

Study the Impact of Diabetes Camps on Adherence to Medication and Glycaemic Control in Uttarakhand

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ABSTRACT

Introduction: Diabetes is a major public health problem which needs to be addressed with outmost planning in resource poor settings. Good glycaemic control and medication adherence patterns can play an important role in reducing disease related complications thereby reducing morbidity and mortality among diabetics. Disease specific camps can act as a stepping stone in providing limited care to the patients.

Aim: The study was planned to study the impact of diabetes camp on glycaemic control and adherence to antidiabetic medication among diabetic patients at a Government Teaching Hospital, Srinagar, Garhwal, Uttarakhand, India.

Materials and Methods: A cross-sectional study using a medication adherence questionnaire collected from the patients participating in diabetic camps and measuring their HbA1C levels before and after the camps along with spreading awareness about the disease.

Two diabetes awareness camps were organized, three month apart and the participants were imparted knowledge about the disease. A total of 50 patients with type 2 DM who had self reported history of diabetes and were on some form of oral anti diabetics confirmed by their prescriptions. The patients were

called for monthly follow up in outpatient department. A six question preformed questionnaire – the Gierd's instrument was used to assess the level of adherence to the prescribed anti-diabetic drugs in 50 patients with type 2 diabetes mellitus, their HbA1C levels were estimated and the results were analysed using standard statistical methods.

Results: A total of 50 type 2 diabetic, 48 were studied comprising 23 (47.9%) women and 25 (52.1%) men with a mean age of 57.43 years. The average duration of diabetes among participants was 7.02 years. Poor medication adherence score was recorded in 27 participants and only 7 participants had good adherence to medication before the camp. After the camp, 19 participants had good adherence and 7 had poor medication adherence scores. As a result of improved adherence, improvement in glycaemic control was noticed by a decrease of 0.5 units in the mean HbA1C value by the end of the study.

Conclusion: The results clearly showed that group intervention in the form of camp combined with monthly follow-ups could improve adherence as well as glycaemic control at a government teaching hospital in a resource poor setting. This could also involve and encourage society as well as young trainees to participate collectively in the care of diabetics.

Keywords: Anthropometry, Compliance, Disease specific camps, Gierd scale, Knowledge

INTRODUCTION

Diabetes mellitus (DM) is a growing public health problem worldwide with high levels of morbidity and mortality. Indians lead the world with the greatest number of diabetics (42 million) and it is estimated that this number will swell to 69.9 million by the year 2025 [1]. Uttarakhand is a geographically diverse state comprising of plains as well as hills. Hilly regions are mainly divided into kumaon and Garhwal. Srinagar is the largest city in Garhwal hills. As of 2001 census, Srinagar had a population of 1,50,000. Srinagar is also educational city in Uttarakhand with an average literacy rate of 83% [2]. Srinagar medical college is the first medical college of the state and caters to the population of Srinagar as well as whole of Garhwal hills. As per MHFW-NPCDCS Survey-2010, the prevalence of diabetes was 5.7% in the state of Uttarakhand [3]. The disease remains understudied in the Garhwal region of Uttarakhand with paucity of literature. After the flash floods in Uttarakhand in 2013, health system was badly affected. Patients with diabetes could not travel to hospitals regularly for follow up as well as for their anti-diabetic medications which are available for free at the government hospitals. American Diabetes association recommends maintaining HbA1C \leq 7.0% to prevent microvascular and macrovascular complications [4]. The morbidity and mortality of this disease mainly depend on the acute and chronic complications. These can be prevented by proper glycaemic control which in turn depends on many factors like exercise, diet and medication. Although there are several factors that affect glycaemic control among patients with diabetes, it is known to be improved by adherence to anti-diabetic medications [5]. The treatment utility depends mainly on self care

by the patient and medication adherence [6-8]. Non adherence to medication in chronic diseases like diabetes mellitus not only leads to poor clinical outcome but also increase in cost of care [9]. Aim of the study was to organize disease specific (i.e. diabetes) camp in a resource poor setting to assess medication adherence pattern of diabetics to anti-diabetic medication in this region and study the impact of this camp on adherence to medication and glycaemic control in subsequent follow up visits.

