

Study of Prevalence of Type 2 Diabetes Mellitus among Asha Workers in Rural Blocks: A Community Based StudyDeepak Telange¹, Dnyaneshwar N. Digole², Akshay Salgar³, Pratima Khatake⁴¹Associate Professor, Department of Community Medicine, NAMO Medical Education and Research Institute, Silvassa²Associate Professor, Department of Community Medicine, MIMSR Medical College Latur, Maharashtra^{3,4}Assistant Professor, Department of Community Medicine, Government Medical College, Baramati, Maharashtra

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Abstract:**Background:** The rise in type 2 diabetes mellitus patients is associated with population growth, economic development, ageing populations, increasing urbanization, dietary changes, obesity, reduced physical activity and changes in other lifestyle patterns. Proper health education by health care personnel and new research findings and useful strategies can reduce the worsening of diabetes mellitus. The study was conducted to know the prevalence of type 2 diabetes mellitus among ASHA workers in rural blocks.**Methods:** The present community based cross sectional study carried during 1st January 2021 to 31st December 2021 in the field practise area of tertiary care centre in rural area. A total of 350 ASHA workers were taken as sample size from three rural blocks as study population. The WHO guidelines were used for diagnosis of diabetes cases, fasting blood glucose more than 126 mg/dl considered as diabetic. Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version.**Results:** The majority of ASHA were in age group 41-60 years (57.43%) and married (92.57%) The prevalence of diabetes among ASHA workers found to be 8.29%. The prevalence of risk of diabetes among ASHA workers shows high risk among 8.86% followed by moderate risk (11.71%) and low risk (79.43%)**Conclusion:** The present study concluded that the prevalence of diabetes mellitus is increasing among working females.**Keywords:** Prevalence, Diabetes Mellitus, ASHA workers.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Diabetes is a complex, chronic illness requiring continuous medical care with multifactorial risk-reduction strategies beyond glycemic control. [1] Globally, 425 million people are affected with diabetes and Type 2 diabetes (type 2 DM) is also increasingly seen in younger adults now a days. An estimated 463 million adults aged 20-79 years are currently living with diabetes. [2] In India the problem of diabetes is of much concern as approximately 40.9 million patients are with Diabetes Mellitus and this number is expected to rise to about 69.9 million by the year 2025. [3] Prevalence of diabetes in Maharashtra is 8.4%. [4]

The individual beliefs about health and illness, based on his or her knowledge will determine the outcome of diabetes. Proper health education by health care personnel and new research findings and useful strategies can reduce the worsening of diabetes mellitus. ASHA have an important role in controlling and managing the spread and the com-

plications, by motivating and helping the patients to take responsibility for their lives and to feel secure in making their own decisions and to improve their knowledge and attitude towards their health. Under the National Rural Health Mission (NRHM), the concept of trained female community health activist or accredited social health activist (ASHA) has been introduced to all villages of the country who acts as an interface between the community and the public health system. ASHAs responsibilities range from health education to detection of diseased cases and referral to higher health facilities. [5]

The government had implemented the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS). The ASHA is responsible for undertaking the Population Enumeration of all those aged 30 years and above through home visits, completing the Community Based Assessment Checklist (CBAC) for NCD Screening, Community Mo-

bilization & Screening for Common Non-Communicable Diseases. Though ASHA workers are fully involved in taking care of health of the community, in the era of epidemiological transition literature is lacking on health status especially presence of NCD like diabetes in ASHA workers. [6]With this background the present study was undertaken with the objective of determining prevalence of diabetes among ASHA workers in rural blocks.

Objective:

To study the prevalence of type 2 diabetes mellitus among ASHA workers in rural blocks.

Methodology:

The present study was a community based cross sectional study. The study was carried out at Department of Community Medicine during 1st January 2021 to 31st December 2021. The study was conducted in the field practise area of tertiary care center in rural area. The study population was ASHA workers in field practice area. Sample size

was calculated based on the previous study, the prevalence of diabetes mellitus was taken as 8%.² Sample size was estimated at 5% level of significance with an absolute error of 10%, the sample size was 294.

