

Knowledge and Attitude Regarding Health Hazards of Mobile Phone Users among the Junior College Students

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Abstract: *Background: The mobile phone is a modern-day invention, which has managed to reach many parts of the world enabling telecommunications across areas where it was not possible before. In the year 2000, there were an estimated 500 million mobile phone users worldwide. Today, there is about 3.3 billion users.⁵The use of mobile phones among young children and adolescents are also increasing dramatically. Objectives: To assess the knowledge regarding health hazards of mobile phone among junior college students. To assess the attitude regarding health hazards of mobile phone among junior college student. To find out the association between knowledge and attitude regarding health hazards of mobile phone use with selected demographic variables. Methods/Approach: The research approach adopted for present research is explorative research aimed assessing the knowledge and attitude regarding health hazards of mobile phone users on health among the junior college students. The research design used for this study is Descriptive survey research design. This study was one phase where data collected by survey method to assess knowledge and attitude of junior college students regarding health hazards of mobile phone use. Results: Knowledge score regarding physical health hazards of mobile phone majority of students were having average knowledge i.e.26 (65%) arts, 32(80%) commerce, & 28(70%) science. For knowledge score regarding psychological health hazards of mobile phone 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.*

Keywords: Knowledge, Attitude, Junior College, Students, Mobile Phone

1. Introduction

Health is a common theme in most culture. In fact all the communities have their concept of health as part of their culture. Among definitions still used, probably the oldest is that health is the “absence of disease”. In some cultures health and harmony are considered equivalent, harmony being defined as “being at peace with the self, the community, god and cosmos”. The ancient Indians and Greeks shared this concept and attributed disease to disturbance in bodily equilibrium and what they called “humors”. WHO has defined “Health is a state of complete physical and mental and social well being and not merely an absence of disease or infirmity” In recent years we have acquired a new philosophy of health and it includes health as a fundamental human right of each individual which includes the children, the adolescent, the adults and the elderly of the society [1].

Learning is the addition of new knowledge and experience interpreted in the light of past knowledge and experience. Teaching and learning is an integral part of nursing. Nurses have the responsibility to educate patients related to various aspects and keep themselves updated. Various teaching strategies are used to increase knowledge, such as lecturing, demonstration, discussion and self-education. These methods of self-education has an advantage over the others as the learner can educate himself at his own pace and it also stresses on rereading [2].

Communication is essential in every area of life. The cellular telephone system is a way of providing portable telephone services. Each phone is connected by a radio link to a base

station; in turn this is linked to the telephone network which is the largest machine on the planet [3].

The mobile phone is a modern-day invention, which has managed to reach many parts of the world enabling telecommunications across areas where it was not possible before. In the year 2000, there were an estimated 500 million mobile phone users worldwide. Today, there is about 3.3 billion users [4]. The use of mobile phones among young children and adolescents is also increasing dramatically. It is an intended need which is necessary to increase the awareness of the negative effects of excessive phone use on their sleep wake patterns, with serious health risks, as well as attention and cognitive problems. Hence it requires the assessment of knowledge and attitude regarding the hazards of mobile phones as they use this very frequently.

2. Literature Survey

A survey conducted among randomly selected university students concluded that about 70% complaints of headache and 20% of dizziness. Impaired concentration occurred in 56% of respondents, and 11% reported facial dermatitis [6]. Shinde .M (2014) concluded in their study that in new Era of technology addictively using Internet is harmful for mental health. As we know there is no health without mental health so we must take necessary steps to prevent people from this kind of addiction. Using Internet is common in daily life and it makes life easier and knowledgeable, if used systematically. So a systematic approach of using internet must be adopted to avoid this addiction [5].

