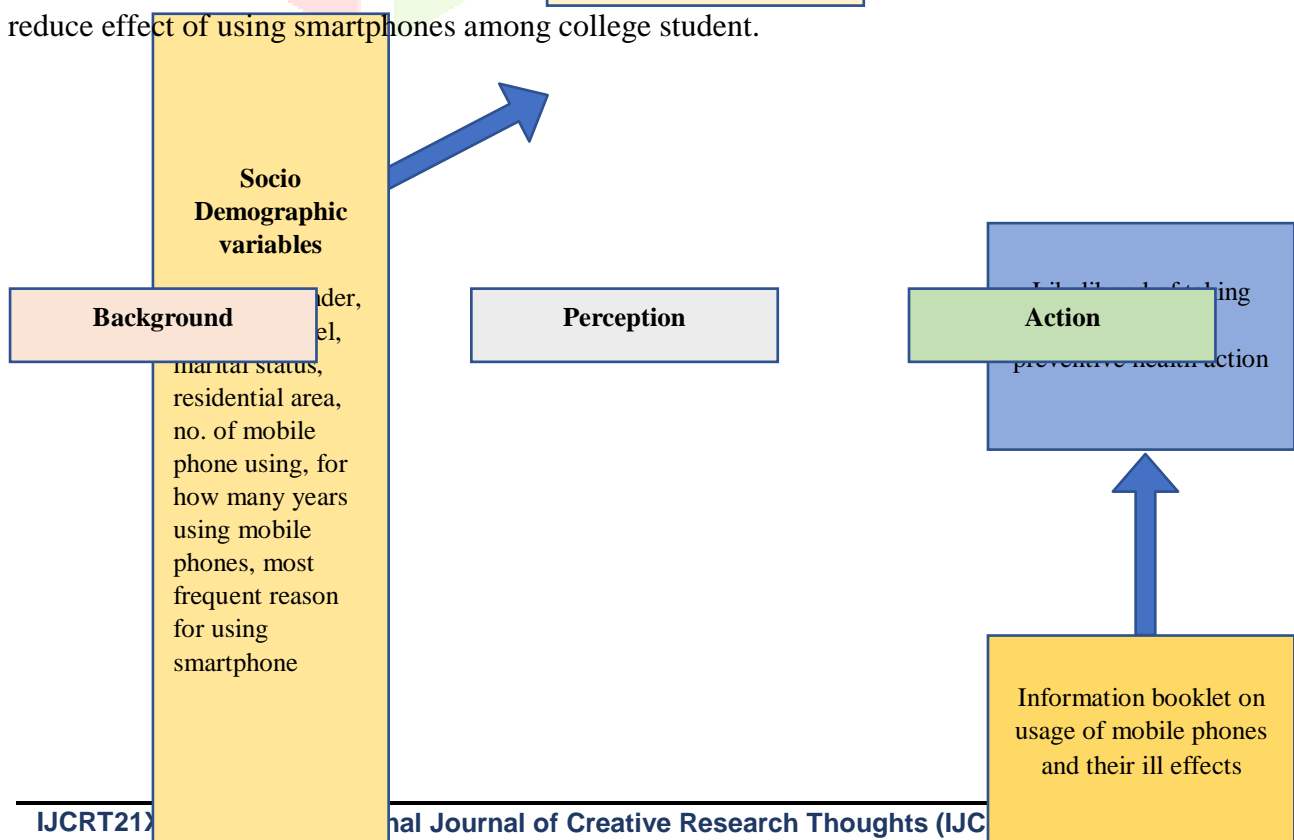
**Background:** It includes socio demographical variables of the study participants that are age, gender, educational level, marital status, residential area, no. of mobile phone using, for how many years using mobile phone, most frequent reason for using mobile phone.

**Perception:** It includes two components i.e., threat and expectations

- Threat is for prevalence of nomophobia.
- Expectations of lack of knowledge and more adverse effects of using smartphone among college students.



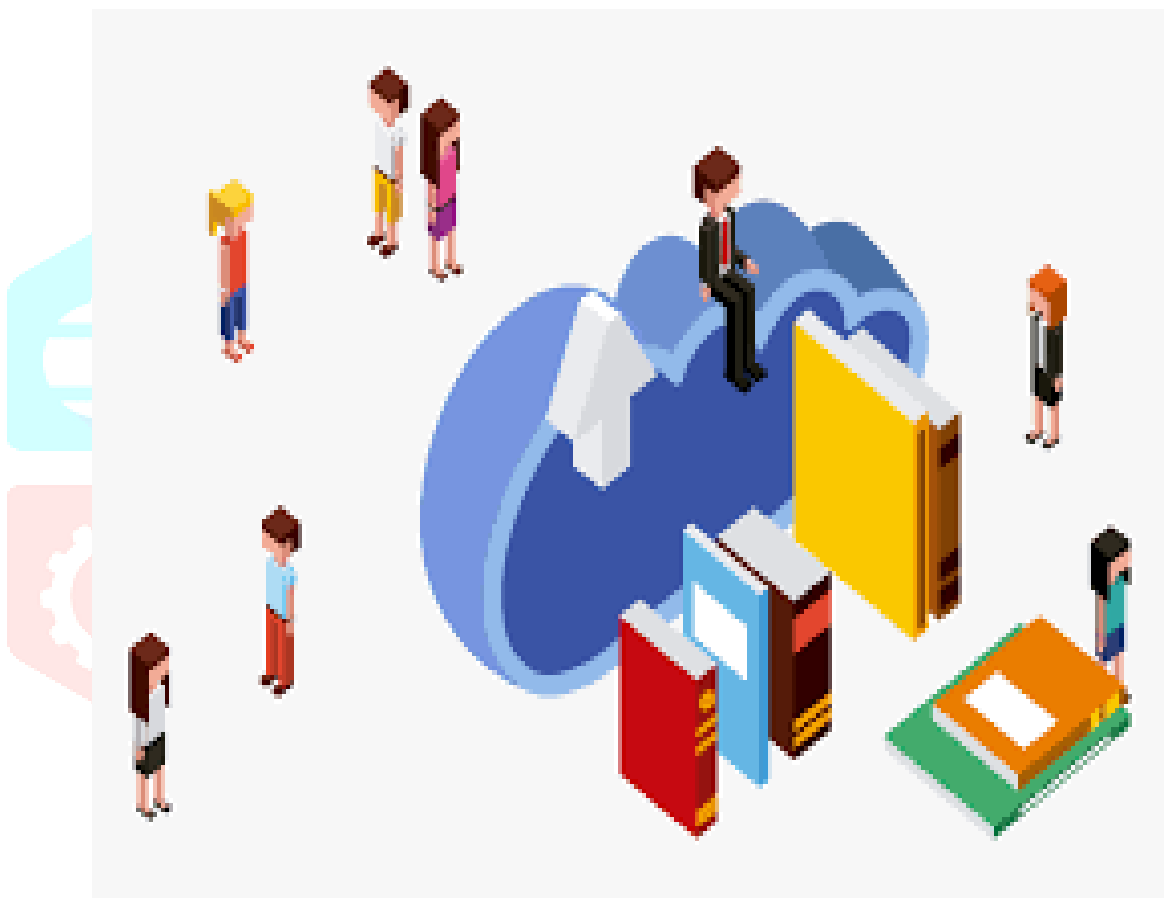
**Actions:** It includes the distribution of information booklet on usage of mobile phones, ill effects of using mobile smartphones, to improve knowledge regarding using mobile phone and measures to reduce effect of using smartphones among college student.



**Diagram no. 1- Conceptual Framework based on Modified health belief model Rosenstock, Becker and Miama, 1988.**



# CHAPTER-2



## REVIEW OF LITERATURE

The review of literature is defined as a broad, comprehensive, in depth, systematic and critical review of scholarly publications, unpublished scholarly pent materials, and audio-visual materials and personal communications.<sup>20</sup>

The review is organized in following beading

Part A: Literature reviews related to prevalence of nomophobia.

Part B: Literature review related to knowledge of using smartphone and is effects.

### **Part A: Literature review related to prevalence of nomophobia**

**Anushri C, et al. (2018)**, conducted a descriptive study among higher secondary students to assess the level of nomophobia. 100 study samples were selected through non probability convenient sampling method. A structured questionnaire was used to collect data. The study findings reveal that 8% students were at high risk of developing nomophobia, 46% had mild level, 33% had moderate level and 13% had severe level at nomophobia<sup>21</sup>.

**Harish B R, et al. (2018)**, conducted a cross sectional study at Mandya Institute of Medical Sciences during May 2018 to June 2018 to assess the prevalence of nomophobia 418 study samples were selected through purposive sampling technique. Data was collected through structured questionnaire. Result of the study revealed that prevalence of moderate to severe nomophobia among the study population was 90.0%.<sup>22</sup>

**Nalini V Malya, et al. (2018)**, conducted a cross sectional study among 1<sup>st</sup> year medical students of a private medical college in rural Bengaluru to estimate the prevalence of nomophobia, to Calculate the socio behavioral determinants of nomophobia, and to explore the behavioral sub dimensions of nomophobia long with attitude of medical students toward smartphone usage. 145 study Samples were selected through convenience sampling method. A pretested questionnaire was used to collect data. “The study findings reveal that majority of the subjects were frank nomophobia (86.9%), 13% were at risk of developing nomophobia, and only 7.6% were normal the study showed “annoyance for hot being able to use the smartphone, clinging to phone all the time, feeling stressed if the phone was hot used for a week,

knowing the adverse impact on academic performance. Sleep deprivation, and compulsiveness for taking calls while studying, knowledge of the fraudulent practices with smartphones and using smartphones to avert loneliness” as the most receiving responses in terms of psychological and behavioral attributes of nomophobia.<sup>23</sup>

**Madhusudan M, et al. (2017)**, conducted a cross sectional study among students of medical college of Wayanad to assess prevalence of nomophobia and its determinants. 429 undergraduate medical students were selected for the study. Pre designed and pre tested Nomophobia questionnaire was used to collect data. The study tending’s reveals that 416 (97%) of the students were nomophobia and 13 (3%) no nomophobia.

143 (33.3%) showed mild, 241 (56.2%) moderates, and 32 (7.5%) severe nomophobia. The grades of nomophobia showed no statistically significant association with sex, admission quota and residence whereas statistically significant association with phase of MBBS.<sup>24</sup>

**Menezes P M, et al. (2017)**, conducted a study on 205 adolescents from 2 random schools in Maharashtra to assess prevalence, awareness and effect of nomophobia. Data was collected through standardized questionnaire and checklist. Result of the study revealed that 54(26%) adolescents were nomophobic and 130(64%) were at high risk of developing nomophobia. Adolescents With nomophobia perceived they were uncomfortable (28%), worried (12%), annoyed (15%), scared (15%), awkward (11%) and nervous (15%). Out of 205, 58 of them were aware about the term nomophobia and 139 of them thought about the ill effects. 70 of them were unaware about ill effects of Nomophobia, whereas 115 of them were partially aware.<sup>25</sup>

**Pallabe Dasgupta, et al. (2017)**, conducted a cross-sectional study among 303 Medical and 305 engineering undergraduates in west Bengal using a validated NMP questionnaire consisting of four factors. Result revealed that engineering students showed a higher proportion of nomophobia (44.6%) than medical students (42.6%). Significant higher means was observed among engineering students for the factor “giving up convenience” and individual variables like “scared due to running out of battery”, “nervous due to disconnection from online identity”, “uncomfortable when unable stay up-to-date with social media” and “anxious when unable to check E- mails.” A Higher proportion of nomophobic among both groups were females, those owning smartphone beyond 2 years, Having monthly mobile ball above Rs. 200 and spending over 4 hours daily on smartphone.<sup>26</sup>



**Pritam Chandak, et al. (2017)** conducted a cross sectional single interview, at tertiary care hospital and teaching institute among 100 post graduate residents studying at institute in central India. Study aims at to assess prevalence of nomophobia and its relationship with socio-demographical variables. Nomophobia questionnaire by Yildirim Caglar was used to collect data. Study revealed that there was high prevalence of nomophobia (38%). Majority of participants (71%) were found to have used mobile phone for 5-10 years duration. 10% participants used for less than 5 years while 19% participants used for more than 10 years. Also nomophobia was seen significantly more in those with 5 to 10 years duration of smartphone use as compared to those who have used it for less than 5 years or for more than 10 years. 19% participants spent 1-2 hours per day on their mobile phones, 46% participants spent 2-3 hours on an average per day while 35% participants spent around 3-4 hours per day with their smartphones. Of these, nomophobia was seen significantly more in those who spend 3-4 hours per day on mobile phone.<sup>27</sup>

**Sonali Kar, et al. (2017)**, conducted a cross sectional survey among 284 medical students from private medical college in Bhubaneswar, Odisha. The study aims to assess nomophobia among undergraduate medical students. A structured pretested and with a validated point Likert scale was used to collect data. The study revealed that severe nomophobia was seen more male i.e., 23.7% and 18.6% in females and total in the sample was 21.1%. 78.6% of the females were seen to be moderately afflicted which means unless controlled, they have a propensity to go on to severe grade. The commonest cause for using mobile was attributed to use of social media applications like WhatsApp and Facebook (88.7%) followed by messaging and calling up friends (36.9%).<sup>28</sup>

**Iqbal Ahmad Farooqui, et al. (2016)**, conducted a cross sectional study for a period of 3 months among medical students in Pune city to assess the prevalence of nomophobia. A total of 145 students of year MBBS were monitored. A pre-designed and pre-tested questionnaire was used to collect data. Amongst all the participants, 45.5% were males (66/145) and 54.5% were females (79/145). Mild Nomophobia was found in 17.9% students whereas 60% had moderate and 22.1% had severe nomophobia. Amongst the Males, 56.06% and 24.24% had moderate and severe Nomophobia, respectively while in Females, moderate and severe Nomophobia was found to be 63.25%, and 20.25%, respectively.<sup>29</sup>

**Sarada Vadlamani, et al. (2016)**, conducted a descriptive cross-sectional study among 200 MBBS students in Vishakhaputham to assess mobile phone dependence and self-perceived effects among medical students. Students were selected using random sampling technique. Modified Mobile Phone Dependence Questionnaire was administered to collect data. Study findings shows that mean score for mobile phone dependence was  $19.62^{+-} 7.84$  and high dependence was seen in 26% Subjects. Self- attribution of mobile phone dependence was seen 51%. Self-perceived effects observed were eyestrain (51%), Headache (38,5%), sleep disturbances (33%), anxiety (25.5%), and academic disturbances (27.5%), problems in relationships (7%), and accidents etc.<sup>30</sup>

**Soumitra Sethia, et al. (2016)**, conducted a cross sectional study for a period of 3 months (June to September) in 2016 on undergraduate medical students using smartphone from all academic years of Gandhi Medical College, Bhopal. A total of 473 students were selected by purposive sampling. The data was collected using a nomophobia questionnaire. Result of the study revealed that out of 473 only one was not suffering from nomophobia. The study shows the presence of moderate degree nomophobia among the 291 (61.4%) participants out of a total 473. Moderate degree of nomophobia was in almost equal proportion in all students. Those started using smartphone at the age between 15-18 years are having a high proportion in moderate nomophobia group.<sup>31</sup>

**Yildirim Caglar, et al. (2016)**, conducted a study on 537 college students at a public university in Turkey, who were selected by convenient sampling technique The Nomophobic questionnaire was administered to the student. Result of the study revealed that 42.6% of young adults had nomophobia and their greatest fear were related to communication and information access. The study, also found that gender and the duration of smartphone ownership had an effect on young adults' nomophobic behaviors, whereas age and the duration of mobile phone ownership had no effect. Based on these results, implications, limitations, and further studies were discussed.

**Neelima Sharma, et al. (2015)**, conducted a cross sectional study to assess the pattern of mobile phone usage and prevalence of nomophobia amongst third year medical student in North India. A semi structured questionnaire was used to collect the data. The study finding reveals that 73% of students were nomophobic. 21% of

nomophobic experienced ringxiety. 83% of students experienced panic attacks when their mobile phone was misplaced. Headache and lethargy were the commonest side effects that were experienced by 61% of students.<sup>32</sup>

**Pavithra MB, et al. (2015)**, conducted a cross sectional study amongst the students from MVJ Medical College and research hospital, Bangalore. The study was conducted among 20 students comprised of 47.5% females and 52.5% males. A pre- designed and pre-tested questionnaire was used to get information About 23% students felt loss of concentration and become stressed when they do not have their mobile around, 79(39.5%) students were Nomophobic and another 27% were at risk of developing nomophobia.<sup>33</sup>

### **Part B: Literature review related to knowledge of using smartphone and its ill effects**

**Saurav Basu, et al. (2018)**, conducted a cross sectional study among under graduate medical students in New Delhi to assess the burden and factors associated with mobile phone addiction-like behaviour. 90 students were selected using simple random sampling A pre-designed Mobile Phone Addiction Scale was used to collect data. Male students, compared to female students, were significantly more likely to report a loss of concentration due to mobile phone use and using their mobile phones impulsively in situations that potentially threatened their road safety. Older students also were significantly more likely to report agreement with items relating to intense desire and compulsive use of mobile phones while driving or crossing the road.<sup>34</sup>

**Ibrahim Apraci, et al. (2017)**, conducted a study among undergraduate students in Turkey to assess to investigate the mediating effect of mindfulness on the relationship between attachment and nomophobia. A total of 450 study samples were selected through convenience sampling technique. Close Relationships Scale, Nomophobia Questionnaire, and Mindful Attention Awareness Scale were used to collect data. Study finding reveals that the positive direct effects of avoidant (.13,  $P=.03$ ) and anxious attachment (.48,  $P<.001$ ) on nomophobia were significant. The negative direct effects of avoidant (-.18,  $P=.01$ ) and anxious attachment (-.33,  $P<.001$ ) on mindfulness were also significant. Moreover, mindfulness has a significant negative effect on nomophobia for women only (-.13,  $P=.03$ ).<sup>35</sup>

**Monika Parsad, et al. (2017)**, a descriptive cross-sectional study was conducted amongst 554 students of D.J. College of Dental Sciences and Research to assess the pattern of usage of mobile phones and its effects on the academic performance of students. A Self-administered questionnaire was used to collect data. Result of the study revealed that 39.5% students agreed that they score low marks in professional exams if they spend more time on phone. The number of students who frequently checked their cell phone during their classes or while doing clinical work were 24.7%. A total of 24.12% of the students were found to be nomophobic and at risk of being nomophobes were 40.97%.<sup>36</sup>

**Prerna Utam Bagare, et al. (2017)**, conducted a cross sectional study amongst medical and paramedical students of a Health institute to study mobile phone dependence. Systematic random sampling was used to collect 270 study samples. A pre tested and predesigned questionnaire was used to collect data. The study findings shows that a whopping number of 68.120 Students responded that they use their mobile at night with 26.3% and 23% students using mobile phone during lectures and while driving 58.9 % of the students also got anxious when the mobile showed low battery while 39.6% thought that they would not be able to survive a single day without mobile. 159 out of 270 were aware of the documented increased risk of cancer with high mobile usage. Out of the 270 responders, 143 had experienced eye strain and headache was noted by 122. It was significant that 33% of the responders perceived themselves as nomophobic.<sup>37</sup>

**Anju Gahlot, et al. (2016)**, a cross-sectional study was carried out at Rama Medical College and Research Centre, Kanpur, amongst 169 medical students by using a predesigned and pretested questionnaire to study the pattern of use of mobile phone and its effects. Out of 169 study subjects, 94% were using smartphone, 52% of participants were spending 200-500 Rs. monthly for mobile recharge and 72% of the subjects had been using the cell phone for less than 2 hrs. a day. Music and internet 40% were the most frequently used applications by the participants. 60% of responders agreed that mobile use hampers their study and 90% were admitted that mobile use can cause road accidents. Maximum 68% subjects were that aware regarding protection against the mobile hazards. 25% of 169 students stated that cell usage cause headache.<sup>38</sup>

