

Original research article

Erectile dysfunction in excessive cellphone users-a prospective study

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ABSTRACT:

INTRODUCTION : Research indicates that the exposure to cell phone radiation may lead to erectile dysfunction, decreases in sperm count, sperm motility, oxidative stress, DNA damage and changes in sperm morphology, the longer men carried mobile phones that were switched on, the greater the incidence of Erectile dysfunction

AIM: To study the relation between of mobile phone excessive usage and erectile dysfunction

MATERIAL AND METHODS: All the patients attending medical outpatient departments with Erectile Dysfunction in various tertiary care Medical College hospitals between Jan 2019 to June 2019. Two in Tamilnadu and one in Kerala are taken for study,

RESULTS: Total number of patients screened 632,After excluding patients with un controlled diabetes, hypertensives on beta blockers and diuretics ,hypo thyroid, chronic alcoholic, total number selected for study are 412, of which excessive cellphone usage more than 16 hours on time every day ,seen in 57(n=234) percent of patients.more than 12 hours on time everyday in 33(n=137) percent of patients and

less than 8 hours on time every day in 10 (n=41)percent , phone kept 2 inch away from body or kept in cover only in 3(n=13) percent of patients.

CONCLUSION: There are evidences to suggest excessive cellphone usage and erectile dysfunction. further extensive large scale studies are required to prove it .

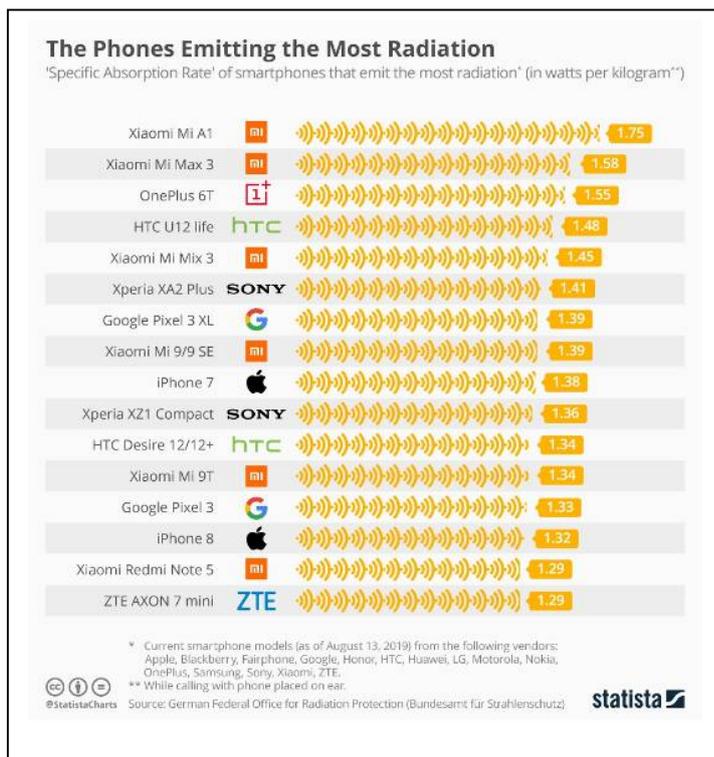
INTRODUCTION

Erectile dysfunction (ED), the inability to attain or maintain a penile erection sufficient for successful sexual intercourse, is a very common clinical condition that can affect up to 50% of men over 40 years old . Among the risk factors for ED are diabetes mellitus, hypertension, obesity, and hypercholesterolemia . The objective of the present study was to report our experience concerning the effects of cell phone usage on erectile function (EF). Scientists have found a potential link between carrying a mobile phone in your pocket and erectile dysfunction. A new study has linked mobile phones to erectile dysfunction (ED), with scientists claiming that people who carry their phones for more than 4.4 hours a day could be at risk. Research indicates that the exposure to cell phone radiation may lead to decreases in sperm count, sperm motility, oxidative stress, DNA damage and changes in sperm morphology.Preliminary study published by the *Central European Journal of Urology*, stated

that the longer men carried mobile phones that were switched on, the greater the incidence of Erectile dysfunction.

All these studies found statistically significant correlations between cell phone radiation and sperm health and many found that the adverse changes increased with the amount of radiation exposure. Cell phones have also been linked to brain cancers and cancers in the area in the body where cell phones are normally carried.

S.NO	Country or Region	Population,	Population	Internet Users	Internet Users	Internet Growth
		2019 Est.	2000 Est.	30-Jun-19	31-Dec-00	2000 - 2019
1	<u>China</u>	1,42,00,62,022	1,28,31,98,970	82,90,00,000	2,25,00,000	3584%
2	<u>India</u>	1,36,87,37,513	1,05,30,50,912	56,00,00,000	50,00,000	11100%
3	<u>United States</u>	32,90,93,110	28,19,82,778	29,28,92,868	9,53,54,000	207%
4	<u>Brazil</u>	21,23,92,717	17,52,87,587	14,90,57,635	50,00,000	2881%
<u>Total World</u>		7,71,62,23,209	6,14,50,06,989	4,42,24,94,622	36,09,85,492	1125%



The number of global mobile phone subscriptions is estimated at eight billion .Cell phones operate using a wide range of frequency bands (400-2000 MHz) that emit radiofrequency electromagnetic waves (EMW). Recently, a significant number of studies reported on the potential harmful effects of cell phone usage . Moreover, in 2011, a WHO–related committee classified radiation emitted from cell phone as grade 2B carcinogenic, which could indicate possible carcinogenicity to humans .

The link between cell phone usage and men's health hazards was proven in a number of studies that focused on the male reproductive health. The potential that the adverse effects of cell phone technology may have on male

fertility were subjects of extensive investigations over the past three years with many researchers reporting significant adverse effects of men's semen parameters, including motility and morphology . Other animal studies demonstrated that EMW may have a broad range of damaging effects on the male reproductive functions through both thermal and non–thermal effects .