An explorative study conducted in Sweden to evaluate brain tumor risk among long term users of cell phones. The results showed that 16 cases of the 11 gave a result of ≥ 10 years mobile user latency period. An association with acoustic neuroma was found in four studies in the group with at least 10 years use of mobile phone. The tumor size was significantly larger among the users. Six studies gave results for malignant brain tumors in that latency group. In a meta analysis, ipsilateral cell phone use accounted for acoustic neuroma OR=2.4(95%CI 1.1 to 5.3) and OR=2.0(1.2 to 3.4) for glioma using a tumors latency period of ≥ 10 . The study concluded that, on use of mobile phone for ≥ 10 years a consistent pattern of increased risk for acoustic neuroma and glioma was seen[8].

A study was conducted in Italy to identify blood pressure variation in human volunteers exposed to a conventional GSM (global system of mobile phone communication) digital mobile phone positioned close to the right side of the head. After 35 minutes of exposure, heart rate, blood pressure, capillary perfusion was measured with the substance either supine or standing for 60 sec. They found that the heart rate during these tests was slightly lower after exposure to radiation than following non exposed control sessions. The results revealed that both systolic and diastolic blood pressure was elevated by 5-10 mm of mercury [9].

A recent cross sectional study of a community in Singapore indicated that, radiation from cell phones harms cells and further that males who carry cell phones near their groin region may have up to a 30% reduction in fertility rates. The result found that there was more DNA damage in the exposed sperm than in sperm in the control group [10]. A cross sectional community study conducted in Singapore to determine the prevalence of specific central nervous system symptoms. A total of 808 were participated. The result showed that the prevalence of hand phone users was 44.8%, head ache was most prevalent symptoms among hand phone users compared to non users. Prevalence of headache was reduced by more than 20% among those who used hand-free [11].

A descriptive study showed that an association between the use of mobile phones and health hazards are headache (21.6%), fatigue (3%) and dizziness 2.4%) and it concluded that use of mobile phones for long time is at risk factor for health hazards[12].

Professor Leif Salford and co-workers at Lund University in Sweden (2003) found that the microwave oven exposure was associated with the leakage of albumin through the blood-brain barrier and neurons. The researchers cautioned "we cannot exclude that after some decades of often daily use, a whole generation of users may suffer negative effects as early as middle age. We can see reduced brain reserve capacity, meaning those who might normally have got Alzheimer's dementia in old age could get it much earlier [13].

A descriptive study suggests that, this technology may in fact be of importance to teenager's sexual socialization [22]. A survey was conducted in shows that, out of the total 165 respondents 58% were male and balance 42% were female.

34% have their own cell phones for more than 2 years while 64% of the respondents had purchased in the years 2003-04[14]. A result of the descriptive study revealed that prevalence of 5% for electromagnetic hypersensitivity and the common health complaints of sleep disorders (43%) and headaches (34%) which were mostly attributed to power lines and mobile phone handset. 53% were worried about adverse health effects from electromagnetic frequency without attributing their own health symptoms [15].

A study was conducted to investigate the effect of drivers use of mobile phones on road safety. Risk was raised irrespective of whether or not a hands-free device was used. Increased risk was similar in men and women and in drivers aged ≥ 30 and < 30 years[16]

3. Literature Related to Psychological Health Hazards of Mobile Phone Use

Prospective associations have been found between high use of information and communication technology (ICT- both computers and mobile phones) and reported mental symptoms among young adult university students. Our aim was to explore possible explanations for associations between high ICT use and symptoms of depression, sleep disorders, and stress among young adults. We conducted a qualitative interview study with 16 women and 16 men (21-28 years), Consequences included mental overload, neglect of other activities and personal needs, time pressure, role conflicts, guilt feelings, social isolation, physical symptoms, worry about electromagnetic radiation, and economic problems. Qualitative aspects (destructive communication and information) were also reported, with consequences including vulnerability, misunderstandings, altered values, and feelings of inadequacy. User problems were a source of frustration [17].