**Aswani S. Dongre, et al. (2016)**, conducted a cross section exploratory study for assess the prevalence of nomophobia among mobile phone users, cell phone dependence pattern among adults, and to study the health effects of mobile phone usage. This study was conducted in the urban are of Municipal Corporation of Nanded city in Maharashtra, India. The Sample size of 650 were selected through cluster sampling method. From each cluster 22 samples were selected using simple random sampling. Structured and self-administered questionnaire was used to collect data. Study finding reveals that the prevalence of nomophobia was 68.92%. A higher proportion of males (82.91%) were dependent on mobile phone compared to females (31.25%). The most common self-perceived symptoms due to increase mobile phone usage was lack of sleep (70.61%) followed by eyestrain (42.46%).<sup>39</sup>

**Prachi Pundir, et al. (2016)**, conducted a cross sectional study among college students of various streams in Udipi Taluk to find the prevalence of problematic mobile phone use. A total of 1108 student were selected using two stage cluster sampling. A uni-dimensional problematic mobile phone use scale (PMUS) was used to collect data. The study finding reveal that psychological distress was present among 5.8% and lower self-esteem using was present among 13.2% of the participants. Significant cross-sectional association was found in between problematic mobile phone use and psychological distress, lower self-esteem, gender, smartphone use, multiple chatting applications, committed relationship status, relationship with mother and frequency of mobile phone use.<sup>40</sup>

**Pooja N, et al. (2016)**, conducted a study among students of Somaiya College vidyavihar, Mumbai to determine the dependence of mobile phone. Data was collected in two parts: One in the form of a questionnaire and second collecting experience from participants refrained from using mobile phones for 24 hours. The study finding reveals that 62% participants use mobile phones for more than 4 hours, 695 feel lonely when not using mobile phone and 57% are at a high risk of developing Nomophobia.<sup>41</sup>

**S Gautam, et al. (2016)**, conducted a cross-sectional study among 70 higher secondary school students of Saptagandaki Multiple College, Bharatpur, Chitwan to identify knowledge regarding harmful effects on cell phone. Non-probability purposive sampling technique was used to select the study sample. Semi structured self-administered questionnaire was used to collect data. The study findings revealed that respondents' have good level of knowledge regarding harmful effects of cell

phone as it causes addiction on cell phone 90.0% but have average level of knowledge 78.6% gradual loss of hearing 77.1%, eye strain 70.0%, dizziness 71.4%, skin allergy 71.45%, risk for breast cancer 75.7% and have poor level of knowledge as it causes dry eye 47.1%, warmness around car 35.7%, decrease fertility rate 22.9%, tiredness if used after lights out of 70 respondents, 53 (75.7%) of respondents answered risk for breast cancer is the harmful effects of cell phone if kept on chest region, and 20(28.6%) answered chest injury.<sup>42</sup>

**Harina Rabi, et al. (2015)**, conducted survey among secondary school student in Jalingo, Taruba State, Nigeria to assess the influence of mobile phone usage on academic Performance. 300 study samples were selected from the total population of 6,482 through stratified sampling technique. Data was collected through Mobile Phone Usage Questionnaire (MPUQ), Mathematic Achievement Test (MAT) and English Language Achievement Test (ELAT). Findings of the study reveal that mobile phone usage significantly influences academic performance among male and female of senior secondary school students.<sup>43</sup>

**Balaji Arumugam, et al. (2014)**, conducted a descriptive study among 213 medical students in Chennai to assess behavior associated with mobile phone usage and its effect on health. The result of the study revealed that the behavioral pattern associated with mobile usage was concerned about 90% (192) study participants keep the mobile under the pillow or near the bed, 45% (96) of them frequently check the mobile for any missed calls or messages at midnight, 48.8% (104) of them were checking the mobile as soon they get up from the bed, 19.2% (41) were using during class bours, 25.4%(54) rest room usage, 35.7% (76) usage while driving and 56.3% (120) were using the mobile while it is in charging mode. Majority 137 (64.3%) have experienced health problems like headache, sleep disturbance, ear pain, irritability and (111) 52% of the students replied that they were addicted to mobile phones.<sup>44</sup>

**Divya Shettigar, et al. (2013)**, conducted a cross sectional study in Jeppu, urban community of Mangalore, Mangalore to assess the knowledge on ill effects of cell phones usage among adolescents. 50 study samples were selected through non probability purposive sampling method. Pre tested structured questionnaire was used to collect data. The study findings reveal that 46% of adolescents had poor knowledge, 48% had average and 6% had good knowledge, none of them possessed very good level of knowledge.<sup>45</sup>



**J.P. Acharya, et al. (2013)** conducted a cross sectional study to assess psychological effect health effects of mobile usage among adolescents enrolled in different profession in Hyderabad. A Pretested questionnaire was used to collect data. The result revealed that headache was found to be the commonest symptom (51.47%) followed by irritability/anger (50.79%), Other common mental symptoms included lack of concentration and academic performance, insomnia, anxiety etc.<sup>46</sup>

**Nilesh Pendse, et al. (2013)** conducted a cross sectional study in Sadguru Gadage Maharaj College, Karad, Maharashtra. 120 study samples were selected through stratified random sampling, Structured questionnaire was used to collect data. The study findings reveal that majority of students were having poor knowledge i.e., 35 (88%) arts, 24 (60%) commerce & 21(53%) science, whereas 24 (60%) arts, 26 (65%) commerce & 29 (73%) science, were having average knowledge regarding physical & psychological health hazards of mobile phone use.<sup>47</sup>

**Sevil Sahin, et al. (2013)**, conducted a cross sectional study on the students of the Sakarya University, Turkey between 01 November 2012 and 01 February 2013. The study group consisted of 296 (51.4%) females and 208 (48.6%) males. Study aims at to determine mobile addiction. Problematic mobile phone usage scale was used to collect data. Result revealed that the addiction level Was determined to be higher in the second-year students, those with poor family income, those with type A personality, those whose age for first mobile phone is 13 and below and those whose duration of daily mobile phone use is above 5 hours ( $p < 0.05$  for each). The sleep quality worsens with increasing mobile phone addiction level ( $P < 0.05$ ).<sup>48</sup>

**Latha Rajender Kumar, et al. (2011)** conducted a cross sectional study among Asian Institute of Medical Science and Technology University students to examine the awareness of potential health hazards by using mobile phone. A perception questionnaire was used to collect data. The study findings reveal that the most subjects agreed mobile phone usage can cause headache, loss of mental attention and sleeping disturbances and most disagree that mobile phone usage can cause constipation and diarrhea. Out of the 124 subjects who were aware of the side effects, 5% of the males and 10% of the females felt that there was no need to minimize the unwanted effects.<sup>49</sup>

**Sara Thomee, et al. (2011)**, conducted a cross sectional study in Sweden to assess the stress, sleep disturbances and symptoms of depression among young mobile phone

users. The samples were selected using simple random sampling technique from a group of 10,000 males and 10,000 females. The results of the study reveal that 23% of men and 34% women indicated sleep disturbance and among women 30% reported one and 34% reported two symptoms of depression, hence the study suggested that public health prevention strategies focusing on attitudes could include information and advice, helping young adults to set limits for their own and others' accessibility to mobile phone.

**Martinotti Giovanni, et al. (2011)**, conducted cross-sectional study among Italian Youth about the problematic mobile phone use in adolescents, to cause to assess the prevalence of problematic mobile phone use with a mobile addiction test and to identify the behavioral addictions. The sample comprised of 2,790 high school students. The findings depicted that problematic mobile use was 6.3% associated with other behavioral problems like compulsive buying. Health problems and social costs. This study recommended that the problematic mobile phone use among adolescent should become a public health issue in future and it could cause health and social problems.<sup>51</sup>

**Marta Beranuy, et al. (2009)**, conducted a cross-sectional study on college students at Spain deals with maladaptive use of the Internet & the mobile phone and its relationship to symptoms of psychological distress and mental disorder. A sample of 365 students from Undergraduate university freshmen at Ramon Llull University, Spain was included in the study. Four different studies (Psychology, Education Journalism & Broadcasting and Health studies) reveal scales assessing the negative consequences of maladaptive use of both the Internet and the mobile phone. Results of the study indicated that psychological distress is related to maladaptive use of both the Internet and the mobile phone, females scored higher than males on the mobile phone questionnaire, showing more negative consequences of its maladaptive use students of Journalism and Broadcasting showed a more maladaptive pattern of Internet use than students of other majors.<sup>52</sup>

## Summary

The chapter dealt with the literature related to prevalence of nomophobia and knowledge and effect of using smartphones.

# CHAPTER-3



## RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. It may be understood, as a science of studying how research is done scientifically. When we talk about research methodology, we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research the study and explain why we are using a particular method or technique and why we are not using others other so that research results are capable of being evaluated either by the researcher himself or by others. Research methodology deals research design, settings of the study, population Sampling size, sample technique, criteria for sample.<sup>53</sup>

### Research Approach

According to Polit and Hungler research approach refers to the researcher's overall plan for obtaining answers to the research questions or for testing the research hypothesis. It is the basic strategy that the researcher adopts to develop information that is accurate and interpretable.<sup>54</sup>

In view of the nature of the problem and objectives of the study, an exploratory research approach is considered as appropriate to assess the prevalence of nomophobia, knowledge and effect of using smartphone among college students

### Research Design

A research design is the framework or guide use for planning, implementation, and analysis of a study. It is a systematic plan of what is to be done, how it will be done, and how the data will be analyzed. Research design basically provides an outline of how the research will be carried out and the method that will be used.<sup>55</sup>

The research design selected for the study is descriptive research design as there is description of prevalence of nomophobia among college students and description of knowledge level and effect of using smartphone among college students,

### Research Setting

Setting refers to the area where the study is conducted. It is the physical location and condition in which data collection takes place in a study based on the geographical proximity, feasibility and availability of samples.<sup>55</sup>

The study was conducted in Desh Bhagat University Mandi Gobindgarh, District Fatehgarh Saheb, Punjab. College where the research was conducted are (**Annexure 2**)

### Population

Population is the entire set of individuals or objects have some common characteristics selected for a research study.<sup>55</sup>

Population for the study was college students in Desh Bhagat University Mandi Gobindgarh, District Fatehgarh Saheb, Punjab.

### Sample and sample size

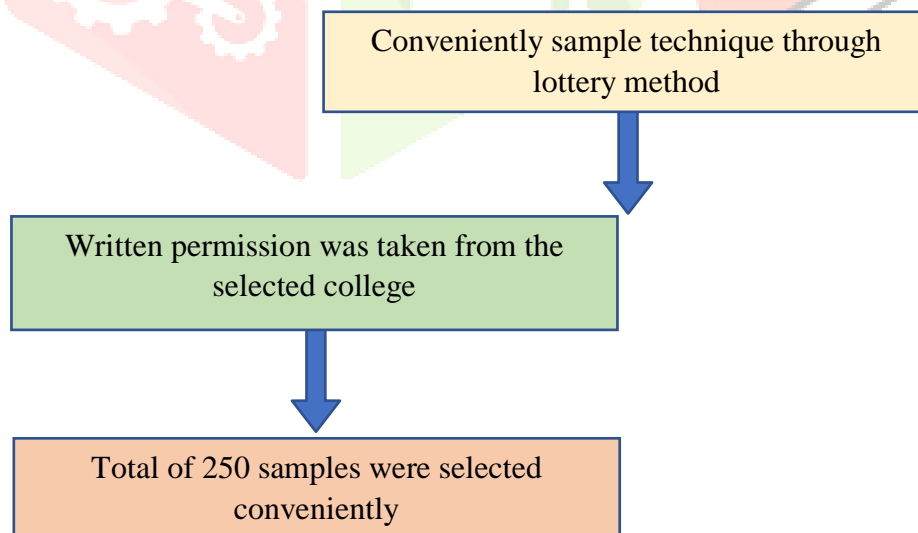
A part or subset of population selected to participate in research study.<sup>55</sup>

Samples were college students who are perceiving bachelor’s degree in arts in selected colleges of District Fatehgarh Saheb, Punjab. The sample size was 250 students.

### Sampling technique

Sampling is the process of selecting a representative part of the population.<sup>55</sup>

In this study convenient sampling technique was used, who fulfils the criteria of the study and permission was obtained. In second stage during the visit for data collection total of 250 samples were selected conveniently from college.



**Diagram II- Representation of sampling Technique**

### **Sampling criteria Inclusion criteria**

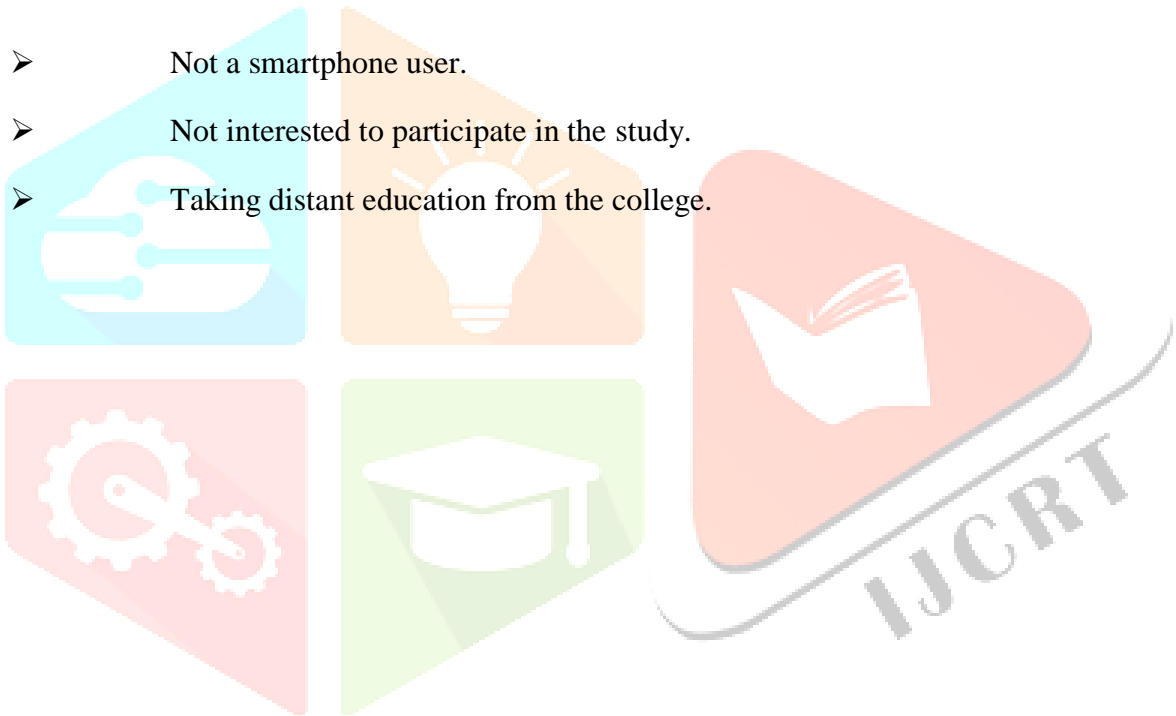
Students of the college who are:

- Perceiving bachelor's degree in Arts.
- Between the age group of 18 to 24 years.
- Willing to participate in the study.
- Present at the time of data collection.

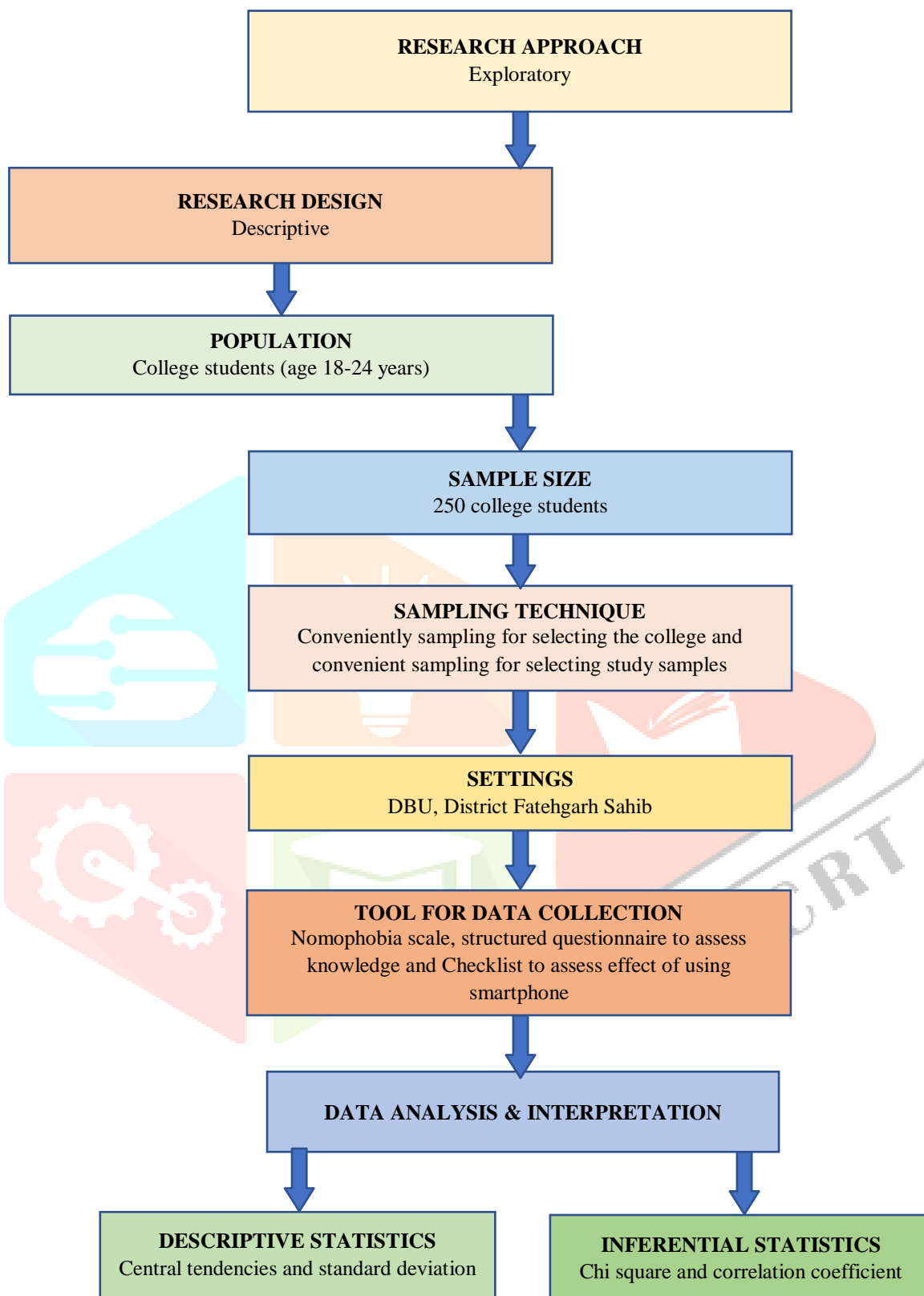
### **Exclusion criteria**

Students of the colleges who are:

- Not a smartphone user.
- Not interested to participate in the study.
- Taking distant education from the college.







**Diagram No. III: Schematic presentation of research methodology**

## Research Variables

Variables are qualities or characteristics of person, thing or situations that change or vary.<sup>55</sup>

Study variables prevalence of nomophobia, knowledge and effect of using smartphone.

Demographical variables: age, gender, educational level, marital status, residential area, no. of mobile phone using, for how many years using mobile phone and most frequent reason for using mobile phone.

## Selection and development of research tool

Data collection tool is the instrument used by the researcher to observe the key variable in the study to get relevant responses pertinent to the study.<sup>55</sup>

### Selection of research tool

A structured nomophobia scale was selected for the study, as it is appropriate tool to reveal the response of the study subjects regarding their behaviour towards smartphone use.