Through this study the team involved in diabetic care of the patients was able to interact directly with diabetic patients and their families. The disease specific camp was also more informative for doctors in understanding the problems of diabetics of this region. The study may provide a bird's-eye view of minimal care provision for diabetics of this region [10]. The results of this study may help in quantifying the need of a 'diabetes clinic' in this region and conveying to government officials will be easier with a study in hand.

Nevertheless, the study is an obvious first step in the direction of providing the data on impact of diabetes awareness camps on medication adherence which is an essential part in glycaemic control in type 2 DM, from Garhwal region of Uttarakhand.

MATERIALS AND METHODS

An interventional cross-sectional study was conducted with the collaboration of the department of medicine, ophthalmology and pharmacology of Veer Chandra Singh Garhwali Government Institute of Medical Science and Research in the month of December'2014 to March'2015. The study was conducted at HNB Base Teaching Hospital, Srikot, Srinagar, Pauri Garhwal, Uttarakhand. The study

S.No.	Questions	YES	NO
1.	Do you sometimes forget to take your medicine?		
2.	Have you ever run out of your medicine?		
3.	Do you sometimes take your medicine late?		
4.	Do you sometimes decide not to take your medicine because someday you feel that your treatment do more harm than good?		
5.	Do you think that you have too many pills to take?		
6.	When you feel better, do you sometimes stop taking your medicine?		

When "No" was answered to 6 items kappa = 0.65 (Good Adherence); When 1 or 2 "yes" were given kappa = 0.5 (Medium Adherence); when 3 or more "yes" were given kappa = 0.56 (Poor adherence)

[Table/Fig-1]: Measure of medication adherence (Adapted from Girerd et al., [8]).

received approval from the Institutional Ethics Committee, Veer Chandra Singh Garhwal Government Institute of Medical Science and Research. The first diabetes awareness camp was organized on the 2nd Sunday in the month of December 2014. The camp was organized in the hospital on public holiday as this was the only place where organized space was available along with laboratory support. The patients and their families were informed to come for the camp through the support of panchayat heads, ngos and nss students of medical college. The aim of the camp was to interact with diabetic patients and their families and educate them about the timely surveillance procedures that may help in preventing complications related to the disease [11]. During the first camp, Fifty diabetic patients fulfilling the inclusion and exclusion criteria (mentioned below), were enrolled for the study. All the patients and their family members were given an oral presentation on foot care, diet and when to screen themselves for complications and also their doubts regarding the disease were cleared during an interactive session by the physician. The pharmacist recorded the adherence to anti-diabetic medication using the Girerd scale [12], a preformed questionnaire containing six questions [Table/Fig-1] on the first day of camp and after three months i.e. 3rd Sunday of March. During the first day of camp, emphasis was laid on explaining the importance of medication adherence to each patient individually by the pharmacist. The patients were screened for microvascular complications like retinopathy by the ophthalmologist and for neuropathy by physician. The patients were advised to come for follow-ups on 2nd Saturday every month for two months. The blood samples were taken for measuring the HbA1C during the first day of camp and after three months i.e. 3rd Sunday of March.

Inclusion criteria

1. Men and women having type 2 DM on oral hypoglycaemic agents.
2. Age group- 25-80 years.
3. All patients who could understand Hindi.
4. All patients who were available for follow-up for 3 months, in Base Hospital, Srinagar, Uttarakhand.

Exclusion criteria

1. Patients with type 1 DM.
2. Patients using insulin.
3. Patients not being able to come for successive follow-ups.

Clinical evaluation

Patients' weight and height were measured and used to calculate the Body Mass Index (BMI) as a ratio of weight in kilograms/height in meters squared [13]. Peripheral neuropathy was assessed by 5.07/10g- Semmens Weinstein monofilament testing and classified as either significant neuropathy or normal perception [14]. Participant's mean blood pressure was recorded during evaluation and hypertension defined according to Joint National Committee

(JNC 7) [15]. The survey included the Girerd scale 6-item adherence measure [12] designed to evaluate medication adherence in patients with hypertension, which has been validated and found to be reliable in a variety of medication-adherence studies. HbA1C levels were estimated on the first Sunday of the first and third month of diabetes camps, recorded under the heading of pre and post camp HbA1C respectively. The effect of diabetes camp on adherence to anti-diabetics and HbA1C levels was assessed.