Electromagnetic radiation (EMR) is emitted from electromagnetic fields that surround power lines, household appliances and mobile phones. Research has shown that there are connections between EMR exposure and cancer and also that exposure to EMR may result in structural damage to neurons. The authors demonstrated the presence of strongly stained areas in the brains of rats that were exposed to mobile phone EMR. These darker neurons were particularly prevalent in the hippocampus area of the brain. The aim of our study was to further investigate the effects of EMR. Since the hippocampus is involved in learning and memory and emotional states, we hypothesized that EMR will have a negative impact on the subject's mood and ability to learn. These findings suggested that EMR exposure may lead to abnormal brain functioning [18].

These Research findings indicate that the use of mobile phones may lead to a number of symptoms such as headache, impaired concentration and memory, and also fatigue. The questionnaire was designed specifically for this study and contained items regarding health condition and health complaints as well as the frequency of MP use. The response rate was 76.92% of the students carried one mobile and 23.08% more than one. 55.94%, of the subjects reported the average daily MP use of less than 30 min, 27.97%, of 30-

60 min, 11.53%, of 60-90 min and 4.54% of more than 90 min. 16.08% of the subjects complained of headache and 24.48% of fatigue. Impaired concentration was reported by 34.27% of respondents, memory disturbances by 40.56%, and sleeplessness by 38.8%, hearing problems by 23.07%, and facial dermatitis by 16.78%. The sensation of warmth within the auricle and behind/around the ear was reported by 28.32% [19].

A cross-sectional study was conducted to evaluate mobile phone dependence among 200 students of a medical college, age group of 17 to 28 by using pre-designed questionnaire method. Systemic Random Sampling was used to select samples. The study results showed that 18.5% were monophobias or mobile phone dependent students. 73% of students keeps their mobile phones for 24hrs a day. Forty four percentage students spend Rs.250-500 per month for their mobile recharge. The study concluded that mobile phone dependence is an emerging problem of modern era [20].

A Prospective cohort study was conducted to investigate the association between psycho-social aspect of mobile phone use and mental health symptoms among 10,000 men and women each in the age group of 20 - 24 by using a questionnaire method. The Results showed that 22% of the men and 24% of the women having high use (11 or more calls or SMS per day); 23% of the men and 34% of the women indicated sleep disturbances. The study concluded that there is an association between psycho-social aspect of mobile phone use and mental health symptoms [21].

A survey was conducted regarding the impact of cell phone use on social networking and development among 501 college students by using questionnaire method. The study results showed that 99% owned cell phones and nearly 90% have had cell phones for more than three years. Excessive internet use, along with pathological gambling and addictive disorder, health risk from cell phone radiation and cell phone dependency are the major social impacts found in teenagers. The study concluded that there is a negative impact of cell phone use on social networking among adolescents [22].

Over usage of mobile phones leads to physiological health hazards like headaches, ear aches, warmth sensation, fatigue and musculoskeletal symptoms. Apart from the various benefits of cell phone, it's over usage leads to mobile phone addiction. It is one of the biggest non drug addictions in the world. On 31 May 2011, the world health organization confirmed that mobile phone use may represent a long-term health risk⁴, classifying mobile phone radiation as a "carcinogenic hazard" and "possibly carcinogenic to humans" after a team of scientists reviewed peer-review studies on cell phone safety. One study of past cell phone use cited in the report showed a "40% increased risk for brain cancer in the highest category of heavy users [23].

4. Methodology

Research methodology involves the systematic procedure by the researcher which starts from the initial identification of programme to its final conclusion [7].

Research Approach

The research approach adopted for present research is explorative research approach because the present study aimed at assessing the knowledge and attitude regarding health hazards of mobile phone users on health among the junior college students.

Research Design

The research design used for this study is Descriptive survey research design. This study is one phase study where data is collected by survey method to assess knowledge and attitude of junior college students regarding health hazards of mobile phone use.

Independent Variable-The independent variable is the use of mobile phones among the junior college students.

Dependent Variable-The dependent variable is health hazards due to use of mobile phone among the junior college students.

• **Ethical Clearance**-The study was approved by the Institutional Ethical committee of the Krishna Institute of Medical Sciences Deemed University, Karad Maharashtra, before the commencement of the study.