A structured knowledge questionnaire was selected to reveal the response of the study subjects related to smartphone.

A checklist was selected to assess the effect of using smartphone.

### Development of tool

Structured nomophobia questionnaire, knowledge questionnaire and checklist were developed to collect data from college students after review of literature, discussion with investigator's personal experience.

Steps involved in the development of tool were:

- Literature review
- Preparation of the blueprint
- Preparation of the tool

- Content validity of the tool
- Reliability of the tool
- Preparation of the final draft

### **Literature review**

Related literature review in the form of books, journal, published and unpublished research studies and mass education media literature was reviewed and tools were developed.

### **Preparation of blue print**

A blue print was prepared prior to the construction of the research tool. (**Annexure4**)

### **Preparation and description of tool**

The tool consists of structured questionnaire. It is divided into 4 sections i.e., Section A, Section B, Section C and Section D.

#### **Section A: Demographic variables**

This section comprised of demographic variables. It includes 5 questions regarding patient's basic information i.e., age, gender, educational level, marital status, residential area, no. of mobile phone using, for how many years using mobile phone, most frequent reason for using mobile phone.

#### **Section B**

This section consists of structured nomophobia questionnaire to assess the level of nomophobia among college students. It includes 20 questions with 4-point scale ranging from 0 (never) to 3 (most of the times) (**Annexure 5**). Questions were organized in different areas mood associated with nomophobia and action associated with nomophobia, that were aimed to find whether the sample falls under the category of severe, moderate, mild or no nomophobia. For 20 items maximum obtainable score was 60 and minimum obtainable score was 0. Those students who scored in between 41-60 were considered as severe nomophobic, 21-40 were considered as moderately nomophobic, 1-20 were considered as mild nomophobic, 0 were considered as no nomophobic.

## Section C

This section consists of structured knowledge questionnaire to assess the knowledge level of students regarding smartphone. It includes 27 questions (**Annexure 5**). All the questions are multiple choice questions having one right answer. All the questions were developed to assess the knowledge in different areas. General information regarding smartphone, knowledge regarding ill effects of using smartphone, knowledge regarding ideal use of smartphone, knowledge regarding prevention of ill effects of smartphone use. For each correct answer one mark was awarded. There is no negative marking for any wrong answer. Zero marks were awarded for wrong answer. The maximum obtainable marks were 27 and minimum obtainable marks were 0. Those who scored below 9 were considered poor level of knowledge, in between 10-18 were considered as having good knowledge, 19-27 were considered as having very good knowledge.

## Section D: Checklist to assess effect of using Smartphone.

This section consists of checklist to assess the effect of using mobile phone. It comprises of 20 questions (**Annexure 5**). All the questions are developed to assess effect of using smartphone on a person's life. Questions are organized in different areas: impact of smartphone on academic performance, impact of smartphone on social life, impact of smartphone on personal issues, impact of smartphone on health, addiction of smartphone. Against each yes there was I score. Those who scored 14-20 were considered as having severe effect of using smartphone, score in between 7-13 were considered as having moderate effect, and score in between 0-6 were having mild effect of using smartphone.

## Content validity of the tool

The tool was first validated by research committee of DBU, Mandi Gobindgarh. After that tool were given to experts from nursing and psychology department (**Annexure 3**). The recommendations and suggestions of the experts considered to modify the items of tools as well as the content of information booklet. Modifications were made according to suggestions given by them.

### **Reliability of tool**

The reliability of the tool was tested by using split half method on 25 college students of Desh Bhagat University, Mandi Gobindgarh, Fatehgarh Saheb, Punjab (**Annexure 1**).

The reliability of the tool was computed by Karl Pearson's correlation formula. The tool was found reliable and hence the study was preceded with the tools.

### **Final draft of the tool**

Based on the suggestions and validation by the experts the final draft of the tool was proposed.

### **Development of information booklet**

Steps involved in development of information booklet

- ❖ Preparation of information booklet.
- ❖ Content validation of information booklet.
- ❖ Preparation of final draft of information booklet.

### **Preparation of information booklet**

The information booklet was developed stepwise according to the objectives. Information booklet was developed after reviewing literature, seeking expert's opinion and from investigator's personal experience. The overall plan of information booklet was prepared under following areas:

- General information regarding smartphones
- Health hazards of using smartphone
- Ideal ways of using smartphone
- Ways to prevent from ill effects of using smartphone

### **Content validation of information booklet**

The developed information booklet was given to experts for content validation. Modifications were made according to the suggestions of the expert.

### **Preparation of final draft of information booklet**

Based on the suggestions and validation by the experts the final draft of information booklet was prepared.

### **Pilot study**

A pilot study is referred to a small-scale preliminary try out of the method to be used in an actually large study, which acquaints the researcher with problems that can be corrected in proportion for the large research study or is done to provide the researcher with an opportunity to try out of the procedure, methods, and tools of data collection.

The pilot study was planned with 10% of sample size. A written permission is obtained from Desh Bhagat University to conduct pilot study among 25 students of their university (**Annexure 1**). The pilot study was conducted on 5<sup>th</sup> Feb 2021. After the analysis of the pilot study, it is concluded that the tools are reliable and the study is feasible, relevant and practical. Hence the main study was preceded with the tools.

### **Procedure of the data collection for the final study Permission from ethical committee**

Formal permission was taken ethical committee through Principal, Desh Bhagat University School of Nursing Mandi, Gobindgarh.

### **Permission from the concerned authority**

After the ethical clearance from ethical committee, formal permission to conduct the study was obtained from Desh Bhagat University, Fatehgarh Saheb. The study subjects were selected conveniently according to inclusion and exclusion criteria. Investigator introduced herself to the subjects and explained about her aims, objectives and steps of the study and confidentiality of the subjects was assured and written consent was obtained from the students and then data was collected.

### **Period of the data collection**

After obtaining permission from the concerned authority data collection procedure was carried from 2<sup>nd</sup> March 2021 to 3<sup>rd</sup> March 2021. Investigator collected the data related to:

- Demographic variables
- Nomophobia
- Knowledge regarding smartphone
- Effect of using smartphone

### **Plan of data analysis**

The data analysis was done according to the objectives of the study by using descriptive and inferential statistics at 0.05 level of significance. The plan for data analysis was as follows:

- Organize data in master sheet or computer
- Demographic data would be analyzed in terms of frequencies and percentages.
- The level of nomophobia among college students would be analyzed in terms of frequency, percentage, mean, median, standard deviation and would be presented diagrammatically.
- The effect of using smartphone among college students would be analyzed in terms of frequency, percentage, mean, median, standard deviation and would be presented diagrammatically.
- The association between variables would be determined by Chi square test.
- The correlation between variables would be analyzed by Karl Pearson's correlation.

### **Summary**

This chapter dealt with the research methodology. The chapter describes the research approach, research design, population, sample and sample size, variables, sampling techniques, development of tools and information booklet, pilot study, data collection process and plan of data analysis.



# CHAPTER-4



## ANALYSIS AND INTERPRETATION

Analysis and interpretation of data is the most important phase of the research process, which involves the computation of the certain measures along with searching for patterns of relationship that exists among data group.

Analysis is the process of organizing and synthesizing the data so as to answer research questions and test hypothesis.<sup>51</sup>

The analysis and interpretation of this study was based on data collected through research tool from 250 students of District Fatehgarh Saheb, Punjab. The collected data was statistically analyzed using SPSS 23 vs programme. Frequencies, percentage, mean, median, standard deviation was used to assess prevalence of nomophobia, level of knowledge regarding smartphone, effect of using smartphone. Chi square test was used to find association between variables and Karl Pearson's correlation was used to find correlation between variables.

### Objectives of the study

Objectives of the study are:

1. To assess the prevalence of nomophobia among students.
2. To assess the knowledge regarding smartphone among students.
3. To assess the effect of using smartphone among students.
4. To find association between level of nomophobia among students with their selected demographic variables.
5. To find association between knowledge level among college students with their selected demographic variables.
6. To find the correlation between level of nomophobia and effect of using smartphone among the students.
7. To find out the correlation between level of knowledge and effect of using mobile phone among the students.

## Organization of findings

The collected data were analyzed, tabulated and presented under the following sections:

### Section I- description of variables

Section IA: Description of demographic variables of the study sample Section IB: Description of prevalence of nomophobia among study samples

Section IC: Description of knowledge level of study samples regarding smartphone Section ID: Description of effect of smartphone on study samples.

### Section II: Association between variables

Section IIA: Association between levels of nomophobia with selected demographic variables.

Section IIB: Association between levels of knowledge with selected demographic variables.

### Section III: Correlation between variables

Section IIIA: Correlation between levels of nomophobia with effect of using smartphone among students.

Section IIIB: Correlation between level of knowledge and effect using smartphone.

### Section I- Description of Demographic Variables Section IA: Description of demographic variables.

This selection consists of demographic information about study samples which is collected through section A of research tool. It comprises of age, gender, educational level, serial status, residential area, number of mobile phones using, for how many years using mobile phone, most frequent reasons for using mobile phone. The data was analyzed in terms of frequency and percentage.

The table number 1 shows that the large number 115 (46.1%) of the students belong to 20-21 years of age, 81 (32.4%) belongs to 18-19 years, 48 (19.2%) belongs to 22-27 years, 6 (2.4%) belongs to 24 years or above.

With regards to gender majority of the samples 176 (54.4%) were female, 124 (45.6%) were male.

Based on educational level majority of the samples 115 (46.1%) belong to B.Sc. 2<sup>nd</sup> year, 92 (36.8%) belongs to B.Sc. 3<sup>rd</sup> year and 43 (17.2%) were B.Sc. 1<sup>st</sup> year students.

Regarding marital status 241 (96.4%) were single and 9 (3.6%) were married.

Among the study samples 181 (72.4%) were from rural area and 69 (27.6%) were from urban area.

**Table no. 1:** Frequency and percentage distribution of samples according to their demographic variables.

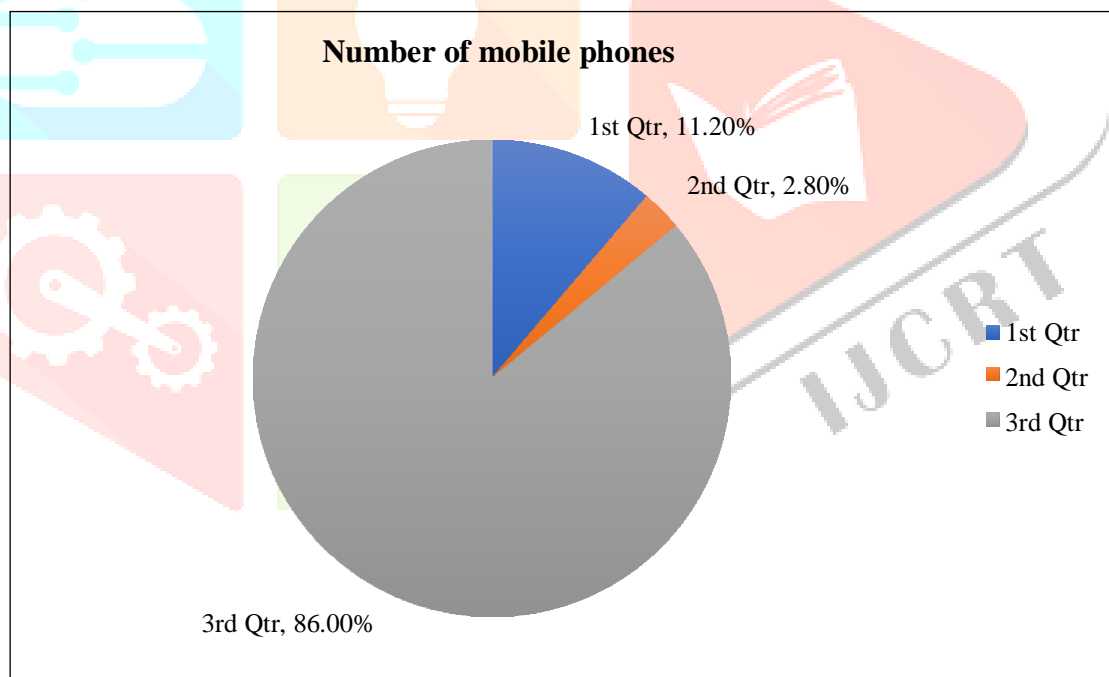
Variable	Opts.	Frequency	Percentage
<b>Age</b>	18-19 years	81	32.4%
	20-21 years	115	46.0%
	22-23 years	48	19.2%
	24 years and above	6	2.4%
<b>Gender</b>	Male	114	45.6%
	Female	136	54.4%
<b>Educational Level</b>	B.Sc. 1 <sup>st</sup> year	43	17.2%
	B.Sc. 2 <sup>nd</sup> year	115	46.0%
	B.Sc. 3 <sup>rd</sup> year	92	36.8%
<b>Marital Status</b>	Single	241	96.4%
	Married	9	3.6%
	Widow/widower	0	0%
	Divorced	0	0%
<b>Residential Area</b>	Rural	181	72.4%
	Urban	69	27.6%
<b>Number of mobile</b>	One	215	86.0%
	Two	28	11.2%
	More than two	7	2.8%
<b>For how many years using mobile</b>	From 1 year	98	39.2%
	2-3 years	94	37.6%
	4-5 years	35	14.0%
	More than 5 years	23	9.2%

<b>Most frequent reason for using your mobile</b>	Calling	84	33.6%
	Surfing	34	13.6%
	Gaming	12	4.8%
	Social networking site	120	48.0%

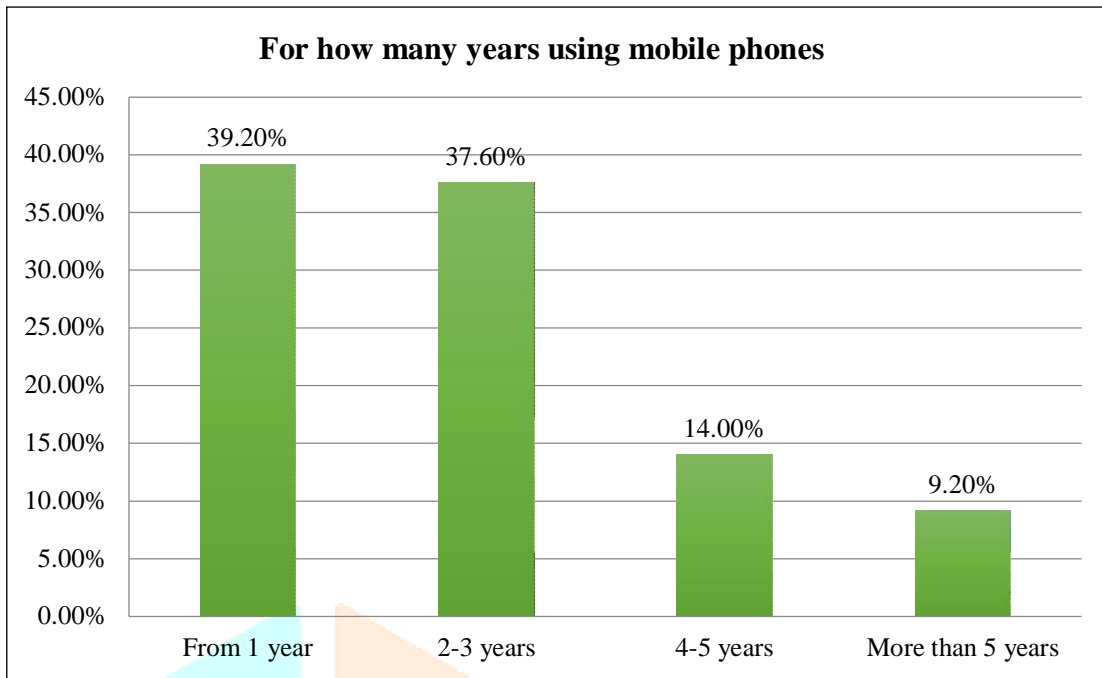
Based on number of mobile phones using 215 (86.0%) were using one mobile phone, 28 (11.2%) were using two mobile phones, 7 (2.8%) were using more than two mobile phones.

With respect to years of using mobile phone majority 98 (39.2%) were using from 1 year, 94 (37.6%) were using from 2-3 years, 35 (14.0%) were using from 4-5 years, 23 (9.2%) were using from more than 5 years.

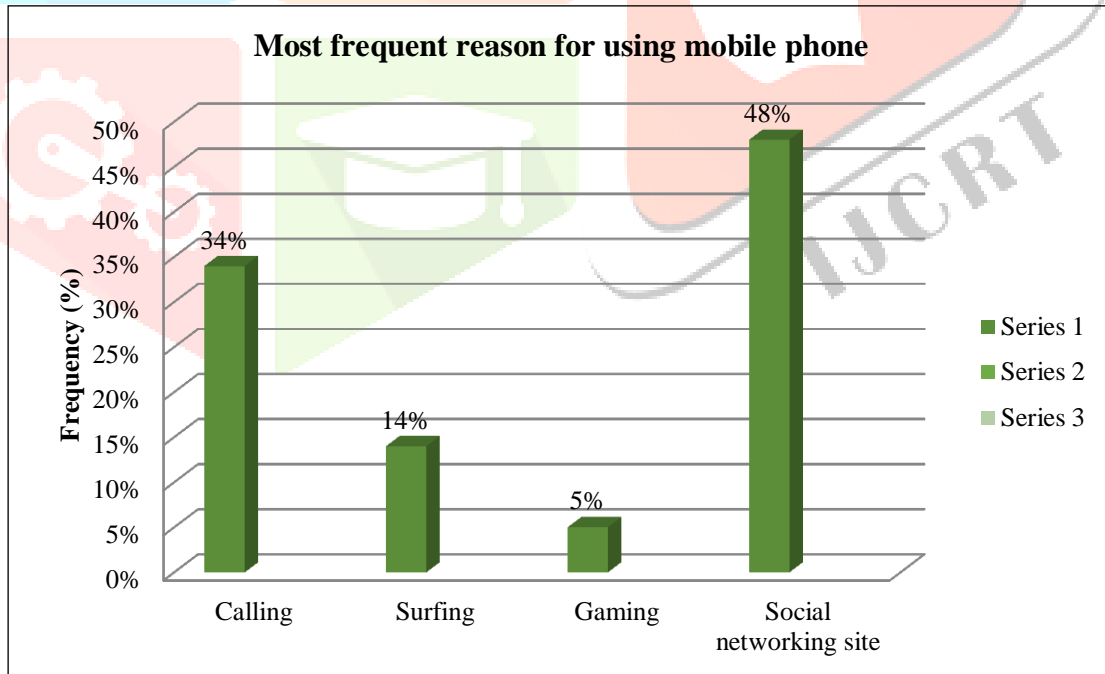
Regarding frequent reason for using your mobile phone majority 120 (48.0%) were using social networking site, 84 (33.4%) were using for calling, 34 (13.6%) were using for surfing, 12 (4.8%) were using for gaming



**Figure No. 1:** 3-D Pie diagram showing the distribution of samples according to the number of mobile phones using.



**Figure no. 2:** Cone diagram showing the distribution of samples according to for how many years using mobile phone.



**Figure No. 3:** 3-D column diagram showing distribution of study samples according to the most frequent reason for using mobile phone.

**Section IB: Description of level of nomophobia among study samples**

This section consists of distribution of level of nomophobia among students. The data was collected through nomophobia scale i.e., Section B of reason tool. Tools are related to how often the study samples were feels anxious, nervous or uncomfortable in relation to their smartphone. The collected data was analyzed in terms of frequency and percentage.