STATISTICAL ANALYSIS

The effect of diabetes camp on adherence to anti-diabetics and HbA1C levels was assessed through the data collected on excel sheet over three months and was analysed by SPSS version 16. The observation was analysed by using paired t-test where the value of $p < 0.05$ was considered significant.

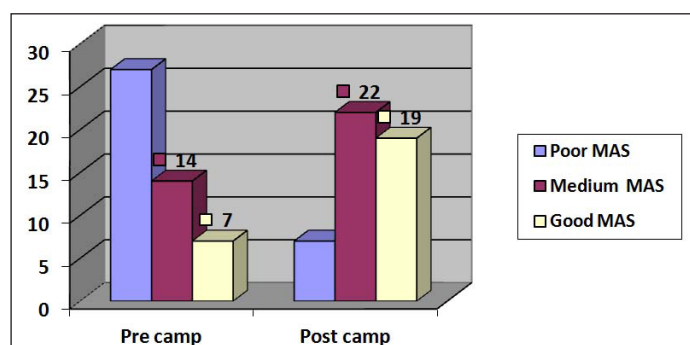
Informed consent: All the details of the nature and purpose of the study were described in the local language to the patient. An individual who voluntarily gave the informed consent was enrolled in the study.

RESULTS

The study included a total of 50 diabetic patients, among them 2 were lost to follow up. The mean age of the patients was 57.43 years. Among these 52.1% were males and 47.9% were females. Among the participants, 54.16% were literate and 45.83% were illiterate's. The average duration of diabetes amongst the patients was 7.02 years and half of the patients (52.08%, n=48) were hypertensive (Blood pressure >140/90mmHg), the mean systolic and diastolic blood pressure of the study participants was 139.4 and 82.9 respectively [Table/Fig-2]. A total of 47.92% participants were found to have chronic complications of diabetes, among these, the highest 34.7% had triopathy i.e. retinopathy, nephropathy and neuropathy, and 13.3% were detected to have diabetic retinopathy. Poor medication adherence score was recorded in 27 participants and only 7 participants had good adherence to medication before the camp. After the camp, 19 participants had good adherence and 7 had poor medication adherence scores [Table/Fig-3]. Poor glycaemic control (HbA1C \geq 7%) was observed in 26 participants

Variable	N	Mean		Std Deviation
		Statistics	Std Error	
Age (y)	48	57.4375	1.53502	10.63496
DODM ^a (y)	48	7.0125	.71364	4.94427
Systolic BP	48	139.4	3.24389	22.47433
Diastolic BP	48	82.9167	1.52399	10.55852
Pre-camp BMI	48	24.2308	.41420	2.86963
Post-camp BMI	48	24.0542	.35101	2.43188
Pre-camp HbA1C	48	8.3979	.21873	1.51538
Post-camp HbA1C	48	7.8687	.21205	1.46914

[Table/Fig-2]: Descriptive Statistics of Study Population.
^aDODM (Duration of Diabetes mellitus)



[Table/Fig-3]: Number of patients scoring Pre and post camp medication adherence category based on MAS (Medication adherence score).

Glycaemic group		Poor Adherence	Medium Adherence	Good Adherence
Good control HbA1C <= 7%	PRE CAMP	1	3	4
	POST CAMP	0	15	12
Poor control HbA1C > 7%	PRE CAMP	26	11	3
	POST CAMP	7	7	7

[Table/Fig-4]: The relationship between adherence categories and glycaemic control groups.

	N	Correlation	Sig.
Pair 1 Pre Camp HBA1C & Post Camp HBA1C	48	.964	.000*

[Table/Fig-5]: Paired samples correlations on comparing pre and post camp mean HbA1C using paired t-test., *p<0.05

		PRE CAMP HBA1C	PRE CAMP BMI
PRE CAMP HBA1C	Pearson Correlation	1	.462**
	Sig. (2-tailed)		.001
	N	48	48
PRE CAMP BMI	Pearson Correlation	.462**	1
	Sig. (2-tailed)	.001	
	N	48	48

[Table/Fig-6]: Correlations between Pre Camp HbA1C and BMI.

		POST CAMP HBA1C	POST CAMP BMI
POST CAMP HBA1C	Pearson Correlation	1	.477**
	Sig. (2-tailed)		.001
	N	48	48
POST CAMP BMI	Pearson Correlation	.477**	1
	Sig. (2-tailed)	.001	
	N	48	48

[Table/Fig-7]: Correlations between Post Camp HbA1C and BMI. **. Correlation is significant at the 0.01 level (2-tailed).