• **Setting of the Study**.-The study was conducted in Sadguru Gadage Maharaj College; Karad. Study was carried out on the junior college students of Sadguru Gadage Maharaj College Karad, Maharashtra from October 1st to 31st 2013.

• **Population**-In this study, the population consisted of junior college students from Sadguru Gadage Maharaj College, Karad.

• **Sampling Technique**-The present study, junior college students from Sadguru Gadage Maharaj College Karad were selected by uncontrolled stratified random sampling technique by the investigator.

• **Sample Size**-total 120 samples (40 in each faculty) from Sadguru Gadage Maharaj College. The sample consisted from Arts, Commerce, Science junior college students who fulfilled the inclusion criteria of the study.

Inclusion Criteria

- Junior college students those who are willing to participate in the study.
- Junior college students, studying in 11th and 12th standard.

Exclusion Criteria

- Participants who are not willing to participate in the study.
- Participants who are not present at the time of data collection.

Data Collection Technique and Tool

Thus, a structured questionnaire was prepared and used for data collection.

Development of the Tool

Based on the objectives of the study, demographic data activities and skill attainments. The structured questionnaire & attitude scale used to assess the knowledge and attitude regarding health hazards of mobile

use among the junior college students consist of four sections.

Data collection Procedure.

Since this survey is conducted in Sadguru Gadage Maharaj College ,Karad so researcher obtained permission from the principal of respected college ,after having obtained the approval ,appointment were made to meet with the respondents was out in the three days. Randomly selected sample were arranged in one hall to obtain information from them. The study was conducted on 4th -30th October .2013. A consent form was attached to the questionnaire in which the nature of the study was explained to participants. 30 minutes were allotted to each student to solve this questionnaire, after completion of the time, solved questionnaire were collected and later analyzed.

5. Findings

Table 1: Showing the Frequency & Percentage Distribution of the Samples According to Demographic Variables. (N=120)

Variable	Frequency	Percentage
Education		
11 th standard	67	56%
12 th standard	53	44%
Gender		
Male	70	59%
Female	50	41%
Age		
16 yrs	37	30%
17yrs	45	38%
18yrs	38	32%
Faculty		
Arts	40	33%
Commerce	40	33%
Science	40	33%

Table No-1 reveals that out of total 120 sample collected as per demographic variable, The majority of sample are from 11th standard i.e.67(56%) ,Gender wise majority of sample are male i.e. 70(59%) ,Age wise majority of sample are having age 17 r.i.e.45(38%),faculty wise the sample distribution is equal in each faculty i.e.40(33%).

Table 2: Distributions of Subjects According to Knowledge Score Regarding Physical Health Hazards of Mobile Phone Use

Range of score	Frequency	Percentage
Poor (1-3)	11	9%
Average (4-6)	86	72%
Good (7-10)	23	19%

The junior college students categorized into three groups according to their knowledge score regarding physical health hazards of mobile phone use, obtain into poor , average and good scores in assessment. Table no 2 reveals that out of 120 sample collected , 11 samples i.e.(9%) are having poor knowledge ,86 samples i.e. (72%) are having average knowledge and 23 samples i.e. (19%) are having good knowledge.

Table 3: Distributions of Subjects According To Knowledge Score Regarding Psychological Health Hazard of Mobile Phone Use

Range of score	Frequency	Percentage
Poor (1-2)	80	67%
Average(3-4)	36	30%
Good (5-7)	04	3%

The junior college students categorized into three groups according to their knowledge score regarding psychological health hazards of mobile phone use, obtain into poor, average and good scores in assessment .Table no 3 reveals that out of 120 sample, majority 80 samples i.e. (67%) are having poor knowledge, 36 samples i.e. (30%) are having average knowledge, while only 4 samples i.e. (3%) are having good knowledge.

Table 4: Distribution of Subjects According to Knowledge Score Regarding Physical & Psychological Health Hazards of Mobile Phone Use.