**Table No. 2:** Frequency and percentage distribution of samples according to their level of nomophobia.

<b>Criteria Measure of Nomophobia Score</b>		
<b>Level of Score</b>	<b>Frequency</b>	<b>Percentage</b>
Severe Level (41-60)	15	6.0%
Moderate Level (21-40)	140	56.0%
Mid-Level (1-20)	92	36.8%
No Nomophobia (0-0)	3	1.2%

**Maximum Score- 60**

**Minimum Score- 0**

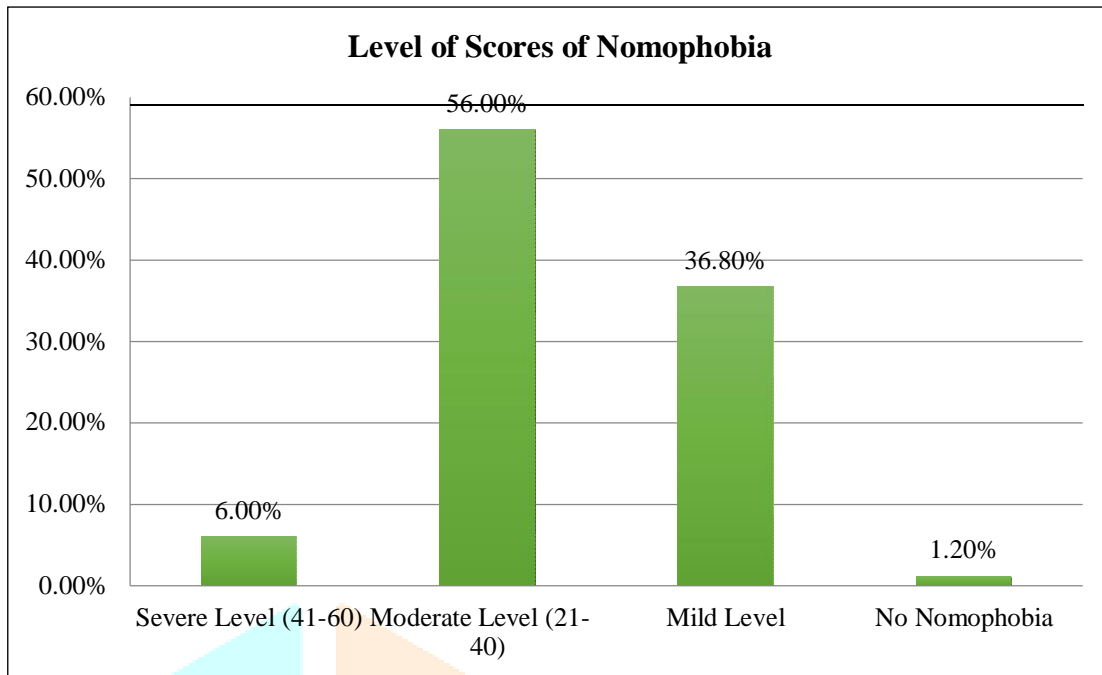
Table no. 2 depicts that majority 140 (56.0%) of samples has moderate level of nomophobia 92 (36.8%) has mild level of nomophobia, 15 (6%) has severe level of nomophobia and 3 (1.2%) has no nomophobia.

**Table no. 3:** Mean, Median and Standard Deviation of scores of Nomophobia

**N= 250**

<b>Descriptive statistics</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Range</b>	<b>Mean%</b>
Nomophobia Score	22.69	23	10.05	55	0	55	37.82





**Figure No. 4:** Cluster cylinder diagram showing level of scores of nomophobia.

### Section IC: Description of level of knowledge score

This section consists of distribution of level of knowledge score regarding smartphones among students. The data was collected through knowledge questionnaire i.e., Section C of research tool. Tools are related to general information regarding smartphones, ill effects of using smartphones, ideal ways of using smartphones, and how to prevent from harmful effects of using smartphone. Each correct response carries one mark. There was no negative marking for any wrong answer. The collected data was analyzed in terms of frequency and percentage.

Table no. 4 depicts that majority 203 (81.2%) of samples have good knowledge level regarding smartphone, 29 (11.6%) have poor knowledge level and 18 (7.2%) have very good knowledge level.

**Table no. 4:** Frequency and percentage distribution of samples according to their level of knowledge score

N=250

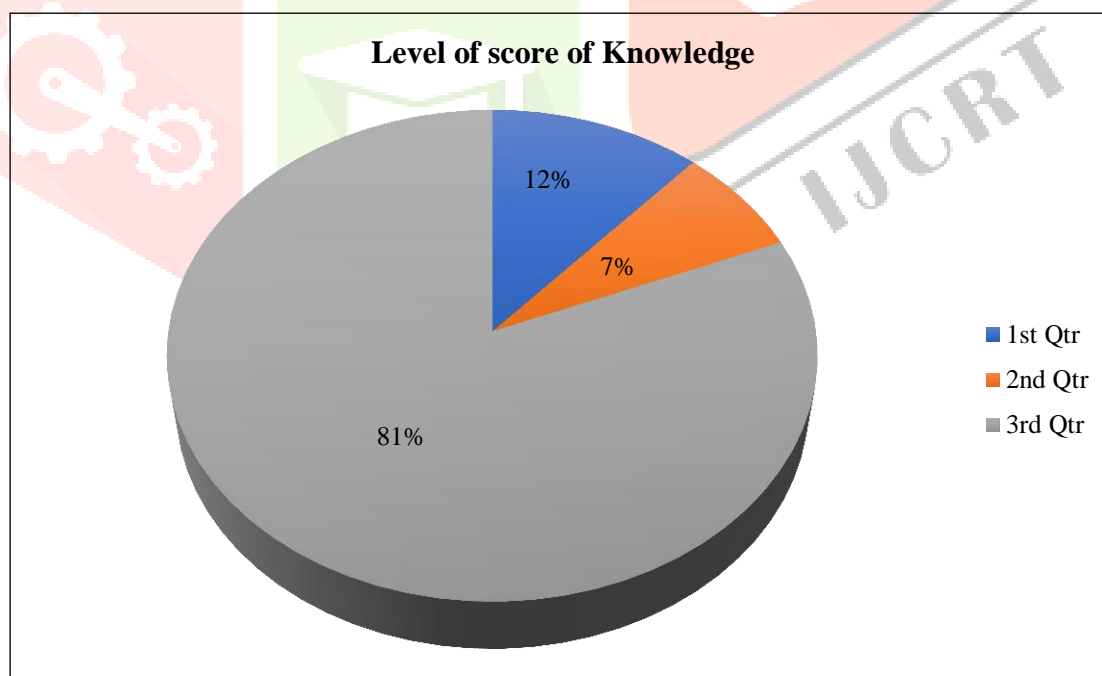
Criteria Measures of Knowledge Score		
Level of scores	Frequency	Percentage
Very good (19-27)	18	7.2%
Good (10-18)	203	81.2%
Poor	29	11.6%

Maximum score = 27

Minimum score = 0

**Table no. 5:** Table showing Mean, median, and standard deviation of knowledge score.

Descriptive statistics	Mean	Median	S.D.	Maximum	Minimum	Range	Mean
Knowledge score	13.73	14	3.33	21	5	16	50.84



**Figure no. 5:** 3-D Pie diagram showing level of score of knowledge.

**Section 1D: Description of effect of using smartphone among the students**

This section consists of distribution of effect of using smartphone among students. The data was collected through checklist i.e., Section D of research tool. Tools are related to negative impact of using smartphone on a person's life. For each positive response one mark is awarded. The collected data was analyzed in terms of frequency and percentage.

**Table no. 6:** Frequency and percentage distribution of samples according to their level of effect of using smartphone.

N=250

Criteria measure of score of effect of using smartphone		
Level of Score	Frequency	Percentage
Severe (14-20)	13	5.2%
Moderate (7-13)	188	75.2%
Mild (0-6)	49	19.6%

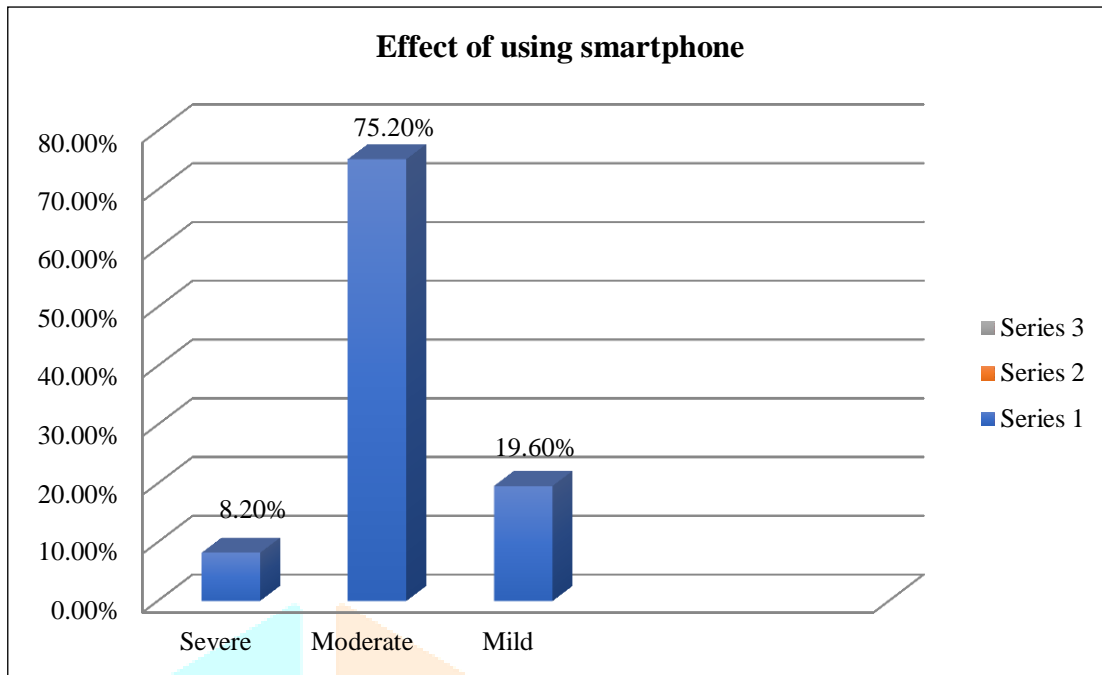
Maximum Score- 20

Minimum Score=0

Table no. 6 depicts that majority 188 (75.2%) of samples has moderate level of effect on their life due to smartphone use, 49 (19.6%) have mild level of effect and 13 (15.2%) have very severe level of effects.

**Table no. 7:** Mean, Median and Standard Deviation of effect of mobile phone use.

Descriptive Statistics	Mean	Median	Standard Deviation	Maximum	Minimum	Range	Mean%
Effect of mobile phone use	9.95	10	3.08	16	1	15	49.76



**Figure no 6:** Pyramid diagram showing scores of effects of using smartphone.

Table no. 8 depicts that 80.4% samples feel that excessive usage of mobile cause itching or heaviness in their eyes, 72.0% feels that use of smartphone in class interfere with their learning, 64.4% feels that they sometimes go out of time when on their smartphone, 50.4% says that they can't spend a day without using a smartphone, 19.6% says that they have met caused an accident because of smartphone use.

**Table no. 8:** Percentage distribution for individual effects of using smartphone.

Sr. No.	Statements	Yes
1.	Do you feel that use of smartphone in class interfere with your learning?	72.0%
2.	Do the calls/messages received just before class impact on your ability to concentrate?	51.2%
3.	Do the smartphone during the study time distract you?	64.4%
4.	Do you feel that smartphone usage causes disruption in your career or life's goal?	49.2%
5.	Do you find yourself spending more texting, tweeting, or emailing as opposed to talking to real-time people?	48.4%
6.	Do you think that you are not able to give time to your	46.0%

	parents/family just because you are using your leisure time by chatting with your friends?	
7.	Does cell phone use have caused problems in your relationships?	38.0%
8.	Do you get agitated when your parents interrupt you while you are using phone?	56.4%
9.	Do you sometimes go out of time when on your smartphone?	64.4%
10.	Do you spend more money on your phone than anything else?	33.2%
11.	Do you feel your use of your cell phone actually decreases your productivity at times?	52.4%
12.	Do you text, email, tweet, or surf the internet while driving or doing other similar activities that require your focused attention and concentration?	34.0%
13.	Does excessive usage of mobile cause itching or heaviness in your eyes?	80.4%
14.	Do you feel that you are unable to get adequate amount of sleep i.e., 6-7 hours in night due to excessive use of mobile?	43.2%
15.	Do you often feel headache or stiffness in neck while excessively using smartphone?	63.2%
16.	Is giving up your smartphone in emotionally difficult for you?	53.2%
17.	Is the amount of time you spend on your cell phone been increasing day by day?	46.8%
18.	Is your smartphone always part of the table place setting, when you eat meals?	29.6%
19.	Have you ever meet/caused an accident because of smartphone use?	19.6%
20.	Can you spend a day without using a smartphone?	49.6%

## Section II: Association between variables

### Section IIA: Association between levels of nomophobia of samples with their selected nomophobia variables.

This area consists of the data related to association between level of nomophobia among study samples with their selected demographic variables such as age, gender, educational level, marital status, residential area, number of mobile phones using, for how many years using mobile phone, most frequent reason for using mobile phone.

In order to determine association between the level of nomophobia among study samples with their selected demographic variables Chi square test is used.

The null hypothesis is stated as follows:

**H<sub>01</sub>:** There is no significant association between levels of nomophobia among students with their selected demographic variables.

The table no. 9 shows that the association between the level of nomophobia and socio demographic variable.

There is significant association between years of using mobile phone and level of nomophobia among college students as the calculated chi square value (18.063) is more than the table value (0.034). There is significant association between most frequent reason for using mobile phone with levels of nomophobia among students as the calculated chi square value (18.564) is more than the table value (0.029).

There is no significance association between other demographic variables with level of nomophobia as the calculated chi square value is less than the table value.

**Table no. 9:** Association of level of nomophobia of samples with their selected demographic variables.

Association Data		Level of nomophobia			Association with nomophobia score			
Variables	Opts.	Frequency	Mean	Standard Deviation	Chi square test	Table value	Df	P Value
<b>Age</b>	18-19 years	81	24.1	10.01	6.479	16.919	9	0.691
	20-21 years	115	22.2	10.57				
	22-23 years	48	21.5	9.07				
	24 years or above	6	22.8	7.52				
<b>Gender</b>	Male	114	24.2	10.21	6.017	7.815	3	0.111
	Female	136	21.4	9.78				
<b>Educational level</b>	B.Sc. 1 <sup>st</sup> year	43	23.3	11.40	7.050	12.592	6	0.316
	B.Sc. 2 <sup>nd</sup> year	115	26.1	8.90				
	B.Sc. 3 <sup>rd</sup> year	92	21.9	10.78				
<b>Marital status</b>	Single	241	22.8	10.08	1.787	7.815	3	0.618
	Married	9	18.8	9.08				
	Widow/widower	0	0	0				
	Divorced	0	0	0				
<b>Residential area</b>	Rural	181	22.1	10.16	2.420	7.815	3	0.490
	Urban	69	24.1	9.70				
<b>Number of mobile phones</b>	One	215	22.3	10.42	9.415	12.592	6	0.152
	Two	28	24.1	7.81				
	More than two	7	25.7	2.69				
<b>For how many years using mobile phone</b>	From 1 year	98	20.1	9.68	18.063	16.919	9	0.034*
	2-3 years	94	23.2	9.92				
	4-5 years	35	25.1	8.73				
	More than 5 years	23	27.9	11.34				
<b>Frequent reason for using your mobile phone</b>	Calling	84	20.6	9.92	18.564	16.919	9	0.029*
	Surfing	34	20.2	10.51				
	Gaming	12	21.6	6.71				
	Social networking site	120	25.0	9.90				

\*= significant at 0.05 level



## **Section IIB: Association of levels of knowledge of samples with their selected demographic variable.**

This area consists of the data related to association between level of knowledge among study samples with their selected demographic variables such as age, gender, educational level, marital status, residential area, number of mobile phones using, for how many years using mobile phone, most frequent reason for using mobile phone.

In order to determine association between the level of knowledge among study samples with their selected demographic variable Chi square test is used.

### **The null hypothesis is stated as follows:**

**H<sub>02</sub>:** There is no significant association between levels of knowledge among students with their selected demographic variables.

The table no. 10 shows that the association between the level of knowledge and socio demographic variable.

There is significant association between age and level of knowledge among students as the calculated Chi square value (20.045%) is more than the table value (0.003). there is significant association between educational level with levels of knowledge among students as the educational level with level of knowledge among students as the calculated chi square value (17.761) is more than the table value (0.001). There is no significance association between other demographic variables with level of nomophobia as the calculated chi square value is less than the table value.

**Table no. 10:** Association of levels of knowledge of samples with their selected demographic variables.

Association Data		Level of nomophobia			Association with nomophobia score			
Variables	Opts.	Frequency	Mean	Standard Deviation	Chi square test	Table value	Df	P Value
<b>Age</b>	18-19 years	81	12.8	3.82	20.045	12.592	6	0.003*
	20-21 years	115	14.0	2.99				
	22-23 years	48	14.8	2.66				
	24 years or above	6	12.2	2.31				
<b>Gender</b>	Male	114	13.2	3.46	3.750	5.991	2	0.153
	Female	136	14.5	3.52				
<b>Educational level</b>	B.Sc. 1 <sup>st</sup> year	43	14.5	3.52	17.761	9.488	4	0.001*
	B.Sc. 2 <sup>nd</sup> year	115	12.8	3.58				
	B.Sc. 3 <sup>rd</sup> year	92	14.5	2.55				
<b>Marital status</b>	Single	241	13.8	3.34	0.214	5.991	2	0.899
	Married	9	13.1	3.34				
	Widow/widower	0	0	0				
	Divorced	0	0	0				
<b>Residential area</b>	Rural	181	13.5	3.34	4.010	5.991	2	0.135
	Urban	69	14.4	3.22				
<b>Number of mobile phones</b>	One	215	14.0	3.33	4.462	9.488	4	0.347
	Two	28	12.2	3.13				
	More than two	7	12.6	2.44				
<b>For how many years using mobile phone</b>	From 1 year	98	13.4	3.37	4.379	12.592	6	0.626
	2-3 years	94	14.0	3.45				
	4-5 years	35	14.0	3.21				
	More than 5 years	23	13.7	2.82				
<b>Frequent reason for using your mobile phone</b>	Calling	84	13.9	3.46	1.971	12.592	6	0.922
	Surfing	34	13.1	2.96				
	Gaming	12	14.0	2.83				
	Social networking site	120	13.7	3.39				

\* = significant at 0.05 level

**Section III: Correlation between variables**

**Section IIIA: Correlation between level of nomophobia and effect of using smartphone**

This area consists of the data related to correlation between level of nomophobia among students and effect of using smartphone on their life.

In order to determine the correlation Karl Pearson’s coefficient was used.

**The null hypothesis is stated as follow:**

**H<sub>03</sub>:** There is no significant correlation between levels of nomophobia among students and effect of using smartphone.

