

Detrimental Effect of Cell Phones and its Awareness among Adolescents in Selected Urban Community of Sikar City (Rajasthan)

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Abstract

Original Research Article

Communication is essential in every area of life. The cellular telephone system is a way of providing portable telephonic services. Cell phones are a vast improvement over the telecommunications technology of the past century, and are dead became a part of modern life. Cell phones have become a necessity for many people throughout the world but nothing without some detrimental effects. Such detrimental effects of cell phones on the youth may lead health risks such mental health and physical health problems; hence a study was conducted to assess the detrimental effects of cell phone and its awareness among adolescents. A structured interview schedule was used to determine the detrimental effects cell phones and its awareness among adolescents. Non Experimental uni-variant descriptive design is used on 10 adolescents from Urban Community of Sikar City. The technique used in the study is Non probability convenience sampling technique and it shows that out of 100 about half of the adolescent (48%) were averagely aware, around 46 were poor awareness, and only 6% were fully aware about the detrimental effects of cell phones.

Keywords: Detrimental Effect, Adolescents, Cell Phones.

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INTRODUCTION

Technological advances have improved our health, the food we eat, the clothes we wear, how we travel, and how we communicate with one another. There are a few drawbacks to some aspects of technology but overall technology has greatly improved many aspects of living for most people.

Cell phones are a vast improvement over the telecommunications technology of the past, and are daily becoming a fixture of modern life cell phones have become a necessity for many people throughout the world. The ability to keep in touch with family, business associates, and access to email are only a few of the reasons for the increasing importance of cell phones. When cell phones were first introduced to the public, they were bulky, expensive, and some even required a base unit that had to be transported along with the phone.

The cell 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 cell phone users worldwide.

Today, there are about 3.3 billion users [2]. The use of cell phones among young children and adolescents is also increasing dramatically. Although cell phones seem to be the ideal device for simplicity and connectedness, nothing is perfect. Therefore, nothing is without some negative effects. Such negative effects of cell phones on the youth are health risks such as mental health, bullying, eye strain and digital thumb, brain tumours and low sperm counts, lack of sleep and their addiction and no self-control in owning a cell phone.

Need of the study

In a report about health hazards of cell phones in Indian perspective, it is said that the cell phone industry has been one of the fastest growing industries in modern history. Today, India has million cell phone users, and cell phones account for 88% of all telecommunication users. The rural sector accounts for more than 25% of all wireless phone users and this proportion is bound to grow as affordability of cell phones continues to increase. Studies have demonstrated that usage behaviors, such as duration of usage and predominant, one-sided use of cell phones are some of the chief risks that increase likelihood of hazards resulting from cell phone use [13].

Problem Statement

Detrimental Effect of Cell Phones and Its Awareness among Adolescents in Selected Urban Community of Sikar City with Objectives of study are, to assess the detrimental effects of cell phones and its awareness among adolescents. Second objective is to find the association of awareness with selected demographic variables of adolescents.

REVIEW OF LITERATURE

Review of literature related to detrimental effect of cell phones and its awareness among adolescents

Panda NK, Jain R, *et al.* [13] a retrospective, cross-sectional, randomized, case control study was carried out in a tertiary care hospital, Chandigarh, India with an aim to assess the effects of chronic exposure to electromagnetic waves emitted from Global System for Cell Communication (GSM) cell phones on auditory functions. One hundred twelve subjects who were long-term cell phone users (more than 1 year) and 50 controls that had never used a cell phone underwent a battery of audio logic investigations including pure-tone audiometry (both speech and high frequency), tympanometry, distortion product otoacoustic emissions, auditory brain responses, and middle latency responses. Changes in the various parameters were studied in the cell phone- and non-cell phone-using ears of subjects and corresponding ears of the controls to ascertain the effects of electromagnetic exposure. Results showed that there was no significant difference between users and controls for any of the audio logic parameters. However, trends for audio logic abnormalities were seen within the users. High-frequency loss and absent distortion product otoacoustic emissions were observed with an increase in the duration of cell phone use, excessive use of cell phones, and age more than 30 years. Researcher concludes that long-term and intensive cell phone use may cause inner ear damage.

Khan MM. *et al.* [10] a descriptive survey was conducted in Riyadh among 330 adolescents with an aim to investigate whether the symptoms of ill health reported by young people may be associated with the use of cell phone and to analyze its influence on health. The questionnaire was designed specifically for this study and contained items regarding health condition and health complaints as well as the frequency of cell phone use. The response rate was 86.6% (286 of 330 forms, completed by 73.77% males and 26.22% females). Result showed that most of the subjects (83.57%) had some knowledge about the adverse effects of cell phone use. About 76.92% of the students carried one cell and 23.08% more than one. Nearly 55.94%, of the subjects reported the average daily cell phone 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.

About 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%. Out of 286 subjects who participated in this study, 44.4% related their symptoms to cell phone use. Research findings indicate that the use of cell phones may lead to a number of symptoms such as headache, impaired concentration and memory, and also fatigue.