Range of score	Frequency	Percentage
Poor (1-6)	40	33%
Average (7-11)	79	66%
Good (12-17)	01	1%

The junior college students categorized into three groups according to their knowledge score regarding health hazards of mobile phone use, obtain into poor, average and good scores in assessment .Table no 4 reveals that out of 120 samples, majority 79 samples i.e. (66%) are having average knowledge, 40 samples i.e. (33%) are having poor knowledge while only one sample i.e. (1%) having good knowledge.

Table 5: Distribution of Sample According to Attitude Score

Range of score	Frequency	Percentage
Poor (1-21)	02	2%
Average (22-43)	41	34%
Good (44-65)	77	64%

The junior college students categorized into three groups according to their knowledge score obtain into poor, average and good scores in assessment .Table no 5 reveals that out of 120 samples majority 77 samples i.e. (64%) are having good attitude, 41 samples i.e. (34%) are having average attitude while only 2 samples i.e. (2%) are having poor attitude.

Table 6: Showing Mean & Standard Deviation of Knowledge And Attitude Score of Assessed Data

Variables	Min. Score	Maxi Score	Mean	S.D.
Knowledge regarding physical health hazards of mobile phone use	1	10	5.31	1.47
Knowledge regarding psychological health hazards of mobile phone use	1	7	2.025	1.16
Knowledge regarding health hazards of mobile phone use	1	17	7.34	2.12

Table no - 6 data reveals that the mean of knowledge score for physical health hazard of mobile phone is 5.31 with 1.47 standard deviation, mean score for psychological health hazards of mobile phone use is 2.025 with 1.16 standard

deviation while total knowledge score mean is 7.34 with 2.12 standard deviation.

Table 7: (A) Distribution of Junior College Students as Per Gender to Assess Various Knowledge Score.

Knowledge Regarding Physical Health Hazards of Mobile Phone Use. Among Junior College Students.

Gender wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
Male (70)	05	7%	51	73%	14	20%
Female (50)	06	12%	35	70%	09	18%

Knowledge Regarding Psychological Health Hazards of Mobile Phone Use. Among Junior College Students.

Gender wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
Male (70)	55	79%	15	21%	0	0%
Female (50)	25	50%	21	42%	04	8%

Knowledge Regarding Physical & Psychological Health Hazards of Mobile Phone Use. Among Junior College Students.

Gender wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
Male (70)	26	37%	44	63%	0	0%
Female (50)	14	28%	35	70%	01	2%

Table No - 7 (A) suggests that gender wise out of 120 sample 70 are male while 50 are female. In knowledge score regarding physical health hazards of mobile phone majority 51(73%) males & 35(70%) females are having average knowledge. While in knowledge score regarding psychological health hazards of mobile phone use 55 (79%) males & 25(50%) females are having poor knowledge. Whereas knowledge score regarding physical and psychological health hazards of mobile phone reveals that majority 44 (63%) male and 35(70%) females are having average knowledge.

Table 7: (B) Distributions of Junior College Students as Per Educational Qualification to Assess Various Knowledge Score.

Knowledge Regarding Physical Health Hazards of Mobile Phone Use. Among Junior College Students.

Education wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
11th (67)	05	7%	48	72%	14	21%
12th (53)	06	11%	38	72%	09	17%

Knowledge Regarding Psychological Health Hazards of Mobile Phone Use. Among Junior College Students.

Education wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
11th (67)	52	78%	15	22%	0	0%
12th (53)	28	53%	21	53%	04	8%

Knowledge Regarding Physical & Psychological Health Hazards of Mobile Phone Use. Among Junior College Students.

Education wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
11th (67)	25	37%	42	63%	0	0%
12th (53)	15	28%	37	70%	01	2%

Table No-7(B) suggests that education wise out of total 120 samples 67 were studying in 11th & 53 were studying in 12th standard. In knowledge score regarding physical health hazards of mobile phone use majority 48(72%) 11th std. students and 38(72%) 12th standard student are having average knowledge. in knowledge score regarding psychological health hazards of mobile phone majority 52(78%) 11th std. students & 28(53%) 12th std. students are having poor knowledge, while 42(63%) 11th std. students and 37(70%) 12 std. students are having average knowledge regarding physical & psychological health hazards of mobile phone.