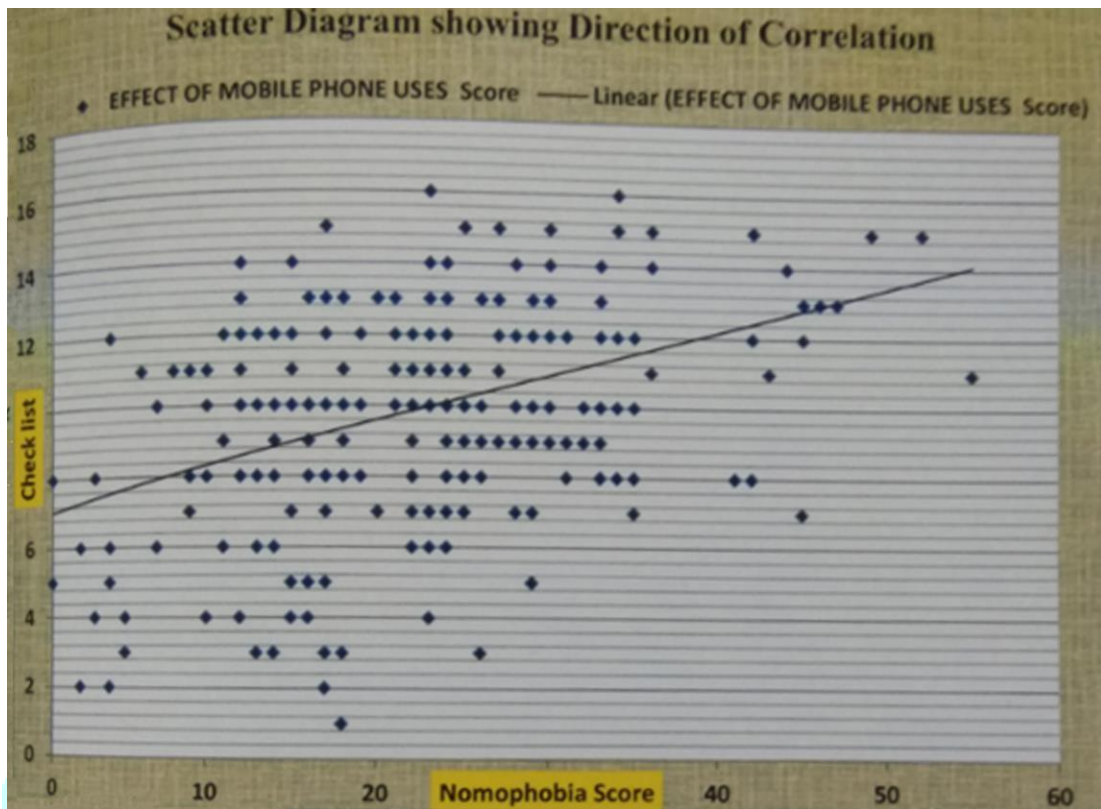
**Table no 11:** Correlation between level of nomophobia and effect of using smartphone.

Correlation		Nomophobia
<b>Effect of using smartphone</b>	Pearson coefficient	0.418**
	P Value	0.001
	N	250

\*\* Correlation is significant at 0.01 level (2-tailed)

The table no. 11 shows that there is positive correlation between level of nomophobia and effect of using smartphone among students.

This positive correlation depicts that the person having nomophobia also have other effects of using smartphone. i.e., as the level of nomophobia increases the effects of using smartphone also increases.



**Figure no. 7:** Scatter diagram showing direction of correlation between level of nomophobia and effect of using smartphone.

### Section IIIB: Correlation between level of knowledge and effects of using smartphone.

This area consists of the data related to correlation between level of knowledge among students regarding smartphone and effect of using smartphone in their life.

In order to determine the correlation Karl Pearson's coefficient was used.

**The null hypothesis is stated as follows:**

**H<sub>04</sub>:** There is no significant correlation between levels of knowledge among students and effect of using smartphone.

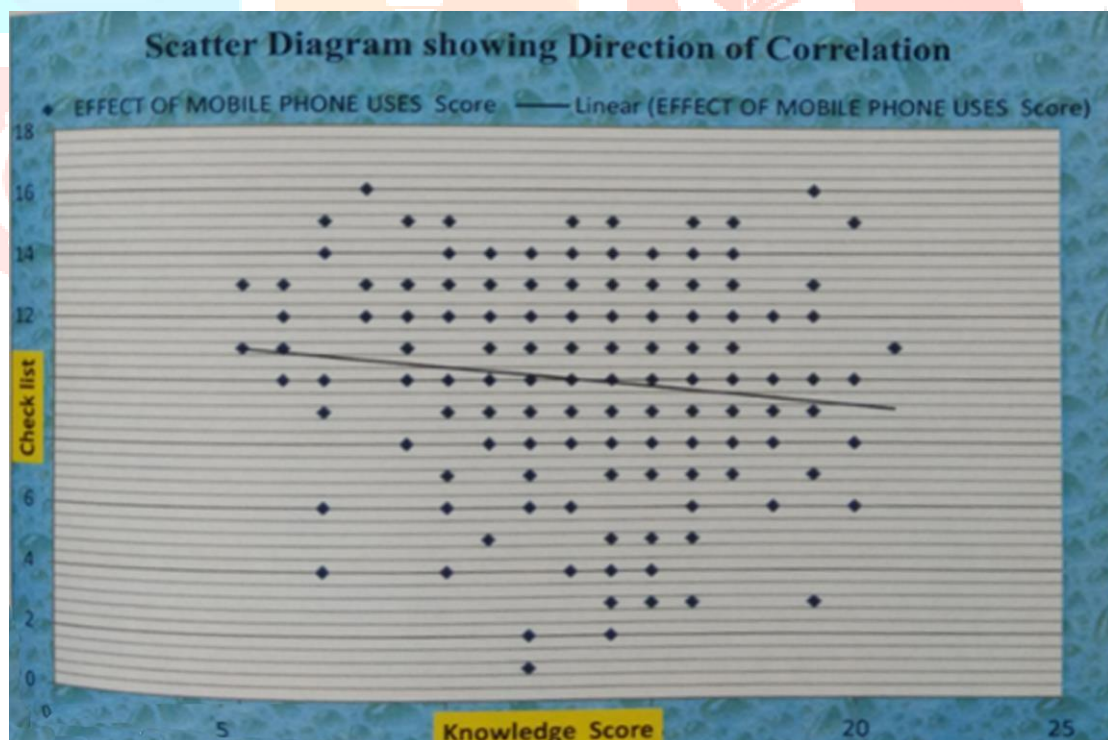
**Table no.12:** Correlation between level of knowledge and effects of using smartphone.

Correlation		
		Knowledge
Effect of using smartphone	Pearson Correlation	-0.129*
	P Value	0.041
	N	250

\*Correlation is significant at 0.05 level (2-tailed)

Table no. 11 depicts that there is a negative between levels of knowledge and effects of using smartphone among students.

The negative correlation states that with the increase in knowledge level regarding smartphone there will be decrease in effect of using smartphone i.e., more the knowledge lesser the effect of using smartphone.



**Figure no. 8:** Scatter diagram showing direction of correlation between knowledge score and effect of using smartphone

## Major findings of the study

The finding of the study is summarized as follows:

Finding related to study samples demographic characteristics

- Majority of subjects 115 (46.0%) belongs to 20-21 years of age.
- 136 (54.4%) of them are female.
- Majority 115 (46.0%) are studying in B.Sc. 2<sup>nd</sup> year.
- With regards to marital status 241 (96.4%) were single.
- Majority 181 (72.4%) were residing in rural area.
- Regarding number of mobile phones using majority 215 (86.0%) were using one mobile phone.
- Based on years of using mobile phone majority 98 (39.2%) were using from one year and 120 (48.0%) were frequently using their mobile phone for social networking site.

Findings related to prevalence of nomophobia are: Majority 140 (56.0%) of samples has moderate level of nomophobia.

Findings related to knowledge level of study samples shows that majority 203 (81.2%) of samples have good knowledge level regarding smartphone, 29 (11.6%) have poor knowledge level.

Findings related to effect of using smartphones shows that majority 188 (75.2%) of samples has moderate level of effect on their life due to smartphone use, 49 (19.6%) have mild level of effect.

Findings related to association between level of nomophobia with their selected demographic variable shows that there is significant association between level of nomophobia of samples with years of using mobile phone at 0.05% level of significance and there is also a significant association between level of nomophobia of samples with their frequent reason of using mobile phone at 0.05 level of significance.

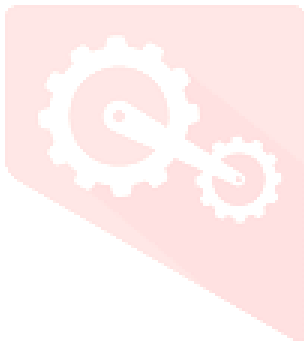
Findings related to association between level of knowledge with their selected demographic variable shows that the association between level of knowledge of samples with their age significant at 0.05 level of significance and the association between level of knowledge of samples with their educational level is significant at 0.05 level of significance.

Findings related to correlation between level of nomophobia and effect of using smartphone shows that there is a positive correlation between levels of nomophobia and effects of using smartphone among students at 0.01 level of significance.

Findings related to correlation between level of knowledge and effect of using smartphone shows that there is a negative correlation between levels of knowledge and effects of using smartphone among students at 0.05 level of significance.

### **Summary**

This chapter describes the interpretation of the data through descriptive and inferential statistics. Chi square was used to find out the association between variables and Karl Pearson's coefficient was used to find out the correlation between the variables.





# CHAPTER -5



## **DISCUSSION, CONCLUSION, NURSING IMPLICATION, LIMITATIONS, RECOMMENDATION**

The study was conducted to find out the prevalence of nomophobia and to assess the knowledge and effect of using smartphone among students. The findings of the study have been discussed with reference to the objectives and hypothesis of the study.

### **Objectives of the study**

Objectives of the study are

1. To assess the prevalence of nomophobia among students.
2. To assess the knowledge and effect of using smartphones among students.
3. To find association between level nomophobia among students with their selected demographic variables.
4. To find association between knowledge level among students with their selected demographic variables.
5. To find the correlation between level of nomophobia and effect of using smartphone among college students.
6. To find out the correlation between level of knowledge and effect of using mobile phone among students.

### **Hypothesis**

Hypothesis of the study are:

**H<sub>1</sub>:** There will be a significant association level of nomophobia among students with their selected demographical variables at 0.05 level of significance.

**H<sub>2</sub>:** There will be significant association between level of knowledge among students with their selected demographic variables at 0.05 level of significance.

**H<sub>3</sub>:** There will be a significant correlation between level of nomophobia and effect of using smartphone among students at 0.05 level of significance.

**H4:** There will be a significant correlation between level of knowledge and effect of using smartphone among students at 0.05 level of significance.

The present study conducted among students founded that majority of students 115 (46.0%) belongs to 20-21 years of the age, 136 (54.4%) are female and 115 (46.0%) are studying in B.Sc. 2<sup>nd</sup> year. 241 (96.4%) are single and majority 181 (72.4%) were residing in rural area. Regarding number of mobile phones using majority 215 (86.0%) were using one mobile phone. Based on years of using mobile phone majority 98 (39.2%) were using from one year and 120 (48.0%) were using their mobile for social networking site.

**The first objective was to assess the prevalence of nomophobia among students.**

The study reveals that majority 140 (56.0%) of samples has moderate level of nomophobia, 92 (36.8%) has mild level of nomophobia, 15 (6%) has severe level of nomophobia and 4 (1.2%) has no nomophobia.

This was supported by the study conducted by Madhusudan M, et al. (2017), among students of medical college of Wayand to assess prevalence of nomophobia and its determinants. 429 undergraduate medical students were selected for the study. Pre- designed and pre-tested nomophobia questionnaire was used to collect the data. The study findings reveal that 416 (97%) of the students were nomophobia and 13 (3%) no nomophobic. 143 (33.3%) showed mild, 241 (56.2%) moderate, and 32 (7.5%) severe nomophobia. The grades of nomophobia showed no statistically significant association with sex, admission quota and residence whereas statistically significant association with phase of MBBS.<sup>24</sup>

**The second objective was to assess the knowledge regarding smartphone among students.**

The study findings depict that majority 203 (81.2%) of samples have good knowledge level regarding smartphone, 29 (11.6%) have poor knowledge level and 18 (7.2%) have very good knowledge level.

**The third objective was to assess the effect of using smartphone among students.**

The study findings shows that majority 188 (75.2%) of samples has moderate level of effect on their life due to smartphone use, 49 (19.6%) have mild level of effect and 13 (15.2%) have very severe level effect.

80.4% samples feels that excessive usage of mobile cause itching or heaviness in their eyes, 72.0% feels that use of smartphone in class interfere with their learning, 64.4% feels that they sometimes go out of time when on their smartphone, 50.4% says that they can't spend a day without using a smartphone. 19.6% says that they have met/caused an accident because of smartphone use.

This was supported by a study conducted by **Prerna Utam Bagare, et al. (2017)**, amongst medical and paramedical students of a health institute to study mobile phone dependance. Systematic random sampling was used to collect 270 study samples. A pre tested and pre-designed questionnaire was used to collect data. The study findings shows that A whopping number of 68.1% students responded that they use they're at night with 26.3% and 23% students using mobile phone during lectures and while driving 58.9% of the students also got anxious when the mobile showed low battery while 39.6% thought that they would not be able to survive a single day without mobile. 159 out of 270 were aware of the documented increased risk of cancer with high mobile usage. Out of the 270 responders, 143 had experienced eye strain and headache was noted by 122. It was significant that 33% of the responders perceived themselves as nomophobic.<sup>37</sup>

**The fourth objective was to find association between levels of nomophobia among students with their selected demographic variables.**

The present study shows that there is significant association levels of nomophobia of samples with years of using mobile phone at 0.05 level of significance as the calculated value of chi square (18.063) is more than the value (16.919) and there is also a significant association between level of nomophobia of samples with their frequent reason of using mobile phone at 0.05 level of significance as the calculated value of chi square (18.564) is more than the table value (16.919).

**The fifth objectives were to find association knowledge level among students with their selected demographic variables.**

The study findings reveals that the association between level of knowledge of samples with their age is significant at 0.05 level of significance as the calculated value of chi square (20.045) is more than the table value (12.592) and the association between level of knowledge of samples with their educational level is significant at 0.05 level

of significance as the calculated value of the chi square (17.761) is more than the table value (9.638).

**The sixth objective of the study was to find the correlation between level of nomophobia and effect of using smartphone among students.**

The study findings reveal that there is a positive correlation between levels of nomophobia and effect of using smartphone among students at 0.01 level of significance. The calculated Pearson coefficient value (0.418) is greater than table value (0.001). It means that more the level of nomophobia more the effect of using smartphone.

**The seventh objective was to find out the correlation between level of knowledge and effect of using mobile phone among students.**

The study findings reveal that there is a negative correlation between levels of knowledge and effects of using smartphone among students at 0.05 level of appliance. The calculated Pearson coefficient value (-0.129) is greater than p value (0.041). It means that more the knowledge regarding smartphone lesser the effect of using smartphone.

**Conclusion**

The study findings provide statistical evidence which clearly indicates that their prevalence of nomophobia among students and they are having less knowledge regarding smartphones and hence having more adverse effect of using smartphone on their life. To avoid ill effects of smartphone use, everyone and society as whole should take some precautions as reducing excessive use of smartphones and avoid possessing multiple gadgets. It is better to develop dos and don'ts for smartphones usage. For this an information booklet was given to the study samples to improve their knowledge regarding smartphone use.

**Implication of the study**

The present study has several implications in Nursing Practice, Nursing Education, Nursing Research and administration.

### **Nursing Education**

- Nursing education should prepare effective nurses. Active participation of nurses in conducting educational programme to provide information regarding ill effects of smartphone use and ideal ways of using smartphone.
- Information booklet distributed during study will help the students to increase their knowledge regarding smartphone use.
- With the increase in knowledge students can impart this knowledge to others also that will help to reduce the prevalence of nomophobia and other ill effects of using smartphone.

### **Nursing practice**

- Nurse must require student's knowledge regarding nomophobia and ideal use of smartphone that would help to prevent prevalence of nomophobia and other ill effects of using smartphone.
- Being the back bone of health team, nurses owe a great responsibility in educating the people especially our youth about ill effects of smartphone and ideal ways of smartphone to reduce the impact of using smartphone.

### **Nursing research**

- The findings of the present study helpful for nursing professionals and students to conduct further studies related to nomophobia and knowledge and effect of smartphone in various setting with various research methods such as experimental studies to reduce the prevalence of nomophobia improve the knowledge regarding smartphone user.

### **Nursing administration**

- Nurse administration are responsible to identify the nature of the problem and organize programme related to smartphone use to the general population especially the students.
- Nurse administrator can also take the initiative in imparting health information through different effective methods.

- Nurse administrator should take interest in motivating the nursing personnel and students to limit their smartphone use at least during work or study time so that their exposure to smartphone will be reduced to some extent.

### **Limitations of the study**

- Study was limited to B.Sc. students only.
- Extraneous variables were beyond researcher's control.

### **Recommendations**

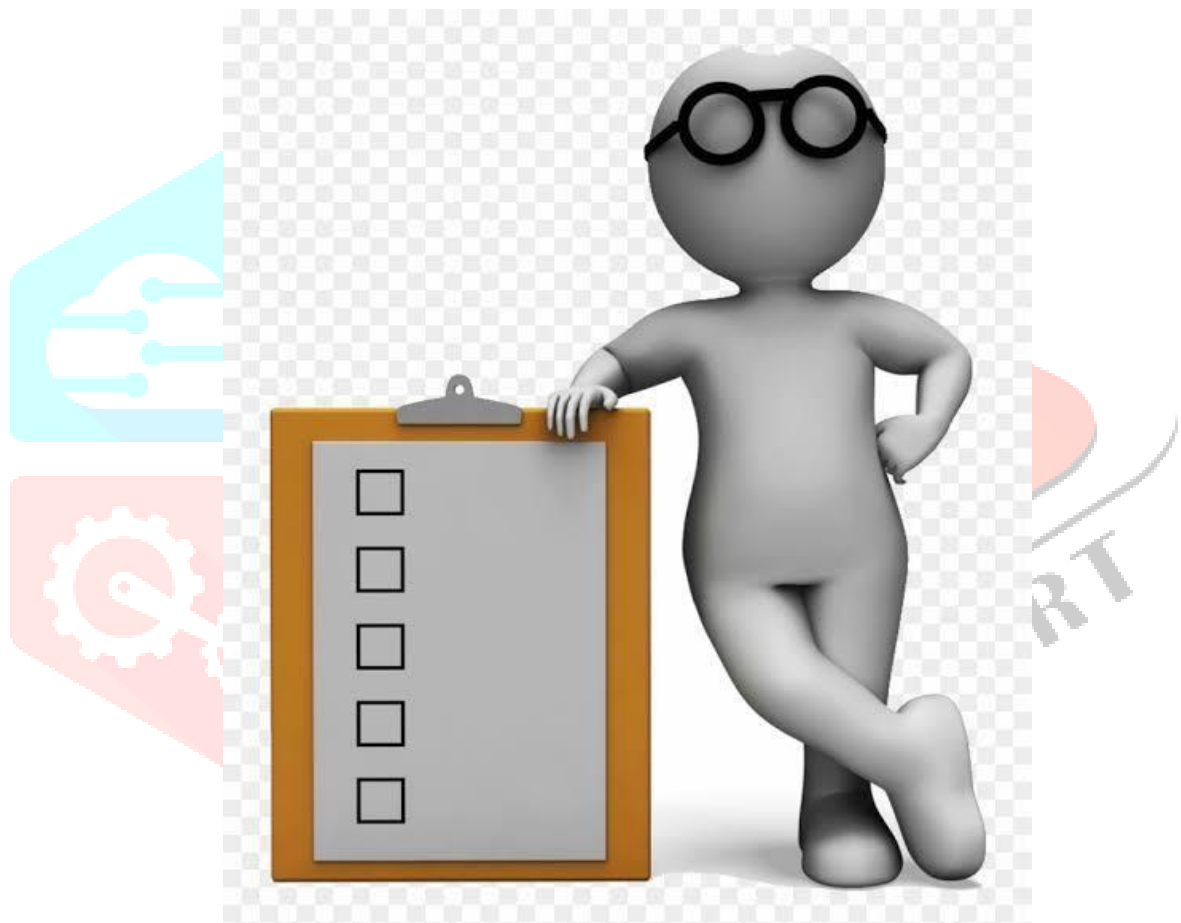
Based on the findings of the study the following recommendations are made.

- The similar study can be replicated with large sample with different mobile usage patterns.
- An extensive teaching programme may be conducted to reduce the prevalence of nomophobia and to improve the knowledge reducing smartphone use.

