PROPORTION AND PREDICTORS OF SMBG USE AMONG TYPE 2 DIABETIC SUBJECTS IN THREE TERTIARY CARE HOSPITALS IN DHAKA CITY

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Background

- Self-monitoring of Blood Glucose (SMBG) has been proved to be an invaluable tool to achieve better glycemic control [1]. The use of the tool, however, has been seen to vary greatly in different countries due to various underlying factors [2].
- Exploration of the extent of use (and thus nonuse) and its determinants are important to design a rational evidence-based policy for the promotion of SMBG use in specific context. Such studies are still lacking in Bangladesh.

Aims

- The present study was undertaken to find out the proportion of SMBG Users and factors affecting the nonuse of such devices in three tertiary care hospitals of Dhaka city, the capital of Bangladesh.

Methods

- Through convenient sampling 597 type 2 diabetic subjects were recruited from the OPDs of 3 tertiary care hospitals in Dhaka City. The first one was the largest public hospital (PUBH); the second one was a large Not-for-profit Hospital (NFPPH) and the third one was a large For-profit private hospital (FPPH) in the city.
- A pretested Questionnaire, written in the local language (Bengali), was used for data collection.

Results & Discussion

- Overall 69.6% of the diabetic patients were found to be Nonusers of SMBG.

Fig 1: Proportion of SMBG Users and Nonusers among the study subjects (n=598)

- Two-third (67%) of the patients got hospital advice for SMBG use. Among the Users, the Physicians were found to be the main source of the advice (54%); however, relatives (34.1%) and friends (8.2%) were also important sources of the advice.

Table 1: Additional issues related to SMBG use

Issues	No (%)
Source of advice regarding SMBG use	
Doctor	93(54.7)
Relative	58 (34.1)
Friend	14 (8.2)
Users' priority preference in SMBG buying (n=164)	
Price	64 (37.6)
Quality	100 (58.8)
Management of DM depending on SMBG result (n=169)	
Yes	165 (97.1)
No	4 (2.4)
Correct procedure of SMBG use	
Yes	163 (95.9)
No	6 (3.5)
Recording of the SMBG result	
Yes	109 (64.1)
No	60 (35.3)

- Irregular diabetes checkup (35.8%) and distrust on SMBG results (33.4%) were found to be among the major reasons for not using SMBG.

Table 2: Reasons for not using SMBG as expressed by the Nonusers (n=419)

Variables	No (%)
Discomfort in the test	36 (8.6)
High price	52 (12.4)
Not knowing the advantage of SMBG	41 (9.8)
Irregular DM checkup	150 (35.8)
Distrust on SMBG result	140 (33.4)

- Age, female gender, education, lower socioeconomic status and health care in Public (PUBH) vs Private (NFPPH & FPPH) facilities were found to affect the use of SMBG at a significant level. When the PUBH and NFPPH setting (Not-for-profit facilities) were combined and compared with the FPPH (for-profit facility) settings it was found that use of SMBG is significantly higher in the for-profit private hospital setting. The use was also found to be significantly higher among subjects who were advised for SMBG use compared to those who were not advised (67% vs 33% of overall subjects).
- On binary logistic analysis (with use of SMBG as dependent variable) age, male gender, education, monthly income and PUBH vs NFPPH & FPPH were found to have significant independent association with the use of SMBG. Among the factors, monthly income status was found to have a very high impact ($p < 0.001$; odds ratio 5.412) on the use. When the effects of all these confounding variables were adjusted factors related to the attendance in PUBH & NFPPH vs FPPH setting did not show any significant association with SMBG use.

Table 3: Logistic regression analysis considering SMBG Use as the dependent variable (n =598)

Variables	β	p value	Odds Ratio (OR)	95% C.I	
				Lower	Upper
Age	0.018	0.037	1.018	1.001	1.036
Gender (female)	0.432	0.063	1.541	0.976	2.431
Education in year	0.563	0.028	1.756	1.064	2.897
Monthly Income	1.540	0.001	4.662	2.673	8.132
PUBH vs NFPH & FPPH	-0.103	0.721	.902	0.512	1.588
PUBH & NFPH vs FPPH	0.066	0.818	1.069	0.608	1.878
Hospital Advice for SMBG use	1.320	0.001	3.743	2.227	6.292
Constant	-7.263	0.001	.001		

Reference group, β for standardized regression coefficient, significant at p -value < 0.05 , level of confidence interval 95%

Conclusion

- 69.6% of the type 2 diabetic patients do not use SMBG and the proportion is high (nearly 53%) in public hospitals. Irregular diabetes checkup and distrust on SMBG results are predominant reasons for not using SMBG and cost rather than quality is the major factor in choosing SMBG devices even in hospital settings.

References

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