Table 7: (C) Distributions of Junior College Students as Per Faculty to Assess Various Knowledge Score

Knowledge Regarding Physical Health Hazards of Mobile Phone Use. Among Junior College Students.

Faculty wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
Arts (40)	03	8%	26	65%	11	28%
Commerce (40)	03	8%	32	80%	05	13%
Science (40)	05	13%	28	70%	07	18%

Knowledge Regarding Psychological Health Hazards of Mobile Phone Use. Among Junior College Students

Faculty wise Distribution of Junior College Students.	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
Arts (40)	35	88%	05	13%	0	0%
Commerce (40)	24	60%	16	40%	0	0%
Science (40)	21	53%	15	38%	04	10%

Knowledge Regarding Physical & Psychological Health Hazards of Mobile Phone Use. Among Junior College Students.

Faculty wise Distribution of Junior College Students	Poor		Average		Good	
	Freq.	%	Freq.	%	Freq.	%
Arts (40)	16	40%	24	60%	0	0%
Commerce (40)	14	35%	26	65%	0	0%
Science (40)	10	25%	29	73%	01	3%

Table No - 7(C) reveals that out of 120 samples there is equal distribution of sample as per faculty i.e. (40 sample from each faculty). In knowledge score regarding physical health hazards of mobile phone majority of students are having average knowledge i.e.26 (65%) arts,32(80%) commerce,&28(70%) science. . in knowledge score regarding psychological health hazards of mobile phone majority of students are having poor knowledge i.e.35(88%) arts,24(60%) commerce& 21(53%) science .whereas 24(60%) arts,26(65%) commerce & 29(73%) science, are having average knowledge regarding physical & psychological health hazards of mobile phone.

6. Discussion

The core aim of the present study is to find out the knowledge and attitude of junior college students in karad city regarding health hazards of mobile phone use, and their association with variables. The analyzed data reveals some important aspect of this study which are categorized as per the objectives of the study.

The frequency and distribution of junior college students using mobile phones shows in Table No-1 reveals that, out of total 120 samples collected as per demographic variable, the majority of samples were from 11th standard i.e. 67 (56%). Gender wise majority of samples were male i.e. 70 (59%). Age wise majority of samples were having age 17 yr. i.e. 45 (38%). Faculty wise the sample distribution was equal in each faculty i.e. 40 (33%).

A survey was conducted in India to explore the relationships between gender, age, behavioral trends and mobile phone usage patterns of teenagers and young people, in the age group 12-29 years in order to arrive at the current trends, especially in metros like Mumbai where mobile telephony seems to have made an immense impact. The sample survey respondents consist of teenagers and youth in the age groups 15-30 and the sampling method was convenience sampling. The result showed that, out of the total 165 respondents 58% were male and 42% were female. 34% had their own cell phones for more than 2 years while 64% of the respondents had purchased in the years 2003-04³⁷.

In this study, results for knowledge of junior college students with their variables regarding physical and psychological health hazards of mobile phone use. Shows that

- **Gender wise-** In knowledge score regarding physical health hazards of mobile phone majority 51 (73%) males & 35 (70%) females were having average knowledge. While in knowledge score regarding psychological health hazards of mobile phone use 55 (79%) males & 25 (50%) females had poor knowledge. Whereas knowledge score regarding physical and psychological health hazards of mobile phone reveals that majority 44 (63%) male and 35 (70%) females are had average knowledge. Exposure of humans to radio frequency electromagnetic field (EMF) both during receiving and transmitting the signals has amplified public and scientific debate about possible adverse effects on human health. The study was designed with the objective of assessing the extent of mobile phone use amongst medical students and finding correlation if any between the hours of usage of mobile to sleep pattern and quality. Hundred medical students grouped as cases (n=57) (>2 hours/day of mobile usage) and control (n=43) (≤2 hours/day of mobile usage) were examined for their sleep quality & pattern by Pittsburg sleep Quality Index (PSQI). Differences between groups were examined with the Mann Whitney "U" test for proportions (Quantitative and with Student 't' test for continuous variables. The association of variables was analyzed by Spearman Rank's correlation. Probability was set at <0.05 as significant. Sleep disturbance, latency and day dysfunction was more in cases especially females. A significant association of hours of usage and sleep indices were observed in both