Comparative study can be conducted between students residing in rural area and urban area.



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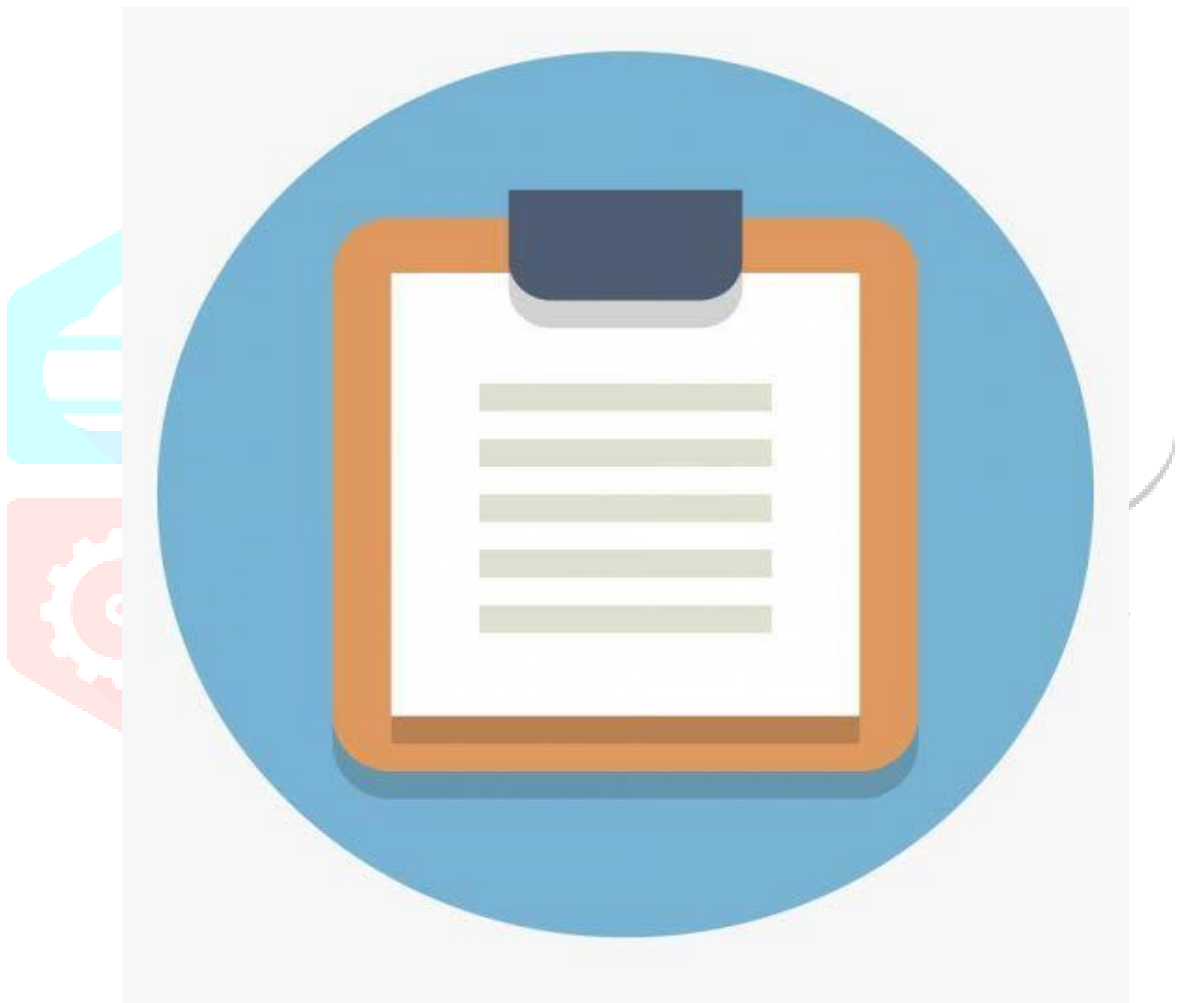
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# Annexures



## Annexure-1

### LETTER REQUESTING PERMISSION TO CONDUCT THE RESEARCH PILOT STUDY

To

The Director

Desh Bhagat University Mandi Gobindgarh

**Subject: Letter seeking permission to conduct the pilot study.**

Respected Madam,

This is to introduce that I Shailja Gautam final year M.Sc.(N) student of Desh Bhagat University School of Nursing have selected the following topic for the research project as partial fulfilment of university requirements for the award of M.Sc. Nursing degree.

**“A discriptive study to assess the prevalence of Nomophobia and knowledge and effect of using smartphone among college students of Desh Bhagat University Mandi Gobindgarh, Fatehgarh Sahib, Punjab with a view to develop an information booklet.”**

I kindly request your permission to conduct my research pilot study in your college. This will be helpful in assessing the knowledge and attitude of students regarding nomophobia and knowledge and effect of using smartphone.

I will be grateful to you if you allow me to conduct the pilot study. Yours faithfully

Date:

Place:

**Shailja Gautam** M.Sc.(N) 2<sup>nd</sup> year Mental Health Nursing



## Annexure-2

### LETTER REQUESTING PERMISSION TO CONDUCT THE MAIN STUDY

To

The Director

Desh Bhagat University Mandi Gobindgarh

**Subject: Letter seeking permission to conduct the main study.**

Respected Sir/Madam,

This is to introduce that I Shailja Gautam final year M.Sc.(N) student of Desh Bhagat University School of Nursing have selected the following topic for the research project as partial fulfilment of university requirements for the award of M.Sc. Nursing degree.

**“A discriptive study to assess the prevalence of Nomophobia and knowledge and effect of using smartphone among college students of Desh Bhagat University Mandi Gobindgarh, Fatehgarh Sahib, Punjab with a view to develop an information booklet.”**

I kindly request your permission to conduct my research main study in your college. This will be helpful in assessing the knowledge of students regarding nomophobia and knowledge and effect of using smartphone.

I will be grateful to you if you allow me to conduct the main study. Yours faithfully

Date:

Shailja Gautam

Place:

M.Sc. (N) 2<sup>nd</sup> year Mental Health Nursing

**Letter requesting the opinion and suggestion from the Experts to establish Content**

To

The Director

Desh Bhagat University Mandi Gobindgarh

**Subject: Regarding request for the validation of the research tool.**

Sir/Madam

This is to introduce that I Shailja Gautam final year M.Sc.(N) student of Desh Bhagat University School of Nursing have selected the following topic for the research project as partial fulfilment of university requirements for the award of M.Sc. Nursing degree.

**“A discriptive study to assess the prevalence of Nomophobia and knowledge and effect of using smartphone among college students of Desh Bhagat University Mandi Gobindgarh, Fatehgarh Sahib, Punjab with a view to develop an information booklet.”**

I kindly request you to validate my research tool for its accuracy, relevancy and appropriation. I will be grateful to you if you validate my content and send it as early as possible. This will be helpful in assessing the knowledge of students regarding nomophobia and knowledge and effect using smartphone.

I will be grateful to you if you allow me to conduct the main study. Yours faithfully

Shailja Gautam

**Enclosures:**

- **Statement of the problem with objectives and hypothesis.**
- **Structured knowledge questionnaire and answer key.**
- **Blue print of structured knowledge questionnaire.**
- **Criteria rating scale for structured knowledge questionnaire.**

### Content Validity Certificate

#### To whom it may concern

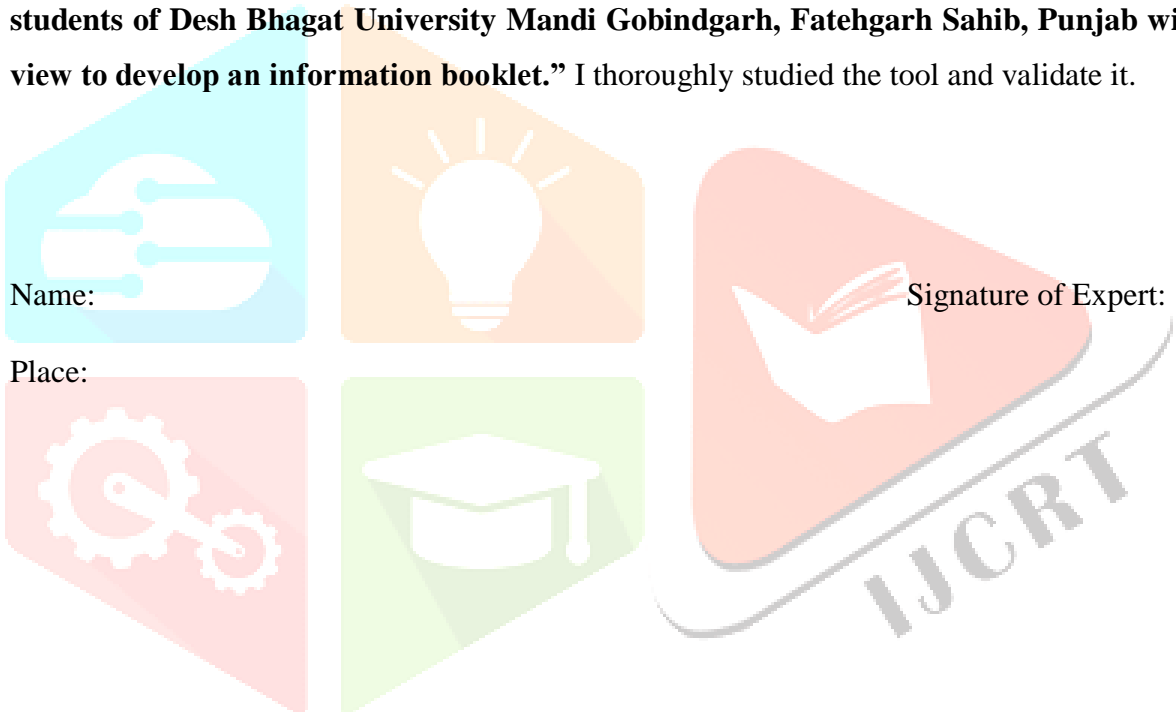
I..... designation .....

department of..... Hereby certify that Ms. Shailja Gautam student of M.Sc.(N) 2<sup>nd</sup> year in DBUSON, Mandi Gobindgarh doing research. The structured tool to assess the knowledge regarding cause and early symptoms of depression is appropriate and valid. It can be used by the researcher. The statement is **“A discriptive study to assess the prevalence of Nomophobia and knowledge and effect of using smartphone among college students of Desh Bhagat University Mandi Gobindgarh, Fatehgarh Sahib, Punjab with a view to develop an information booklet.”** I thoroughly studied the tool and validate it.

Name:

Place:

Signature of Expert:



### CONTENT FORM

I.....M/O, T/O .....

..... hereby giving the consent to participate in the study entitled, “**A discriptive study to assess the prevalence of Nomophobia and knowledge and effect of using smartphone among college students of Desh Bhagat University Mandi Gobindgarh, Fatehgarh Sahib, Punjab with a view to develop an information booklet**” for the benefit of science only. The general purpose has been explained to me. However, I can opt out of the study at any part of time without asking the reason and will not be affected by my discussion of not participating in the study. Your confidentiality of data will be maintained.

Name and signature  
of participant

Name and signature  
of Investigator

Name and signature of Guide with date

.....

.....

## Annexure-3

### List of experts

**1. Mr. Baba Vajrala**

Professor

Department of mental Health Nursing Birender Singh College of Nursing, Uchana.

**2. Mr. Sathish Rajamani**

Associate Professor

Department of Mental Health Nursing Ved Nursing College, Panipat.

**3. Ms. Suman Vashisht**

Associate Professor

Department of Mental Health Nursing  
Baba Gulam Shah Badshah University, Rajouri.

**4. Mr. Jaison Joseph**

Department of Mental Health Nursing

Pt. B.D. Sharma University of Health Sciences, Rohtak.

**5. Ms. Amandeep Kaur**

Assistant Professor

Department of Mental Health Nursing  
S.B.D.S. College of Nursing, Aherwan.

**6. Dr. Daljit Singh** Assistant Professor Department of psychology

Government College for Women, Sirsa.

**7. Dr. Archana Sharma**

Clinical Psychologist

Maharaja Agrasen Medical College, Agroha.

**Annexure-4****Blue print for Nomophobia Scale**

S. No.	Areas	Question No.	Total no. of items	Percentage
1.	Mood associated with nomophobia	1,2,3,4,5,6,9,16	8	40%
2.	Action associated with nomophobia	7,8,10,11,12,13, 14,15,17,18,19,20	12	60%

**Scoring**

Code	Score
Never	0
Rarely	1
Sometimes	2
Most of the time	3

**Maximum score = 60****Minimum score = 0****Interpretation**

Nomophobia level	Score category
Severe level	41-60
Moderate level	21-40
Mild level	1-20
No nomophobia	0

**Blue print for knowledge Questionnaire**

S. No.	Areas	Question no.	Total no. of items	Percentage
1.	General information regarding smartphone	1,2,3,4,5,6,7,8	8	29.7%
2.	Knowledge regarding ill effects of using smartphone	9,10,11,12,13, 14,15	7	25.9%
3.	Knowledge regarding ideal use of smartphone	16,17,18,19,20, 21	6	22.2%
4.	Knowledge regarding prevention of ill effects of smartphone use.	22,23,24,25,25, 26,27	6	22.2%
	<b>Total</b>		<b>27</b>	<b>100%</b>

**Interpretation of knowledge score**

For each correct answer one mark will be awarded. There is no negative marking for any wrong answer. Zero mark will be awarded for wrong answer.

Knowledge level	Score category
Poor	Below 09
Good	10-18
Very good	19-27

**Answer key for knowledge questionnaire**

Question no.	Answer	Question no.	Answer	Question no.	Answer
1	C	10	C	19	C
2	B	11	C	20	A
3	A	12	C	21	B
4	B	13	A	22	D
5	D	14	D	23	C
6	D	15	B	24	A
7	C	16	D	25	A
8	B	17	D	26	A
9	A	18	A	27	D

**Blue print for checklist to assess effect of using smartphone**

S. No.	Areas	Question no.	Total no. of areas	Percentage
1.	Impact of smartphone on academic performance	1,2,3,4	4	20%
2.	Impact of smartphone on social life	5,6,7,8	4	20%
3.	Impact of smartphone on personal issues	9,10,11,12	4	20%
4.	Impact of smartphone on health	13,14,15,16	4	20%
5.	Addiction of smartphone	17,18,19,20	4	20%
	<b>Total</b>		<b>20</b>	<b>100%</b>



### Interpretation of effect of using smartphone

For each positive response one mark will be awarded. There is no negative marking for any negative response.

Effect	Score Category
Severe	0-6
Moderate	07-13
Mild	14-20



## Annexure-5

### Tools Section – A

#### Demographic Variables

**Instructions:** This section consists of 8 items which relates to your personal information. So, read the items carefully and encircle the appropriate answer.

**1. Age**

- a) 18-19 years
- b) 20-21 years
- c) 22-23 years
- d) 24 years of above

**2. Gender**

- a) Male

- b) Female

**3. Educational level**

- a) B.A 1<sup>st</sup> year
- b) B.A 2<sup>nd</sup> year
- c) B.A 3<sup>rd</sup> year

**4. Marital status**

- a) Single
- b) Married
- c) Widow/widower
- d) Divorced

**5. Residential area**

- a) Rural
- b) Urban

**6. Number of mobile phones using**

- a) 1
- b) 2
- c) More than 2

**Section- B****Nomophobia Scale**

Here are 20 statements which may not describe your behaviour regarding your smartphone use. Please indicate how often you feel anxious, nervous or uncomfortable in each statement in relation to your smartphone. Please respond to each item by marking tick in the given space.

S. No.	Statements	Never	Rarely	Sometime	Most of the time
1.	I feel nervous and anxious when I don't have my smartphone with me.				
2.	I feel uncomfortable when I am not able to access my smartphone.				
3.	I feel anxious when I am not able to receive or send messages on my smartphone.				
4.	I feel tensed when my smartphone is running out of battery.				
5.	I feel irritated when my smartphone doesn't have network coverage.				
6.	I get agitated when I run out of balance or daily data limit.				
7.	I constantly keep checking my smartphone to see if I have new messages on social networking site like Facebook, WhatsApp, etc.				
8.	I do constantly keep checking my smartphone to see if had a signal or not when my smartphone does not have network coverage.				

9.	I get anxious when I would not find my smartphone beside me when I wake up in the morning.				
10.	I often check my smartphone in between during sleep throughout night.				
11.	I feel strong urge to check my smartphone when I am not able to check it for a while.				
12.	I feel strong urge to go to home from half of the way to pick my phone when I forget to take it.				
13.	I often see my smartphone frequently while taking to others.				
14.	I often feel that my smartphone is ringing when its actually not.				
15.	I feel a strong urge to answer my phone call/text message in the middle of an important lecture.				
16.	When I am not using my cell phone, I am thinking about using it.				
17.	I cannot help using mobile phone even if I am to do college work.				
18.	When I stop using my cell phone because it is interfering with my life, I usually return to it as I cannot control my urge to use it.				
19.	I feel urge to check my phone as soon as it makes a noise.				
20.	Without my mobile phone by my side, I cannot sleep.				

## Section – C

### **Knowledge questionnaire**

This section consists of 27 questions which are related to knowledge regarding smartphones, their ill effects and prevention from both harmful radiations and addiction. Read them carefully and encircle the appropriate answer.

**Each question carries one mark.**

**There will be no negative marking for any wrong answer.**

**1. How you distinguish smartphone from feature phone?**

- a) Smartphones have camera
- b) Smartphones have videos player
- c) Smartphones have strong hardware capabilities and extreme operating system
- d) Feature phones are more advance than smartphones

**2. What type of radiation do cell phones emit?**

- a) UV radiation
- b) Radio frequency radiation
- c) X-rays
- d) Gamma rays

**3. Minimum distance one should keep while using phone is**

- a) 20cm
- b) 10cm
- c) 5cm
- d) 50cm

**4. An ideal smartphone is once**

- a) Which is having high power of radiation emission
- b) Which is low on the scale of radiation emission
- c) Which is having more features.
- d) None of the above

**5. An ideal phone should have specific absorption rate (SAR)**

- a) 2.6 watts/kg
- b) 3 watts/kg
- c) 3.6 watts/kg
- d) At or below 1.6 watt/kg

**6. How can you check specific absorption rate of your smartphone?**

- a) By dialing USSD code \*#07#
- b) In your mobile phone setting
- c) In the user guide
- d) All of the above

**7. Which generation cell phone emits more radiations?**

- a) 2G phone
- b) 3G phone
- c) 4G phones
- d) Landlines

**8. At what decibel level may regular sustained exposure cause permanent damage to hearing capabilities**

- a) At or below 20 Hz
- b) At or above 85Hz
- c) At or above 150Hz
- d) At or above 60Hz

**9. Who are more vulnerable to radiation emitted by cell phones?**

- a) Kids
- b) Elders
- c) Men
- d) Women

**10. Which of the organ is more prone to be affected by cell phone radiations?**

- a) Stomach
- b) Heart
- c) Brain
- d) Lungs

**11. Ill effects of using cell phone on physical health are except**

- a) Cancer
- b) Blurred vision
- c) Healthy life cycle
- d) Headache

**12. Harmful effects of using cell phone on social life are except**

- a) Decreased face as face interaction
- b) Give people inappropriate attention

- c) Spending time with family
- d) Social isolation

**13. Lengthy conversation on mobile phone can cause**

- a) Hearing impairment
- b) Blurred vision
- c) Ear infection
- d) Ear discharge

**14. Impact of using cell phone on mental health is**

- a) Anxiety
- b) Depression
- c) Stress
- d) All of the above

**15. Is it safe to use phone while charging?**

- a) Definitely yes
- b) Definitely no
- c) Can talk up to 10 minutes
- d) Can talk up to 30 minutes

**16. One should avoid conversation while**

- a) Driving
- b) You are in lift
- c) You are in tunnel
- d) All of the above

**17. One should avoid using cell phone**

- a) When signal as weak
- b) When you are in space surrounded by metal
- c) When your phone is out of battery
- d) All of the above

**18. How can you prevent your eyes from harmful effects of blue light during nighttime?**

- a) Using night shift mode
- b) Using blue shift mode
- c) Using day shift mode
- d) Yellow shift mode

**19. When you have to talk for long duration on phone what should be done?**

- a) Talk with left ear
- b) Talk with right ear
- c) Frequently change from left ear to right ear
- d) All of the above

**20. Which of the following statement is correct regarding use of cell phone?**

- a) Stay still while talking
- b) Roam here and there while talking
- c) Speak loudly on phone
- d) All of the above

**21. While making a call what should be done?**

- a) Place the phone next to ear after dialing
- b) Wait for the call to connect before placing the phone next to the ear
- c) Make call via Bluetooth
- d) Place the phone in pocket.