Schlehofer MM, Thompson SC, *et al.* [16] conducted a survey was in USA among 69 college students to explore the psychological predictors of cell phone use while driving. College students predicted their driving performance both with and without a simultaneous phone conversation. Their actual performance on a driving simulator was then assessed. Cell phone use reduced performance on the simulation task. Further, perceiving oneself as good at compensating for driving distractions, overestimating one's performance on the driving simulator, and high illusory control predicted more frequent cell phone use while driving in everyday life. Finally, those who talked more frequently on a phone while driving had poorer real-world driving records.

MATERIALS AND METHODS

RESEARCH APPROACH

The main aim of this study is to check the Detrimental Effect of Cell Phones and Its Awareness among Adolescents in order to achieve the objectives of this study; the method adopted was descriptive survey approach. Research design adopted is Non experimental uni-variant descriptive design in urban areas of Sikar city. Study was conducted from feb 2019 to june.2019 on 100 Adolescents In Urban Community Of Sikar City. Samples were selected by Non Probability convenient sampling.

DATA ANALYSIS & RESULTS

The collected data is tabulated, analyzed, organized and presented under the following headings:

- **Section I:** analysis of demographic data by using frequency and percentage.
- **Section II:** analysis of data related to awareness regarding detrimental effect of cell phones among adolescents
- **Section III:** analysis of data to find the association of awareness with selected demographic variables of adolescents.
- **Section I:** analysis of demographic data by using frequency and percentage.

Table-1: Description of demographic characteristics of adolescents

S. No.	Demographic characteristics	Frequency	Percentage
1.	Age		
	a. 10-13 years	18	18.0
	b. 14-16 years	32	32.0
	c. 17-19 years	50	50.0
2.	Gender		
	a. Male	60	60.0
	b. Female	40	40.0
3.	Education		
	a. Primary & Middle School	14	14.0
	b. Secondary	30	30.0
	c. Secondary & above	56	56.0
4.	Source of information regarding ill effects of cell phones		
	a. Mass media	66	66.0
	b. Friends	6	6.0
	c. Health professionals	0	0
	d. No information	28	28.0

MAJOR FINDINGS OF STUDY

- **Section I: Analysis of the demographic data**
- The age wise distribution showed that most of the adolescents 50(50%) were belongs to 17-19 years, 32(32%) were in the age group of 14-19 years, and 18(18%) of the subjects were belongs to 10-13 years.
- Gender wise distribution of the subjects showed that majority 60 (60%) were male and 40 (40%) were female.
- In relation to the education majority of the subjects 56(56%) were from Secondary and above, 14(14%)

were from primary and middle school and 30 (30%) were Secondary school.

- Majority 66(66%) adolescents got information through mass media, 6 (6%) were got information through friends, 0(0%) were got information through other sources & about 18 (28%) did not get any information on Detrimental Effect of Cell Phones and none of the samples got any information from health professionals
- **Section II: Analysis Of Data Related To Awareness Regarding Detrimental Effect Of Cell Phones Among Adolescents**

Table-2: Percentage and frequency distribution of awareness regarding detrimental effect of cell phones Among adolescents N= 100

Level of knowledge	Number	Percentage (%)
Poor (0-40%)	46	46
Average (41- 60 %)	48	48
Good (61-80%)	6	6
Very good (81-100%)	0	0
Overall	100	100

Major Findings In table 2 depicts the awareness regarding detrimental effect of cell phones among adolescents, nearly half of the adolescent (48%)

were averagely aware, around 46% were poor awareness, and only 6% were fully aware about the detrimental effects of cell phones.

Table-3: Description of area wise mean, SD and mean % of awareness score. N= 100

Sl. No.	Aspects of knowledge	Max. possible score	Mean score	SD	Mean %
1.	Basic concepts of cell phones.	5	2.76	0.771	55.20
2.	Detrimental Effects of cell phones.	12	4.26	2.601	35.50
3.	Precautions for cell phone usage.	8	3.16	1.822	39.50
	Total	25	10.18	4.402	40.72

Major Findings In table 3 revealed that the area wise mean score percentage on awareness of adolescents regarding detrimental effect of cell phones among adolescents reveals that highest mean percentage (55.20%) was found in the area of awareness regarding “basic concepts of cell phones” with mean \pm SD of 2.76 ± 0.77 . The mean percentage of awareness score in the

area of “effects of cell phones” was 35.50 % with mean \pm SD of 4.26 ± 2.60 . In the area of “precautions for cell phone usage” the mean percentage was 39.50 with an area wise mean \pm SD of 3.16 ± 1.82 . Analysis revealed that out of 25 maximum attainable score the total mean percentage 40.72% mean \pm SD of 10.18 ± 4.40 .