genders (males $r=0.25$; $p=0.04$, females $r=0.31$; $p=0.009$). Evening usage of mobile phone in cases showed a statistically significant negative association (-0.606 ; $p=0.042$) with Sleep quality (higher PSQI means sleep deprivation). Students using mobile for > 2 hours/day may cause sleep deprivation and day sleepiness affecting cognitive and learning abilities of medical students³⁸.

- **Educational Status Wise-** Knowledge score regarding physical health hazards of mobile phone use majority 48 (72%) 11th std. students and 38 (72%) 12th standard student had average knowledge. For knowledge score regarding psychological health hazards of mobile phone majority 52 (78%) 11th std. students & 28 (53%) 12th std. students are had poor knowledge, while 42 (63%) 11th std. students and 37 (70%) 12 std. students had average knowledge regarding physical & psychological health hazards of mobile phone.
- **Faculty Wise-** Knowledge score regarding physical health hazards of mobile phone majority of students were having average knowledge i.e. 26 (65%) arts, 32 (80%) commerce, & 28 (70%) science. For knowledge score regarding psychological health hazards of mobile phone 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.

A study was conducted to identify health symptoms associated with exposure to electromagnetic fields among university students at Rafsanjani University of Medical Sciences, Iran. The result found that the symptoms of headache (53.5%), Fatigue (35.6%), difficulties in concentration (32.5%), vertigo/dizziness (30.4%), attention disorders (28.8%), Nervousness (28.1%), palpitation (14.7%), low back pain (14.3%), myalgia (12.4%) and tinnitus (9.9%) etc. A significant association was found between cordless phone use and difficulties in concentration and attention disorders [39].

Table No – 11 & 12 indicates that knowledge assessing questionnaire regarding physical and psychological health hazards of mobile phone use, there is a significant difference between knowledge score of physical health hazard and psychological health hazards of mobile use, less than 50% students were unable to answer the correct option for psychological health hazards of mobile phone, whereas in physical health hazard questionnaire out of 10, 7 questions were correctly answered by the student. So overall it suggests that the junior college students are very poor regarding psychological health hazards of mobile use than physical health hazards of mobile use where they are having average knowledge.

In present study while assessing the attitude of junior college student regarding mobile use and its hazards suggested that out of 120 samples majority 77 samples i.e. (64%) were having good attitude, 41 samples i.e. (34%) were having average attitude while only 2 samples i.e. (2%) were having poor attitude.

A study conducted in Malaysia to find the awareness of mobile phone hazards among the Malaysian students in medical school find .Out of the 200 subjects under the survey, 124 subjects were aware of the side effects of mobile phone usage. (78 females and 46 males were aware of the hazards) Out of the 124 subjects who were aware of the side effects, 5% of the males and 10% of the females felt that there is no need to minimize the unwanted effects [15].

Table No –13 reveals that majority of students were strongly agree with various questions asked in attitude scale. The important finding in this table is that in Q.10.majority 41% were strongly agree that junior college student are addicted to mobile phones, as well as in Q.no. 13 majority 49% student were strongly agree that mobile phone must be avoided in colleges. other than this majority 39% students agree that mobile phone can cause road traffic accident, overall the results indicates that though the junior college students were having poor knowledge regarding psychological health hazards of mobile phone & average knowledge regarding its physical health hazards they had very good attitude towards its use and health hazards.