**22. The degree of exposure to radiations emitted by smartphone will depend on**

- a) Type of smartphone being used
- b) How far the user is from the smartphone's antenna
- c) How far the user is from cell tower
- d) All of the above

**23. Simplest way of reducing your exposure to radiation except**

- a) Talk less
- b) Using mails and text messages for conversation
- c) Using hand free set
- d) Talking in low signal area

**24. Which is better to use**

- a) An ordered landline phones
- b) A cordless landline
- c) A smartphone
- d) All of the above

**25. One should keep his/her phone in**

- a) Purse/bag
- b) Upper pocket of the bag
- c) Back pocket of jeans



d) Front pocket of jeans

**26. Which statement is correct?**

a) If you carry your cell phone with you make sure that the keypad is positioned towards your body and the back is positioned towards outside

b) If you carry your cell phone with you make sure that the keypad is positioned towards outside and the back is positioned towards your body

c) If you carry your cell phone with you make sure that your cell phone is placed upper pocket of the shirt

d) If you carry your cell phone with you make sure that your cell phone is placed in front of your jeans.

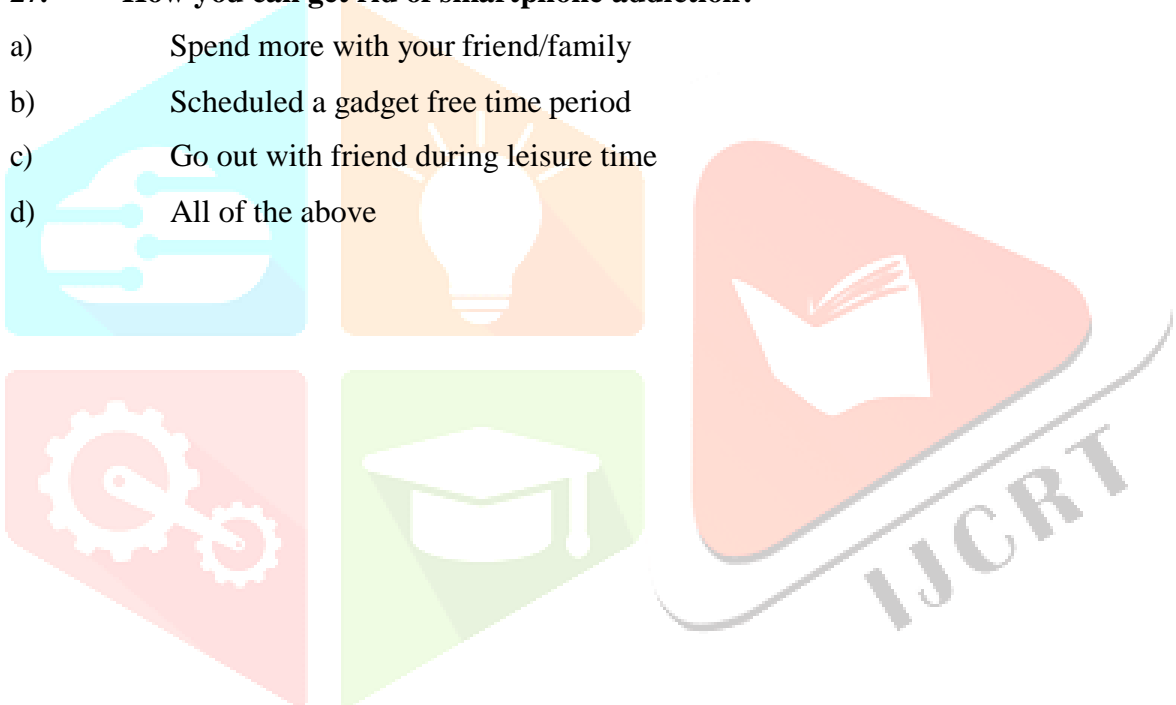
**27. How you can get rid of smartphone addiction?**

a) Spend more with your friend/family

b) Scheduled a gadget free time period

c) Go out with friend during leisure time

d) All of the above



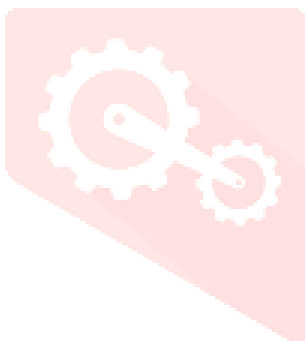
**Section – D**

Checklist to assess effect of using mobile phone

The section consists of 20 items which are related to some of the effects of using mobile phone on a person's life. Read the following item carefully and place tick mark against your response in given space.

S. No.	Statements	Yes	No
1.	Do you feel that use of smartphone in class interfere with your learning?		
2.	Do the calls/messages received just before class impact on your ability to concentrate?		
3.	Do the smartphone during study time distract you?		
4.	Do you feel that smartphone usage causes disruption in your career or life's goal?		
5.	Do you find yourself spending more time texting, or mailing as opposed to talking to real-time people?		
6.	Do you think that you are not able to give time to your parents/family just because you are using your leisure time by chatting with your friends?		
7.	Does cell phone use have caused problems in your relationships?		
8.	Do you get agitated when your parents interrupt you while you are using phone?		
9.	Do you sometimes go out of time when on your smartphone?		
10.	Do you spend more money on your phone than anything else?		
11.	Do you feel your use of your cell phone actually decrease your productivity at times?		
12.	Do you text, email, tweet, or surf the internet while driving or doing other similar activities that require your focused attention and concentration?		

13.	Does excessive usage of mobile cause itching or heaviness in your eyes?		
14.	Do you feel that you are unable to get adequate amount of sleep i.e., 6-7 hours in night due to excessive use of mobile?		
15.	Do you often feel headache or stiffness in neck while excessively using smartphone?		
16.	Is giving up your smartphone is emotionally difficult for you?		
17.	In the amount of time, you spend on your cell phone been increasing day by day?		
18.	In your smartphone always part of the table place setting, when you eat meals?		
19.	Have you ever met/caused an accident because of smartphone use?		
20	Can you spend a day without using a smartphone?		



**Annexure – 6****Master data sheet for demographic variables**

Item No. Code	Age	Gender	Education Level	Marital Status	Residential Area	No. of mobile phone using	For how many years using mobile phone	Most frequent reasons for using mobile phones
1	b	A	B	a	b	a	c	d
2.	a	A	B	a	a	a	a	a
3.	b	A	C	a	a	a	b	b
4.	c	B	b	a	a	a	b	d
5.	b	B	b	a	a	a	a	d
6.	a	A	a	a	a	a	a	b
7.	b	B	b	a	a	a	a	d
8.	b	B	c	a	a	a	b	d
9.	a	B	b	a	a	a	a	a
10.	b	B	c	a	a	a	a	b
11.	b	B	c	a	a	a	a	b
12.	a	A	a	a	a	a	a	b
13.	a	B	b	a	a	a	a	d
14.	b	A	c	a	a	a	b	d
15.	b	A	b	a	a	a	b	a
16.	b	B	b	a	a	a	a	d
17	c	b	c	a	b	a	b	d
18.	b	a	b	a	a	a	b	c
19	b	a	b	a	a	a	b	a
20	b	b	b	b	b	b	a	d
21	d	a	a	a	a	a	a	d
22	c	b	b	a	b	a	b	a
23	c	b	b	a	b	a	c	a
24	a	a	a	a	a	a	b	d
25	a	b	b	a	a	a	b	a
26	a	a	b	a	a	a	a	a
27	c	b	c	a	b	a	c	a
28	b	a	c	a	b	a	c	d
29	b	a	b	a	a	a	c	a

30	a	a	b	a	b	a	b	d
31	a	a	b	a	a	a	b	d
32	c	a	b	a	b	a	d	d
33	c	b	c	a	b	a	c	a
34	b	a	b	a	a	a	a	a
35	a	a	c	a	b	a	b	a
36	b	a	c	a	b	a	c	a
37	a	a	b	a	a	a	c	d
38	b	a	b	a	a	a	b	a
39	b	a	b	a	a	b	c	c
40	c	a	c	a	b	a	c	d
41	a	a	b	a	a	a	b	d
42	a	a	a	a	b	a	b	d
43	a	a	b	a	a	a	d	d
44	a	a	a	b	a	b	d	d
45	a	a	a	a	a	a	a	b
46	a	a	b	a	a	b	b	c
47	a	a	a	a	a	a	a	b
48	b	a	b	a	a	b	d	a
49	b	a	b	a	a	b	b	c
50	a	a	b	a	a	a	a	a
51	b	a	b	a	a	a	c	d
52	a	a	b	a	a	a	b	d
53	a	a	b	a	a	a	a	b
54	b	b	b	a	b	a	a	a
55	b	b	c	a	a	a	a	a
56	b	a	b	a	a	a	a	d
57	a	a	b	a	a	a	b	a
58	c	b	a	a	a	a	a	a
59	c	b	c	a	a	a	b	c
60	b	a	b	a	b	a	b	d
61	b	b	c	a	a	a	a	a
62	b	b	b	a	a	a	b	a
63	a	a	b	a	a	a	b	a
64	c	b	b	a	a	a	b	a
65	b	b	b	a	a	a	a	a
66	b	a	c	b	b	b	b	d
67	a	a	b	a	a	a	b	d
68	b	a	c	a	a	a	b	d

69	c	b	c	a	b	a	b	a
70	b	b	b	a	a	a	a	a
71	b	b	b	a	a	a	b	d
72	b	a	b	a	a	a	c	a
73	b	a	b	a	a	a	b	d
74	b	a	b	a	a	a	d	c
75	b	b	b	b	a	a	b	a
76	a	a	b	a	b	b	c	d
77	b	a	b	a	a	a	d	b
78	a	b	b	a	b	a	b	d
79	a	b	b	a	a	a	b	d
80	a	b	b	a	b	a	a	a
81	a	b	b	a	b	a	a	d
82	b	b	b	a	a	a	a	a
83	b	b	b	a	a	a	a	d
84	a	a	b	a	a	b	b	d
85	b	a	b	a	a	a	b	a
86	a	a	b	a	a	a	b	b
87	b	b	b	a	a	a	b	b
88	a	b	a	a	a	a	a	a
89	a	b	a	a	b	a	a	a
90	b	b	b	a	a	a	b	d
91	a	b	b	a	a	a	a	a
92	b	a	b	a	a	a	a	d
93	b	a	a	a	a	b	b	b
94	a	a	a	a	a	a	a	a
95	b	b	a	a	a	a	b	a
96	c	b	b	a	a	b	b	d
97	a	b	b	a	a	a	a	d
98	c	b	b	a	a	a	a	b
99	b	b	b	a	b	c	b	d
100	d	b	c	a	a	a	d	a
101	b	b	c	b	b	a	c	d
102	c	b	b	a	a	b	b	b
103	c	b	b	a	a	b	b	a
104	a	b	c	a	a	b	b	d
105	a	b	c	a	a	b	b	d
106	a	b	a	a	a	b	b	d
107	a	b	c	a	a	c	b	d

108	a	b	b	a	b	a	a	a
109	b	b	c	a	b	a	b	b
110	a	b	c	a	b	a	b	b
111	a	b	a	a	a	a	a	a
112	a	b	a	a	a	a	a	b
113	b	b	b	a	a	a	b	a
114	d	b	c	a	a	a	d	a
115	b	b	c	a	b	a	d	d
116	b	b	c	a	a	a	a	b
117	b	b	c	a	a	a	a	b
118	a	b	b	a	a	a	a	d
119	b	b	c	a	a	a	a	d
120	a	b	b	a	a	a	a	b
121	b	b	c	a	b	a	b	d
122	b	b	c	a	a	a	a	d
123	b	b	c	a	a	a	a	d
124	b	b	c	a	a	a	b	d
125	b	b	c	a	b	a	b	a
126	b	b	c	a	b	a	b	d
127	b	b	c	a	a	a	b	d
128	b	a	c	a	a	a	a	a
129	b	b	c	a	b	a	b	d
130	b	b	c	a	a	a	a	a
131	a	a	b	a	a	a	a	a
132	b	a	b	a	a	a	b	d
133	b	b	c	a	a	a	a	d
134	b	b	a	b	a	b	a	c
135	b	a	b	a	b	a	b	a
136	a	b	c	a	a	a	a	d
137	b	a	c	a	b	a	d	d
138	b	b	c	a	a	a	a	b
139	b	b	c	a	a	a	a	d
140	b	b	c	a	a	a	a	a
141	b	a	b	a	a	c	c	d
142	b	a	c	a	a	a	b	c
143	c	b	c	a	b	a	a	a
144	c	a	c	a	a	a	b	c
145	a	a	a	a	b	a	a	d
146	c	b	b	a	b	a	d	d

147	c	a	b	a	a	c	b	a
148	b	a	b	a	b	b	c	a
149	b	b	a	a	b	a	d	d
150	a	b	a	a	a	a	a	b
151	c	b	c	a	a	a	a	b
152	c	a	c	a	a	b	c	b
153	c	a	c	a	a	a	b	a
154	b	a	c	a	a	a	d	c
155	a	b	a	a	a	a	a	a
156	a	b	a	a	a	a	b	d
157	c	a	c	a	a	a	c	a
158	c	b	c	a	a	a	d	a
159	b	a	c	b	a	a	b	c
160	b	b	c	a	a	a	b	d
161	c	b	c	a	a	a	b	a
162	b	a	c	a	a	a	b	d
163	b	b	c	a	a	a	a	b
164	b	b	a	a	a	a	c	a
165	c	b	c	a	a	a	c	d
166	a	b	c	a	a	a	a	b
167	c	b	c	a	b	a	c	a
168	b	b	a	b	a	a	a	a
169	b	a	c	a	a	a	d	d
170	a	b	a	a	a	a	a	a
171	c	b	c	a	a	b	a	c
172	c	b	c	a	b	a	c	a
173	b	a	b	a	a	c	d	d
174	a	a	c	a	b	a	c	d
175	b	b	b	a	b	a	a	d
176	a	a	a	a	a	a	a	d
177	a	a	a	a	a	a	a	a
178	b	b	b	a	b	a	a	a
179	b	b	c	a	a	b	a	b
180	c	b	c	a	b	a	b	d
181	b	b	c	a	a	a	a	a
182	c	a	c	a	b	a	c	d
183	c	a	c	b	a	b	c	d
184	b	b	a	a	a	a	a	d
185	b	a	c	a	a	a	a	a



186	c	b	b	a	a	a	d	d
187	c	b	c	a	a	a	d	a
188	d	a	b	a	a	a	a	a
189	b	b	c	a	a	a	a	d
190	a	a	b	a	a	a	a	d
191	c	b	c	b	a	a	b	a
192	b	a	b	a	a	b	a	d
193	a	a	a	a	b	c	b	d
194	d	a	c	a	a	a	d	b
195	a	b	a	a	a	a	a	d
196	b	a	c	a	a	a	c	d
197	a	b	a	a	b	a	a	d
198	b	a	c	a	a	a	d	d
199	c	b	c	a	a	a	b	a
200	b	b	c	a	a	a	a	b
201	a	b	a	a	b	a	a	d
202	c	a	c	a	b	a	c	d
203	a	a	a	a	b	a	c	d
204	b	b	b	a	b	a	b	a
205	a	a	a	a	a	a	a	b
206	c	b	c	a	a	a	a	a
207	a	a	a	a	b	a	a	a
208	c	b	c	a	a	a	a	a
209	b	b	a	a	a	a	b	a
210	b	b	c	a	b	a	a	d
211	a	a	c	a	a	a	c	d
212	c	b	b	a	b	a	b	d
213	b	a	c	a	b	a	c	d
214	c	b	a	a	b	a	d	d
215	a	a	a	a	b	a	a	d
216	b	b	a	a	a	a	a	a
217	a	a	a	a	a	a	a	a
218	b	b	b	a	a	b	b	d
219	a	a	a	a	a	b	b	d
220	c	b	b	a	b	a	b	a
221	b	a	b	a	a	a	d	d
222	b	b	b	a	b	a	b	a
223	c	b	b	a	b	a	b	d
224	a	a	b	a	a	a	b	d

225	c	b	a	a	b	a	c	d
226	a	a	b	a	a	a	d	d
227	b	a	c	a	a	a	b	a
228	b	b	b	a	b	a	b	a
229	b	a	b	a	a	a	b	b
230	c	b	c	a	b	b	b	a
231	c	a	c	a	b	a	c	d
232	a	a	b	a	a	a	b	d
233	c	a	c	a	b	c	c	d
234	d	a	b	a	a	b	b	d
235	a	b	c	a	a	a	a	d
236	b	a	b	a	a	a	a	d
237	b	b	b	a	a	a	a	d
238	b	b	b	a	a	a	a	b
239	a	b	b	a	a	a	a	d
240	a	b	b	a	a	a	a	d
241	b	a	b	a	b	a	b	d
242	a	a	b	a	a	a	c	d
243	b	a	b	b	a	a	c	d
244	b	a	b	a	a	a	b	d
245	a	a	b	a	a	a	b	a
246	a	a	b	a	a	a	b	d
247	b	b	b	a	a	a	a	a
248	a	a	b	a	a	b	a	b
249	a	a	b	a	a	b	d	d
250	b	b	b	a	a	a	a	b

**Master data sheet for Nomophobia Scale**

Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
<b>Code</b>																					
1	0	0	0	0	2	0	1	1	1	0	0	1	2	1	0	1	3	2	0	16	
2	0	0	0	0	2	0	0	0	0	0	0	1	2	1	0	1	3	2	0	12	
3	2	1	2	1	2	1	0	2	1	0	1	0	1	1	0	1	0	1	1	0	18
4	1	1	2	1	1	2	2	0	0	1	1	3	2	1	1	2	2	2	2	29	
5	1	0	1	0	1	1	2	0	0	2	1	3	2	1	1	1	1	2	2	24	
6	0	0	1	3	2	1	1	1	0	0	1	1	0	0	2	0	1	1	0	15	
7	1	3	3	3	2	2	3	2	3	2	1	1	1	0	0	1	1	0	1	30	
8	1	0	2	3	3	0	3	1	0	0	0	0	0	0	0	1	2	2	0	18	