Education Status	SMBG*		Total
	No	Yes	
Illiterate	23	1	24
Literate	20	4	24
Total	43	5	48

[Table/Fig-8]: Cross tabulation showing education status with SMBG. *SMBG (Self Monitoring of Blood Glucose)

who had low medication adherence scores recorded before the camp while good glycaemic control (HbA1C ≤ 7%) was observed in 12 participants with high medication adherence scores [Table/Fig-4]. Average decrease in HbA1C comparing Pre & Post blood HbA1C levels was 0.53 units as depicted in [Table/Fig-2].

On applying paired t-test, statistically significant (p=0.000) correlation was found between pre and post camp HbA1C values [Table/Fig-5]. Pearson correlation showed statistically significant (p=0.001) correlation between pre camp and post camp HbA1C and BMI of the participants [Table/Fig-6,7]. However there was no significant correlation found between education status and SMBG as shown in [Table/Fig-8].

DISCUSSION

The organization of diabetes camps had significant impact over medication adherence and glycaemic control. Mean HbA1C values recorded during the first camp and three months latter in the second camp were 8.39 and 7.86 respectively.

During the first camp, 83% of participants had poor glycaemic control (HbA1C>7) and during the second camp, 43.75% participants had poor control and 56.2% had good glycaemic

Gender		Good	Medium	Poor	Total
Male	PRE CAMP	5	9	11	25
	POST CAMP	12	9	4	
Female	PRE CAMP	2	5	16	23
	POST CAMP	7	13	3	

[Table/Fig-9]: Cross tabulation showing gender wise variation in pre and post camp medication adherence score.

Glycaemic group		MALE (%)	FEMALE (%)
Good control HbA1C <= 7%	PRE CAMP	6(24)	3(13)
	POST CAMP	11(44)	8(34.8)
Poor control HbA1C > 7%	PRE CAMP	19(76)	20(86.9)
	POST CAMP	14(56)	15(65.2)

[Table/Fig-10]: Impact of diabetes camp on glycaemic control on various genders.

control. The study by Lawrence et al., stated that only 33% of those treated for type 2 diabetes achieved a HbA1C value of less than 7% [16], whereas Indian study gives a higher value of 50-60% patients with diabetes are unable to achieve HbA1C below 7% [17]. Thus, increase in participants with good glycaemic control suggests that interventions like a diabetes awareness camp can play an important role in glycaemic control. The results may be improved further by increasing the frequency of the camps.

Medication adherence score in our study on the 1st camp had Overall 27 participants with poor score which came down to 7 after 2nd camp and regular follow-ups. A similar study was conducted in Tanzania in 2013, on the adherence to diabetes mellitus treatment regimens among Type 2 diabetes patients which showed the prevalence of anti-diabetic drug adherence to be suboptimal [18]. Suboptimal rates of medication adherence have also been reported in studies done in India (a study conducted in the year 1999) [19], Jamaica [20], Uganda [21] and France [22]. The study by Shobhna et al., stressed the need for constant motivation of the patients and education at frequent intervals to improve medication adherence [23]. This makes the utility of awareness camps even more significant which in our study helped in increasing the medication adherence score to optimal levels.

In our study, patients who had good glycaemic control had better adherence to anti-diabetic drugs compared to those who had poor glycaemic control, however, this was not statistically significant. The lack of association between anti-diabetic drug adherence and glycaemic control was also seen in Tanzanian study [18].

On applying paired sample t-test, significant correlation was found between pre and post camp HbA1C [Table/Fig-5]. Mean BMI in our study was in the normal range according to WHO guidelines. Positive correlation was found between HbA1C and BMI both in pre-camp and post camp values [Table/Fig-6,7]. Many studies support the need of improving BMI of diabetic patients which leads to reduction in HbA1C [24]. Study by Gopinath et al., has shown that patients with higher BMI have poor glycaemic control [25]. Thus educating patients and their families about maintaining normal range BMI can help in good glycaemic control.