A cross national study by Naomi .s Baron Finds that this study has examined concerns that university students from five countries had regarding mobile phones. Student estimates of their volume of talking and text messaging provided points of comparison between attitudes and amount of mobile phone activity. Overall, 42.1 percent of subjects observed that Communication as what they liked least about mobile phones; with the 'like least' Reach ability score rising to 51.4 percent. Responses coded as Texting (a subcategory of Communication) made up 7.4 percent of all 'like most' answers. Some of the variation across countries may reflect differences in available technology. Sweden, for example, had the highest percent of 'like most' responses involving texting (11.7%)[24]. The findings of table no.8, 9&10 shows that junior college students with their age, gender and faculty variables had association with knowledge and attitude.

By considering the results of present study it is confirmed that the junior college student are least aware about the knowledge regarding health hazards of mobile phone use especially psychological health hazard, but interestingly their attitude towards its use and hazard is good most of the students are agree that mobile phone use for excessive time is hazardous for their health.

This study also reveals that the Junior College Students were weak to have knowledge regarding psychological health hazards of mobile phone such as sleep disturbances, lack of concentration, and change in behaviors which are most hazardous for them. But significantly results shows that they are well known to physical health hazards of mobile phone use .Though there knowledge scores were differ by various variables such as Gender, Age, Faculty their attitude towards mobile phone use & hazards was good. So finally it indicates that the knowledge and attitude are associated to each other with age, gender &faculty distribution of junior college students. So it confirmed that there is a need to create an awareness regarding health hazards of mobile phone use among Junior College Students regarding which

significantly helps them to change their attitude towards its use and hazards.

7. Conclusion

The purpose of the present study was to find out the knowledge and attitude regarding health hazards of mobile phone use and to estimate the association between knowledge and attitude with various demographic variables among the junior college students from selected college at karad. Results of the present study highlighted that the junior college students are very poor regarding various psychological health hazards of mobile phone as well as they are not having good knowledge about physical health hazards of mobile phone, overall they have good attitude towards use of mobile phone and its hazards. By considering all this major findings it's clear that the some of the interventional steps have to be taken on individual as well as institutional level to increase the awareness for junior college students regarding hazards of mobile phone use. The technology always helps the human beings for his progress but its overuse without knowing about its hazards is always dangerous. The present study highlighted this truth. So it's necessary to recognize this truth and some action has to be taken.

8. Future Scope

This study highlighted the truth that though young age groups are very knowledgeable regarding the new advancement and technology of new era but they are not aware about its consequences. It provides the guidelines to step up some initiative towards creating an awareness regarding mobile use and its hazards especially in young age.

8.1 Nursing Practice

The care of the patient in this advanced world has become easier with help of various miracles such as mobile phones which helps in quick communication .Up gradation of knowledge and at the most as a recreational instrument in the stressful situation. The use of mobile in clinical setup has great advantages, but with its excessive use can lead to various health hazards which are discussed in this study. So to create an awareness regarding this, the present study can be very fruitful and can be applicable to the nursing staff working in clinical. By conducting such studies among staff nurse to find their knowledge and attitude.

8.2 Nursing Education

The present study shows that though the people are addicted to mobile use they are poor knowledge regarding its ill effects the same situation may be in the field of nursing, so it's an necessitated that with the reference of this study the efforts have to be taken in the field of nursing education to include more topics related to adverse effects of advance technologies such as health hazards of mobile phone use in field of nursing which would be benefited. Nursing administration can depute nurses for various workshops, conferences and special courses; and also in service education programs can be arranged for the nursing staff and

for general public. Nursing research is an essential aspect of nursing as it uplifts the profession and develops the new nursing norms and a body of knowledge. Another research has been added to the nursing literature.

9. Limitations

There were some limitations that encountered in this research such as small sample size of each level of student, limited demographic variables and only the quantitative method was used. To overcome these limitations some recommendations are suggested, for instance use of both qualitative and quantitative method for this research.

10. Recommendations

- Similar study can be done on with one group pre & post test design.
- A study can be conducted in different population setting.
- A study can be conducted to evaluate the effectiveness of instructional module versus other methods of health teaching on the similar problem.
- A comparative study can be done with two heterogeneous samples.

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