Informed consent was obtained from all patients. clinical histories, basic laboratory investigations, and clinical examinations were performed. All men completed the Sexual Health Inventory for Men (SHIM) for evaluation of the International Index of Erectile Function (IIEF), as well as another questionnaire designed by our clinicians that assessed cell phone usage habits

Total time spent talking on the cell phone per day was significantly higher in Men with ED carried their switched on cell phones for a significantly longer time than men with no ED, 4 hours per day. There were no significant differences between both groups concerning non–cell phone radiation exposure .

Hundreds of millions of men around the globe use a cell phone on daily basis. This extensive and regular exposure to EMW carries many potential health hazards that were investigated in the medical literature. However, there was no strong evidence to prove the detrimental effects of cell phone usage. Nevertheless, caution should be taken when using such devices.

There is previously reported in a large study on male infertility that cell phone usage may negatively impact semen parameters in men . That study confirmed earlier reports suggesting an increased potential for harmful effects on male fertility due to cell phone usage . Davoudi et al. found that using GSM phones for 6 h/day for five days decreased the rapid progressive motility of human sperms. Our group showed reduction in the semen quality of men using cell phones; including sperm motility and morphology. We concluded that, “It seems that exposure to EMW through cell phones does not affect the total sperm count, which may indicate that certain testicular functions are still preserved.

This study showed that there may be a relation between cell phone usage and ED, which is indicated by the following results of this study: men with ED use their cell phones longer than men without ED, men who have ED carry their switched on cell phones significantly longer than men who do not have ED, and the effect of cell phone usage on total testosterone levels is not significant.

Our study showed the total time of exposure to the EMW of the cell phone is much more important than the relatively short duration of intense exposure during making cellular phone calls.more weaker the signal tower the radiation will be more

Cell phone history:

- a. How many hours a day do you talk over the cell phone?
- b. How many hours per day do you hold the cell phone in standby position?
- c. Do you daily use other devices that emit radio–waves like blue tooth or laptops? yes or no.
- d. Does your work expose you to radio–waves or irradiation of any kind? If yes, details?

Significant difference was observed in sperm morphology. Patients with cell phone usage showed significantly higher T and lower LH levels than those who did not use cell phone. No significant difference was observed regarding FSH and PRL values. Our results showed that cell phone use negatively affects sperm quality in men. Further studies with a careful design are needed to determine the effect of cell phone use on male fertility..

Semen analysis was performed in all patients. Serum free testosterone (T), follicle stimulating hormone (FSH), luteinising hormone (LH) and prolactin (PRL) were collected from all patients

. RESULTS:

TOTAL 412 PATIENTS.

Characteristics	Category	Frequency%
Age (years)	<25	37(9%)
	26--35	169(41%)
	35--55	157(38%)
	≥ 55	49(12%)
DURATION OF EXPOSURE	Below8 hrs	41(10%)
	8--16 hrs	137 (33%)
	Above 16 hrs	234(57%)
	cover, belt to keep 2" away	
	Yes	13(3%)
	NO	399 (98%)
Body Mass Index (kg/m ²)	19-25	(61%)
	>25	79(39%)
Duration of SIGNS and symptoms	Less than 1 yrs	58 (14%)
	1-3yrs	148(36%)
	3-5yrs	95(23%)
	More than 5yrs	111 (27%)
Daily Exercise, Walking,outdoor games,	Yes	86(21%)
	No	326(79 %)
Other laptop,blue tooth devices	yes	327(79%)
	NO	85(21%)
Family Income in rupees per month	≤ 25,000	201(49%)
	>25,000	211(51%)
Co morbidities (hence excluded from study+	DM	57
	SHT	59
	HYPOTHYROID	31
	CHRONIC UTI	26
	CHR.SMOKER	26
	CHR.ALCOHOL	21
	EXCLUDED FROM STUDY	220

Characteristics	Category	Frequency%
ERECTILE DYSFUNCTION ALONE	87	(21%)
ED +SPERM COUNT decreased	177	(43%)
ED+SCD+TESTOSTERONE decreased	148	(36%)

RESULTS:

Total number of patients screened 632, After excluding patients with uncontrolled diabetes, hypertensives on beta blockers and diuretics, hypo thyroid, chronic alcoholic, total number selected for study are 412, of which excessive cellphone usage more than 16 hours on time every day, seen in 57(n=234) percent of patients. more than 12 hours on time everyday in 33(n=137) percent of patients and less than 8 hours on time every day in 10 (n=41)percent, phone kept 2 inch away from body or kept in cover only in 3(n=13) percent of patients.

CONCLUSION:

Scientists have reported adverse health effects of using mobile phones including changes in brain activity, reaction times, and sleep patterns. More studies are underway to try to confirm these findings. When mobile phones are used very close to some medical devices (including pacemakers, implantable defibrillators, and certain hearing aids) there is the possibility of causing interference with their operation. There is also the potential of interference between mobile phones signals and aircraft electronics. Some countries have licensed mobile phone use on aircraft during flight using systems that control the phone output power.

Research has shown an increased risk of traffic accidents, about 3–4 times greater chance of an accident, when mobile phones (either handheld or with a “hands-free” kit) are used while driving due to distraction. ⁽⁶⁾

Children have the potential to be at greater risk than adults for developing brain cancer from cell phones. Their nervous systems are still developing and therefore more vulnerable to factors that may cause cancer.

The FDA have suggested steps to reduce the exposure to radiofrequency energy:

- Reserve the use of cell phones for shorter conversations or for times when a landline phone is not available. AND to report experience concerning the effects of cell phone usage on erectile function

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