The awareness camp made its impact on both the age group equally viz. age group equal to 60 years and less (n=29) and age group > 60 years (n=19) which in fact showed the positive and serious approach to the medication adherence shown by the statistically significant (p=0.000) values. In our study the impact of the camp was noted in the age group of 50-60 years, where they showed good adherence to the medication following the camp and the age group 60-70, showed poor adherence. Although a similar study done in Tanzania, showed drug adherence to be better among patients older than 61 years and poorest among patients in the age group of 41-50 years [18].

Self monitoring of blood glucose in our study was not significantly associated with educational status of the patient. All the subjects who did self monitoring of blood glucose level showed good adherence to the anti-diabetic medications. Thus irrespective of their educational status, diabetics could be encouraged to practice SMBG in our population.

The impact of awareness camp showed positive effect not only on literate group (n=26) but even more in the illiterate group (n=22), thus taking the positive approach towards medication adherence which clearly showed the seriousness about the importance and role of medication adherence in improving the blood sugar control in diabetes mellitus and thus helping in reducing the complications there by prolonging the span with better quality of life. Peripheral neuropathy, Nephropathy and Retinopathy were the complications analysed against anti-diabetic medication adherence. They were found to have no significant association with medications adherence.

Both males (n=25) and females (n=23) responded very well to the medication adherence awareness camp showing the statistically significant (p=0.000) improvement in the behaviour towards medication adherence [Table/Fig-9]. A study conducted in Zimbabwe in the year 2012 showed females to be associated with low diabetes knowledge than males [26]. Thus, our study helped in creating awareness in both the genders equally.

Good glycaemic control was observed in 34.8% of females and 44% of males after the camp which was only 24% and 13% before the camp among males and females respectively [Table/Fig-10]. Thus males showed a better glycaemic control than female. These results will help us to frame the strategies for future camps, keeping female patients in mind and need for more counseling among females. It also encouraged us to organize more diabetic camps, screen all diabetics for complications and involve medical students in interacting with patients.

LIMITATION

The limitation of this study was the limited sample size and short duration of study. Positive difference that the camp made on the clinical practice was that in a resource poor setting like ours, we can take the help of various specialists under one roof and not only screen the patients for complications, clear their doubts about the disease, but also involve their family members in the diabetic care.

CONCLUSION

Medication adherence and glycaemic control, are the core factors that need to be addressed in good diabetes care. As per RHS Bulletin, March 2012, M/O Health & F.W., GOI, there is severe shortfall of doctors as well as supportive healthcare staff at the health centers located in hilly regions of Garhwal. This makes the management of chronic diseases like diabetes very challenging. Monthly diabetes camps can aid in providing good and cost effective diabetes care by improving medication adherence, glycaemic control, imparting patient education and early screening of diabetes related complication. Organizing diabetic camps every month can not only help in improving medication adherence and glycaemic control but also reduce cost of care for the patient as well as the state. Through such camps we can reinforce patient education and screen the patients for complications. These camps need to focus more on diabetic's education and counseling among female and old age diabetics. Such camps can also be a good source of learning for the medical students as well as families of the patients. In a resource poor settings of Garhwal region, where there is lack of specialists and diabetic clinics, monthly diabetic camps can be

cost effective and patient friendly solution. Diabetic camps can be a good measure to prevent diabetic complications in resource poor settings till well equipped diabetic clinics become a part of health care system in Garhwal region.

CONFLICTS OF INTEREST

No conflict of interest to this article was reported.