Table-4: Item wise correct response of the adolescents in regards to Detrimental Effects of cell phones N=100

Sl. No.	Item	No.	%
1.	The excess use of cell phone leads to disturbance in sleep.	28	28
2.	Learning, memory & movement are affected by excessive use of cell phones.	60	60
3.	The complication associated with excessive use of cell Phone is infertility.	52	52
4.	Long conservation in cell phones affects the mechanism of hearing.	62	62
5.	The use of cell phones during driving causes a risk of Accidents.	62	62
6.	Microwave radiation of cell phone opens blood brain barrier of CNS & causes damage to brain cells.	32	32
7.	During pregnancy excess exposure to cell phone affects the child by causing behavioural problems.	6	6
8.	Disturbed sleep due to cell phone radiation may cause stress burnout.	22	22
9.	Posting text / image in cell phone intended to hurt / embarrass other is called bullying	10	10
10.	Most commonly used chemical and metal components in cell phones which are harmful to human and animals are calcium, nickel and mercury.	2	2
11.	The impact of cell phone usage in adolescents has lead to less face to face communication.	42	42
12.	The complication of climatic changes due to cell phone Usage has caused rise in average temperature of earth.	48	48

Major Findings In :- table 4 revealed that highest percentage (62.0%) of awareness was observed for the item no. 9 “Long conservation in cell phones affects the mechanism of hearing” and the item no.10 “The use of cell phones during driving causes a risk of

accidents”. Least (2.0 %) awareness was observed for item no. 15 “Most commonly used chemical and metal components in cell phones which are harmful to human and animals are calcium, nickel and mercury”.

Table 5: Item wise correct response of the adolescents with precautions for cell phone usage N=100

Sl. No.	Item	No.	%
1.	The precautionary information regarding cell phone use is don't use cell phones while charging.	26	26
2	The most effective preventive strategy to safeguard from cell is the use of headset/speaker phone mode.	52	52
3	The selection of the cell phone should be based on Specific Absorption Rate.	2	2
4	The risk of ignition in petrol bunks through cell phone use is caused due to flammable vapours by radio signals.	42	42
13.	The measure to prevent the damage of hearing mechanism due to cell phone use is don't stick to long hour conversations.	58	58
14.	The psychological effect like cell addiction, Insomnia can be prevented by minimum cell phone usage.	64	64
15.	Harmful effects on environment due to cell phone usage can be prevented by Proper disposal of cell phones	58	58
16.	Cell phone use should be avoided in places like libraries & hospital emergency rooms.	14	14

Major Findings in: table 5 revealed that the “the psychological effect like cell addiction, insomnia can be prevented by minimum cell phone usage” had good awareness. Whereas the Item “the most effective preventive strategy to safeguard from cell is the use of headset / speaker phone mode”, item “the risk of ignition in petrol bunks through cell phone use is caused due to flammable vapors by radio signals”, item “the measure to prevent the damage of hearing mechanism due to cell phone use is don't stick to long hour conversations” and item “harmful effects on

environment due to cell phone usage can be prevented by proper disposal of cell phones” had average awareness. Item “the selection of the cell phone should be based on specific absorption rate” and item “cell phone use should be avoided in places like libraries & hospital emergency rooms” had poor awareness.

- **Section III: analysis of data to find the association of awareness with selected demographic variables of adolescents.**

Table-6: association of awareness with selected demographic variables of adolescents N=100

Sl. No.	Sample characteristics	<median	≥median	χ^2 value
1.	Age in years			0.081
	10 – 13	12	14	
	14 – 16	10	14	
2.	Gender			0.483
	Male	30	30	
	Female	16	24	
3.	Education			0.19
	Primary & Middle	10	12	
	Secondary school	12	10	
4.	Source of information regarding ill effects of cell phones			5.5
	Mass media	20	20	
	Friends	18	14	
	Health professionals	0	0	
	No information	8	20	

Table values: $\chi^2_{1} = 3.84$, $P < 0.05$

Major Findings In :- table 6 indicate that the chi square values of demographic variables like age, education and source of information regarding Detrimental Effects of cell phones were significant at 0.05 level of significance. Thus it is concluded that there was significant association between awareness score and the selected demographic variable such as age, education and source of information regarding detrimental Effects of cell phones.

Study is supported by similar study of Mumbai with the objectives to find the cell phone usage, purpose and the knowledge regarding the possible adverse effects on health as a part of market analysis. The study considered the demographic variables such as age, gender, income, duration of usage, education; type of living etc. The result had shown that there is significant association with the demographic variables education ($\chi^2=6.24$), and income ($\chi^2=4.23$). This finding is contradictory to the present study finding.

CONCLUSION

Detrimental effects of cell phones on the youth may lead health risks such as mental health and physical health problems; hence a study was conducted to assess the detrimental effects of cell phones and its awareness among adolescents. A structured interview schedule was used to determine the detrimental effects of cell phones and its awareness among 100 adolescents from Urban Community Of Sikar City with the help of Non Experimental descriptive design technique and its shows that out of 100 about half of the adolescent (48%) were averagely aware, around 46% were poor awareness, and only 6% were fully aware about the detrimental effects of cell phones. This data could be used for health sector and policy maker to promote the better physical and mental health of youth.

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