9	0	0	2	0	2	0	2	2	0	0	2	2	3	0	0	2	2	2	23	
10	0	0	1	0	0	2	1	0	0	0	2	0	0	1	2	0	2	0	114	
11	0	0	1	0	1	1	2	1	0	0	0	0	0	2	0	0	1	2	1	012
12	2	0	3	0	1	0	0	1	0	0	0	0	1	0	0	0	2	0	1	011
13	1	2	3	2	0	0	2	2	0	0	2	3	1	1	1	2	1	0	1	125
14	1	2	3	3	3	1	3	1	0	0	1	0	2	3	2	1	2	3	3	034
15	0	2	0	2	1	2	3	0	0	0	0	0	2	1	1	0	2	1	2	221
16	0	2	2	2	3	2	1	1	0	0	0	1	1	1	0	0	0	1	1	018
17	0	3	0	2	3	2	0	0	2	0	0	3	0	2	0	2	0	2	0	021
18	3	2	3	3	2	1	3	1	1	0	1	2	1	0	0	0	1	3	3	030
19	2	1	0	1	0	1	3	0	3	3	1	2	0	3	3	2	0	3	0	331
20	1	0	2	1	3	1	2	3	0	3	0	0	0	1	0	1	0	1	1	020
21	2	1	1	2	2	0	0	1	0	1	2	2	2	3	1	3	0	3	2	028
22	2	1	0	0	2	1	0	1	1	0	2	2	0	0	3	1	1	2	1	020
23	0	1	2	0	2	1	2	0	0	0	2	1	1	0	0	1	1	2	2	018
24	2	0	2	1	1	1	0	1	2	0	1	2	1	1	1	1	2	2	1	123
25	1	1	2	1	2	1	1	2	1	0	1	1	0	1	1	1	0	1	1	019
26	1	3	2	0	3	1	2	1	1	0	1	1	0	1	0	1	1	1	1	122
27	1	2	3	3	1	3	3	2	3	0	1	0	3	1	0	0	3	2	1	032
28	1	1	2	2	1	2	1	0	1	0	1	3	1	1	0	1	1	2	1	123
29	0	0	0	0	2	1	1	0	0	0	0	0	0	3	0	2	2	0	0	314
30	0	2	0	1	1	0	1	1	1	0	2	2	2	1	1	3	2	1	1	022
31	1	3	2	3	3	3	2	2	1	0	0	1	0	0	1	2	3	2	2	031
32	1	1	1	3	1	2	1	1	0	0	1	1	1	1	1	1	2	3	1	023
33	2	2	2	2	2	1	2	1	1	0	0	1	1	1	0	1	0	0	2	019
34	1	1	2	1	2	1	2	2	0	1	1	2	1	2	1	1	1	2	1	025
35	1	1	2	2	1	2	1	0	2	1	1	2	1	2	0	2	1	2	2	127
36	1	0	2	2	2	3	2	2	1	0	0	3	0	2	1	0	1	1	1	024
37	2	2	1	3	3	3	3	2	2	1	1	1	2	2	0	1	0	2	1	133
38	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	04
39	1	0	1	2	0	0	1	0	0	2	0	1	0	2	0	2	0	3	0	217
40	2	1	2	2	3	1	3	1	0	0	0	3	1	3	1	1	1	1	1	229
41	1	0	2	3	0	0	2	0	0	3	0	0	1	3	2	2	1	2	3	025
42	1	0	3	3	3	2	2	2	2	0	0	3	1	1	0	3	2	2	2	133
43	3	2	3	2	1	3	0	1	3	3	1	0	1	2	3	2	3	3	3	342
44	2	1	3	3	3	3	3	2	3	3	3	3	3	2	3	3	3	3	2	152
45	0	0	1	0	1	3	1	1	1	1	0	1	0	1	0	1	1	1	1	015
46	1	0	2	1	3	1	1	2	0	0	0	0	1	3	0	2	0	1	0	018
47	1	0	2	3	1	2	0	1	0	0	1	0	0	1	0	0	0	0	0	012

48	1	3	2	3	3	3	2	2	1	0	0	1	0	0	1	2	3	2	2	0	31
49	1	1	1	2	1	2	0	0	1	0	1	0	0	1	0	3	0	2	0	0	117
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51	3	0	0	0	0	1	1	0	3	0	3	2	2	1	0	0	2	0	2	0	323
52	0	1	1	0	3	2	2	1	2	0	0	0	1	1	0	0	1	1	2	0	18
53	0	1	0	0	3	0	1	1	0	2	0	0	0	1	0	0	1	0	1	0	11
54	0	0	1	1	2	0	3	1	2	3	0	1	0	0	0	2	1	3	1	0	122
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57	0	1	0	0	0	0	2	1	0	0	0	1	0	0	1	0	2	2	0	0	10
58	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	02
59	1	2	1	0	3	1	2	3	0	0	1	2	1	0	0	2	1	1	2	0	124
60	2	2	3	1	3	2	3	3	1	3	2	2	3	3	2	1	3	2	3	0	347
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68	1	1	2	1	2	2	1	1	1	1	1	2	1	2	0	1	0	1	1	0	123
69	2	1	1	0	2	2	2	1	1	0	0	2	1	1	0	1	2	2	2	0	23
70	0	3	0	3	0	1	3	0	0	0	2	0	0	2	0	0	0	1	2	0	17
71	1	2	2	1	3	2	3	2	1	3	2	1	1	2	1	2	3	0	1	0	235
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74	2	1	1	2	3	1	3	2	2	3	0	2	1	1	1	2	0	1	2	0	30
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81	0	0	1	0	0	0	0	1	1	1	1	1	0	1	0	1	1	0	0	0	110
82	0	3	0	3	0	1	3	0	0	0	1	0	0	1	0	0	0	0	3	0	15
83	0	3	2	0	0	2	0	0	0	0	2	0	1	0	0	1	3	2	1	0	17
84	1	2	3	0	1	2	0	2	1	3	1	0	2	1	3	0	1	2	1	0	329
85	0	0	2	2	2	0	2	2	1	1	1	2	0	1	2	2	0	3	1	0	24
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87	2	1	2	2	1	2	1	2	3	1	2	0	2	1	3	9	1	2	3	031
88	1	0	2	0	0	3	0	0	3	0	3	2	0	3	0	3	0	0	3	124
89	1	0	2	0	3	3	2	0	3	3	3	2	1	3	0	2	2	3	2	136
90	2	3	3	3	3	2	3	1	3	3	2	3	2	0	0	3	3	1	2	042
91	1	2	0	3	1	0	2	3	0	0	1	2	0	3	0	0	1	2	1	022
92	3	2	0	2	3	0	1	1	2	1	0	0	0	0	1	2	3	2	2	126
93	2	1	3	3	3	3	0	1	0	0	1	3	0	1	1	0	0	3	3	028
94	0	0	0	1	0	1	1	1	1	0	0	0	0	1	0	1	1	1	0	09
95	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	1	04
96	2	3	1	1	3	0	1	3	0	1	3	2	1	3	0	2	3	0	2	031
97	2	1	0	2	3	2	2	2	0	1	2	2	0	2	1	1	2	3	2	030
98	1	1	0	2	3	2	2	2	0	0	2	2	2	3	1	1	2	3	2	031
99	0	2	0	2	3	0	0	1	0	1	2	3	2	2	2	0	2	2	3	229
100	1	2	0	1	0	0	1	1	0	1	2	3	2	2	0	1	2	2	2	124
101	2	2	0	1	3	2	3	2	0	0	0	3	1	2	0	0	1	3	3	129
102	2	2	0	2	1	2	2	3	3	0	1	2	0	3	0	0	1	2	1	027
103	2	2	0	2	1	2	2	3	3	0	3	3	0	2	1	1	2	3	2	034
104	2	0	3	3	3	0	0	3	2	0	2	3	2	2	2	1	2	3	1	034
105	2	0	3	3	3	0	0	3	2	0	2	3	0	2	2	1	1	2	1	030
106	0	0	0	3	3	0	0	3	3	0	2	3	0	2	0	0	1	2	1	023
107	2	1	3	3	2	3	2	1	0	0	1	1	2	2	0	0	0	1	2	026
108	0	0	1	2	3	0	1	2	0	0	1	2	1	1	0	0	0	1	2	017
109	2	0	0	2	1	1	2	1	3	0	1	3	3	2	2	1	1	2	3	030
110	2	0	1	2	3	0	0	2	2	2	3	3	2	2	2	1	2	1	3	134
111	2	1	2	1	2	0	1	0	0	0	1	0	2	2	2	1	1	2	3	023
112	1	0	0	3	1	2	1	0	0	0	1	2	1	1	0	1	0	1	1	016
113	2	0	0	1	2	1	0	0	0	0	0	1	0	2	2	0	2	2	2	017
114	2	3	2	2	0	0	0	1	0	3	1	1	1	2	0	2	2	3	2	329
115	1	2	0	0	3	2	0	0	0	0	1	1	0	2	0	0	1	3	0	016
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00
118	2	0	0	3	2	0	1	2	0	3	1	0	2	1	1	1	1	3	1	024
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00
120	0	0	0	0	0	0	0	2	0	2	3	3	3	0	3	0	0	0	0	016
121	1	0	1	2	2	1	1	1	0	0	1	0	0	1	0	0	1	0	0	113
122	2	0	0	0	0	1	3	1	0	0	3	0	3	0	0	0	2	2	1	018
123	1	0	1	1	1	0	3	0	0	0	1	0	1	0	0	0	1	0	2	012
124	2	0	0	1	3	3	3	0	0	0	0	3	1	3	0	0	0	1	3	023
125	1	2	0	2	3	2	0	2	0	0	1	1	0	2	1	0	2	1	1	122

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131	2	3	1	1	2	0	3	2	0	2	1	2	1	3	0	2	2	1	3	031
132	2	3	1	1	2	1	3	2	0	1	1	0	2	0	1	2	0	0	2	024
133	0	0	2	0	0	0	3	2	0	0	1	0	1	1	2	1	1	0	3	017
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136	0	2	3	1	1	2	3	0	2	1	3	0	2	3	2	3	0	1	0	029
137	2	1	3	2	1	3	1	2	2	0	1	2	1	1	2	0	0	3	3	333
138	0	0	2	3	3	2	0	3	1	1	1	2	1	1	1	2	1	2	1	128
139	0	3	0	0	2	3	0	0	0	0	0	0	2	1	0	0	0	2	1	014
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141	1	0	1	1	2	1	3	1	2	2	0	1	1	2	3	0	2	1	3	027
142	1	2	0	0	1	0	0	1	1	0	1	2	1	0	3	2	2	3	2	224
143	0	2	3	0	0	3	0	0	0	0	0	0	0	1	0	1	2	0	0	012
144	0	0	1	3	1	0	1	1	1	1	0	1	0	0	0	1	1	1	1	014
145	0	2	3	1	3	3	1	2	0	0	3	3	3	2	1	2	0	1	2	032
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149	2	2	2	0	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	012
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151	1	0	0	1	2	1	0	1	1	1	2	2	1	3	1	2	3	2	1	025
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155	2	2	2	3	3	1	1	2	3	2	1	3	1	2	3	2	3	2	3	344
156	1	0	1	2	3	0	1	1	0	2	1	1	1	0	2	1	2	2	3	125
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161	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	04
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163	0	0	1	0	1	1	1	1	0	0	0	0	0	1	1	0	0	0	1	012
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165	0	1	0	0	2	2	3	1	3	0	0	1	2	0	3	0	3	2	1	024
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167	1	2	1	0	2	2	1	1	0	1	2	1	0	2	1	1	2	1	1	022
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169	2	3	3	3	2	2	3	3	3	3	3	3	3	3	3	1	3	3	3	355
170	1	0	1	0	1	1	0	0	0	1	1	0	0	1	1	0	0	1	1	111
171	0	0	1	2	3	2	3	2	0	0	1	2	0	2	0	0	2	0	1	021
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174	1	2	0	0	2	1	2	0	2	3	3	3	2	3	2	0	2	2	3	134
175	0	0	1	0	3	3	3	2	0	0	0	0	2	2	0	2	2	1	2	023
176	0	1	0	3	0	0	3	2	0	0	0	0	0	2	2	0	0	0	3	016
177	0	2	3	2	3	3	0	0	2	0	1	2	1	2	3	3	1	3	2	134
178	0	0	0	0	3	2	3	2	0	0	0	0	2	2	0	2	2	1	2	021
179	1	2	2	2	2	0	1	2	1	2	2	0	1	1	0	1	0	2	1	326
180	1	2	2	3	3	0	1	2	1	1	1	2	1	0	0	0	1	2	1	226
181	2	0	0	2	1	3	2	3	0	0	0	0	0	3	0	1	2	2	1	022
182	2	3	1	0	1	0	2	1	1	0	2	0	0	1	1	2	2	0	2	223
183	2	2	0	0	1	1	0	1	0	3	1	0	0	1	0	1	2	3	0	018
184	0	2	2	0	2	0	2	0	0	0	1	1	0	0	0	0	3	0	0	013
185	0	2	3	1	1	2	0	0	1	3	0	0	1	1	2	2	3	0	0	022
186	0	2	2	0	2	0	2	0	0	0	1	2	1	1	1	1	3	0	0	018
187	2	1	2	1	2	3	1	2	0	0	0	1	0	2	3	2	1	2	2	128
188	0	0	0	0	0	0	0	1	0	0	0	3	1	1	1	2	1	0	1	112
189	1	2	2	3	3	2	2	1	1	1	2	2	1	2	1	2	1	1	2	133
190	0	0	0	0	0	0	1	1	0	0	0	3	0	1	0	1	1	3	0	011
191	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	03
192	0	0	0	0	0	0	1	1	0	0	0	3	0	1	0	1	1	3	0	011
193	2	2	1	2	2	0	2	1	3	2	1	2	2	0	0	0	0	1	1	024
194	2	1	0	0	1	1	0	1	0	0	1	0	1	0	0	1	1	2	2	115
195	2	0	1	2	0	0	1	2	3	0	2	0	2	0	1	0	0	2	2	323
196	1	1	0	0	1	0	3	1	1	0	2	3	2	2	1	2	1	2	2	126
197	2	1	2	3	2	2	1	2	1	0	0	1	0	1	2	1	1	2	2	329
198	3	2	2	3	2	3	3	3	3	2	2	1	2	2	3	2	3	2	3	349
199	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	07
200	0	1	1	1	1	3	0	3	0	0	0	1	1	1	0	1	1	3	1	019
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202	2	3	1	1	3	0	2	1	0	3	1	2	0	1	0	2	3	1	3	029
203	2	1	1	3	2	3	2	3	3	2	2	3	1	2	2	3	3	1	2	245

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206	1	1	2	2	3	3	3	0	1	0	2	1	3	2	0	1	3	2	1	31
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208	2	1	2	2	3	3	2	0	0	0	2	3	3	2	0	2	3	2	1	33
209	1	2	1	3	2	1	2	2	3	3	2	1	2	3	3	2	3	1	2	342
210	1	2	1	0	2	0	2	0	0	0	1	0	0	0	0	2	1	1	2	015
211	3	1	2	1	3	3	2	1	2	3	3	2	3	3	2	2	3	1	3	346
212	0	0	0	0	1	1	2	0	0	0	0	0	1	0	0	1	2	2	2	012
213	2	1	2	2	1	0	1	3	1	0	1	2	1	3	1	2	1	2	3	130
214	1	1	1	0	0	1	2	0	0	0	1	0	0	1	0	0	1	0	0	09
215	0	2	3	1	2	3	3	1	2	0	3	3	3	2	1	2	0	1	3	035
216	0	2	3	0	0	0	1	0	1	0	0	0	0	0	0	2	2	2	2	015
217	0	2	3	1	2	3	0	1	2	0	1	2	1	0	3	3	1	3	2	030
218	0	0	2	1	2	2	0	1	0	0	1	2	2	1	2	0	3	2	2	023
219	0	0	3	1	0	1	3	2	1	0	3	0	1	3	0	1	0	2	0	021
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221	0	1	2	1	3	1	1	2	1	0	1	2	1	0	0	1	3	1	1	327
222	0	1	1	1	1	1	1	2	0	0	0	1	0	3	0	1	1	3	3	222
223	2	3	0	2	3	1	0	0	2	1	2	2	0	2	0	0	0	2	1	023
224	1	0	2	0	2	1	1	2	0	0	0	2	0	1	0	1	0	2	1	016
225	1	2	0	0	1	0	1	2	0	0	0	1	2	1	1	0	1	1	3	017
226	0	1	3	3	2	3	2	0	1	0	0	3	1	3	2	1	0	0	1	228
227	2	1	1	0	1	3	1	3	0	3	0	3	3	2	0	2	2	1	1	029
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229	0	1	1	2	2	0	1	0	1	0	1	3	3	1	2	2	2	1	3	024
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231	1	0	1	1	2	2	3	2	1	3	1	0	2	3	1	0	0	0	3	329
232	0	3	0	3	1	0	3	3	0	3	3	2	1	0	0	0	0	2	1	227
233	1	0	0	1	2	0	1	1	2	0	2	1	1	0	2	3	0	1	2	121
234	1	2	3	3	2	3	1	2	0	0	1	0	0	2	3	1	0	2	3	029
235	0	2	0	1	1	3	0	0	0	0	3	0	2	3	2	3	0	1	0	021
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237	2	0	1	0	2	1	2	1	1	2	2	1	0	2	0	1	2	1	2	023
238	3	0	1	2	2	3	3	0	3	3	3	2	1	0	2	0	1	2	3	236
239	1	0	1	0	2	1	2	0	1	1	3	2	3	3	2	2	3	3	3	336
240	1	0	1	0	2	1	1	0	1	1	1	0	1	1	0	1	1	0	1	115
241	0	0	0	0	0	2	1	1	0	2	0	1	3	1	0	1	0	2	1	015
242	2	0	0	0	0	0	1	2	1	0	0	1	0	3	3	1	0	1	3	018



243	2	0	0	0	0	0	2	2	1	2	1	0	0	1	2	2	2	1	2	121
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245	1	1	0	2	2	0	1	0	0	0	2	0	0	0	0	1	1	2	1	014
246	0	0	0	0	2	1	1	0	2	0	1	2	1	0	1	0	0	0	0	112
247	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	02
248	2	3	2	3	3	3	2	2	1	0	2	0	1	0	0	1	2	1	0	028
249	1	2	3	3	2	3	1	2	1	0	1	0	0	2	3	1	0	2	3	030
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**Master Data Sheet for Knowledge Questionnaire**

Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	Total	
Code																													
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3	0	0	1	0	1	1	1	1	0	1	0	0	0	1	0	1	1	1	0	0	1	1	0	0	0	1	0	1	13
4	0	0	0	1	0	0	1	1	0	1	0	0	0	1	1	1	1	1	0	1	1	0	1	0	0	1	0	1	13
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6	1	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	7
7	1	1	1	0	0	1	1	0	1	1	0	0	1	1	1	0	1	1	1	1	1	0	0	1	1	0	0	1	16
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10	1	1	0	0	0	0	0	0	1	1	0	0	1	1	1	0	1	1	0	1	1	0	1	0	0	1	1	1	14
11	1	1	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	15
12	1	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1	0	9
13	1	1	1	0	0	1	1	0	1	0	0	0	1	1	0	1	1	1	1	0	0	0	0	0	1	0	0	1	14
14	0	1	1	1	1	0	1	0	1	1	0	1	1	1	0	1	1	0	1	1	1	1	0	0	0	0	0	1	17
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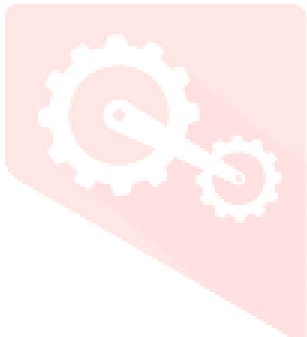
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**Master Data Sheet for Checklist**

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242	1	1	0	1	0	0	1	1	1	0	1	0	1	1	0	0	0	1	1
243	1	1	0	1	0	0	1	1	1	0	0	1	1	0	0	0	1	0	0
244	1	1	1	0	1	0	1	1	0	1	0	1	1	0	1	1	0	1	1
245	1	1	1	0	0	1	0	1	0	0	1	1	0	1	1	0	0	0	0
246	1	0	1	1	0	0	1	0	0	0	0	1	0	1	0	1	0	0	0
247	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
248	1	0	1	1	1	0	1	1	0	0	0	1	1	0	1	0	1	1	0
249	1	1	0	1	0	1	1	1	0	1	0	0	1	1	1	0	1	0	1
250	0	1	1	1	0	1	0	1	1	0	1	1	1	0	0	1	1	1	1