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REFERENCES

- [1] Sicree R, Shaw J, Zimmet P. Diabetes and impaired glucose tolerance. In: Gan D, editor. *Diabetes Atlas*. International Diabetes Federation. 3rd ed. Belgium. *International Diabetes Federation*; 2006:15-103.
- [2] "census of India 2001:data from the 2001 census, including cities, villages and town (provisional)" census commission of India. *Archived from the original on 2004-06-16*.
- [3] Kumar et al. Trends of communicable and non-communicable morbidities in Uttarakhand state: A systemic review. *Indian journal of community health*. 2013;25(2):178-87.
- [4] Source: American Diabetes Association: *Diabetes Care*. 2015;38(Suppl 1):S1.
- [5] Rubin Richard R. Adherence to pharmacologic therapy in patients with Type 2 diabetes mellitus. *Am J Med*. 2005;118:27S-34S.
- [6] Rhee MK, Slocum W, Ziemer DC, Culler SD, Cook CB, El- Kebbi IM, et al. Patient adherence improves glycaemic control. *Diabetes Educ*. 2005;31:240-50.
- [7] Krapek K, King K, Warren SS, George KG, Caputo DA, Mihelich K, et al. Medication adherence and associated hemoglobin A1C in type 2 diabetes. *Ann Pharmacother*. 2004;38:1357-62.
- [8] Mohan D, Raj D, Shanthirani CS, Datta M, Unwin NC, Kapur A, et al. Awareness and knowledge of diabetes in Chennai - the Chennai Urban Rural Epidemiology Study (CURES-9). *J Assoc Physicians India*. 2005;53:283-87.
- [9] World Health Organization. Report on medication adherence. Geneva: World Health Organization; 2003.
- [10] IDF Clinical Guidelines Task Force. Global guideline for Type 2 diabetes. Brussels: International Diabetes Federation, 2005.
- [11] Alvin C Powers. Diabetes Mellitus: Management and Therapies. In: Dennis L.Kasper(Ed.) *Harrison's Principles of Internal Medicine*. 19 Edition, New York: McGraw-Hill Education; 2015. Pp.2408.
- [12] Girerd X, Hanon O, Anagnostopoulos K, Ciupek C, Mourad JJ, et al. Evaluation de l'observance du traitement anti-hypertenseur par un questionnaire: mise au point et utilisation dans un service spécialisé. *Presse Med*. 2001;30:1044-48.
- [13] World Health Organization. Physical status: the use and interpretation of anthropometry. 1995. Geneva. WHO Technical Report Series 854.
- [14] Herman William, Kennedy Laurence. Under diagnosis of Peripheral neuropathy in Type 2 diabetes. American Diabetes Association: *Diabetes Care*. 2005;28(6):1480-81.
- [15] Chobanian Army, et al. Seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension*. 2003;42(6):1206-52.
- [16] Phillips LS, Branch WT, Cook CB, Doyle JP, El-Kebbi IM, Gallina DL, et al. Clinical Inertia. *Ann Intern Med*. 2001;135:825-34.
- [17] Mohan D, et al. Convergence of Prevalence Rates of Diabetes and Cardiometabolic Risk Factors in Middle and Low Income Groups in Urban India: 10-Year Follow-Up of the Chennai Urban Population Study. *Journal of Diabetes Science and Technology*. 2011;5(4):918-27. Print.
- [18] Rweggerera GM. Adherence to anti-diabetic drugs among patients with Type 2 diabetes mellitus at Muhimbili National Hospital, Dar es Salaam, Tanzania- A cross-sectional study. *Pan African Medical Journal*. 2014;17:252.
- [19] Shobhana R, Begum R, Snehalatha C, Vijay V, Ambady R. Patients' adherence to diabetes treatment. *J Assoc Physicians India*. 1999;47(12):1173-75.
- [20] Swaby P, Wilson E, Swaby S, Sue-Ho R, Russel P. Chronic diseases control and compliance: The HOPE, worldwide Jamaica's experience. *PNG Med J*. 2001;44(3-4):171-75.
- [21] Tiv M, Viel J-F, Mauny F, Eschwé E, Weill A, Fournier C, et al. Medication adherence in Type 2 Diabetes: The ENTRED Study 2007, a French Population-Based Study. *PLoS ONE*. 2012;7(3):e32412.

- [22] Kalyango J, Owino E, Nambuya Agatha. Non-adherence to diabetes treatment at Mulago hospital in Uganda: prevalence and associated factors. *Afr Health Sci*. 2008;8(2):67-73.
- [23] Shobhana R, Begum R, Snehalatha C, Vijay V, Ramachandran A. Patients' adherence to diabetes treatment. *J Assoc Physicians India*. 1999;47(12):1173-75.
- [24] Britton KA, et al. Hemoglobin A1c, Body Mass Index and the Risk of Hypertension in Women. *Am J Hypertension*. 2011;24(3):328-34.
- [25] Gopinath B, et al. Study of factors associated with poor glycaemic control in Type -2 Diabetic patients. *GJMEDPH*. 2013;2(2).
- [26] Mufunda E, Wikby K, Björn A, Hjelm K. Level and determinants of diabetes knowledge in patients with diabetes in Zimbabwe: a cross-sectional study. *Pan African Medical Journal*. 2012;13:78.

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