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## RESEARCH ARTICLE

### USE OF SMART PHONE AMONG DIABETES PATIENTS- A SURVEY FROM CENTRAL INDIA

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#### ABSTRACT

With the advancement in technology, the use of smart phone has increased drastically in routine work. Hundred randomly chosen participants attending OPD at Diabetes, Obesity, & Thyroid Centre, Gwalior completed a questionnaire survey containing 15 questions related to socio-demographic characteristics and health status from December 2016 to May 2017. Participants were on average 34 years of age. 52% of them were females, 46% had at most 12<sup>th</sup>-grade education, and 33% were housewives. 56% of the participants owned a smart phone. Young age, male gender, and high literacy positively correlated to smart phone ownership. About 80% of the diabetic patients with smartphones were using their phone to access healthcare. 82% were finding smartphone a useful tool in managing their diabetes. Smart phones have high incursion among diabetes patients, those who are younger, more educated and those who have good health status.

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#### INTRODUCTION

The new generation phone - “smartphone” - is a link that has smoothened alot of things, one of which is the communication between patients and the treating physicians. Most people nowadays use smart phones not just to communicate, but also to increase awareness about self-care, one of the pillars of diabetes management.

Reports of the World Bank showed that about 75% of the world population has access to mobile phones. Mobile phone subscriptions are also increasing exponentially.<sup>1</sup> One important area where smart phones are gaining significance is the health sector - delivering full-time health services and personalized self-care support.<sup>2</sup>

Several smart phone applications today provide tailored health education and self-care systems such as blood sugar monitoring and injection training. Their availability at any time of day seems to be an important factor in their popularity.<sup>3,4</sup> The present survey was conducted to find the role of smart phones in the health care of diabetes patients attending an outpatient clinic in the city of Gwalior, Madhya Pradesh, India.

#### MATERIALS AND METHODS

A questionnaire based face-to-face survey was completed by 100 diabetes patients attending the OPD at Diabetes, Obesity, and Thyroid Centre from December 2016 to May 2017. Participants with above 18 years of age were randomly identified and approached in waiting rooms. The questionnaire contained 15 objective and one-liner questions based on socio-demographic characteristics (age, gender, and level of education), health status and access to care.

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Analyses were focused on indicators of smart phone use, the demographic profile of participants and usefulness of smart phone (rating on a scale of 1-5, where 1 being least useful and 5 being most useful). All the data were analyzed using IBM SPSS Ver. 20 and were expressed as percentages.

#### RESULTS

Mean Age of Participants was 34 years. Among the 100 participants, 56% owned a smart phone. Out of 56 participants who used a smart phone, 35 (79.54%) used their smart phone for accessing healthcare related information and contacting their physicians. 82% of participants who owned smart phones found it a useful tool in managing diabetes.

**Table 1** Showing socio-demographic characteristics of participants

Parameters		
Age (years)	18-29	34
	30-49	43
	50-64	12
	>65	11
Gender	Male	48
	Female	52
	Illiterate	22
Education	10 <sup>th</sup>	17
	12 <sup>th</sup>	46
	Graduate	12
	Post graduate	3
Work profile	House wives	33
	Govt. service	27
	Labor	19
	Private job	21

Data are expressed as percentage

#### DISCUSSION

Users of smart phones are increasing as they have higher storage capacity and resolution compared to previous generation phones.<sup>5</sup> They offer many services such as tools for

personal management, high-definition camera quality, and the ability to record and share information.<sup>6</sup>

In the present survey, diabetes patients were recruited from outpatient waiting area of Diabetes, Obesity and Thyroid Centre, Gwalior. It was found that 56% of the patients were using their smart phones to access diabetes-related healthcare. Most of the participants who owned smart phone were young males, had high literacy and found it a useful tool for managing their diabetes.

However, most of the participants who had education till 12<sup>th</sup> grade and higher, were using these devices for text messaging to their health care provider, for storing blood glucose monitoring values, keeping the photographs of their prescriptions, understanding the calories and carbohydrate content of common foods, and accessing other health information through the internet.<sup>1</sup>

Diabetes requires multidisciplinary care for effective treatment. Diabetes patients need education on self-care including blood-sugar monitoring, diet, and regular exercise. Increasing smart phone penetration and availability of 3G and 4G network has allowed patients to access information about the disease even in rural areas of developing countries. The communication between the patients and physician by means of text messaging and through different applications has made health-care both easy and approachable.<sup>8</sup>

## CONCLUSION

The use of smart phones among the diabetic population is increasing every day. Smart phone has enabled patients to manage their disease more effectively. It provides a platform for self-help as well as direct communication with the treating physician. Smartphone use is highly recommended for patients to get effective diabetes management as a result of its low cost, large reach, and versatility.

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