Hence, 350 ASHA workers were taken as sample size from three rural blocks as study population. The study was conducted after obtaining clearance from the Ethical Committee of the institute. Permission was obtained from the authorities of DHO office. Data was collected by interview & pretested, semi-structured questionnaire from 350 ASHA workers working in field practice area in three rural blocks. The venous blood sample was collected for estimation of fasting blood glucose level. The WHO guidelines were used for diagnosis of diabetes cases, fasting blood glucose more than 126 mg/dl considered as diabetic.⁷ Data was collected and compiled using Microsoft Excel, analyzed using SPSS 23.0 version. Data was summarized in percentages and proportions.

Results:

Table 1: Socio-Demographic Profile of the ASHA workers:

Variable		Frequency (n=350)	Percentage
Age group (years)	≤30	27	07.71
	31-40	118	33.71
	41-50	201	57.43
	51-60	04	1.14
Marital status	Married	324	92.57
	Unmarried	21	06.00
	Widow	03	0.86
	Divorced/ separated	02	0.57
Education	Primary	21	06.00
	Secondary	198	56.57
	Higher secondary	103	29.43
	Above higher secondary	28	08.00
Socio-economic status (Modified B G Prasad classification 2021)	Class I	12	03.43
	Class II	36	10.29
	Class III	114	32.57
	Class IV	156	44.57
	Class V	32	09.14

The above table no. 1 shows the sociodemographic profile of ASHA workers according. The majority of ASHA were in age group 41-60 years (57.43%) and married (92.57%) Among 350 ASHA, majority of ASHA workers were having secondary schooling (85.14%) and belongs to lower middle class (44.57%).

Table 2: Distribution of ASHA workers according to prevalence of diabetes:

Prevalence of diabetes	Frequency (n=350)	Percentage
Present	29	8.29
Absent	321	91.71
Total	350	100

The above table no. 2 shows the distribution of ASHA workers according to prevalence of diabetes. The prevalence of diabetes among ASHA workers found to be 8.29%.

Table 3: Prevalence of risk of diabetes according to Indian diabetes risk score:

IDRS	Frequency (n=350)	Percentage
Low risk (<30)	278	79.43
Moderate risk (30-60)	41	11.71
High risk (>60)	31	08.86
Total	350	100

The above table no. 3 shows the distribution of ASHA workers according to prevalence of risk of diabetes according to Indian diabetes risk score. The prevalence of risk of diabetes among ASHA workers shows high risk among 8.86% followed by moderate risk (11.71%) and low risk (79.43%)

Table 4: Distribution of ASHA workers according to blood sugar levels:

Blood sugar levels	Mean \pm SD	Range
Fasting	129.18 \pm 20.18	79-211
Postprandial	158.48 \pm 42.21	108-332
HbA1c	6.12 \pm 1.73	5.4-7.9

The above table no. 4 shows the distribution of ASHA workers according to blood sugar levels. The mean fasting blood sugar level was 129.18 \pm 20.18 mg/dL. The mean postprandial blood sugar level was 158.48 \pm 42.21mg/dL. The mean HbA1c level was 6.12 \pm 1.73 %.

Discussion

Diabetes is one of the largest global health emergencies of the 21st century. The prevalence of diabetes is on an increase due to over growth of population, urban life style, physical inactivity, aging and increasing prevalence of obesity. Many studies are available on prevalence of diabetes in urban areas but still studies are limited from rural areas and especially studies on prevalence of diabetes among health workers working in rural areas.

The present cross-sectional study was carried out to estimate the prevalence and to identify associated risk factors of type 2 diabetes mellitus in ASHA workers. Study was conducted during 1 January 2021 to 31 December 2021 involving 350 ASHA workers.

In the present study, the majority of ASHA were in age group 41-60 years (57.43%) and married (92.57%) Study conducted by Swathi Shet et al [8] observed that the majority of ASHA workers i.e. 52% were in the age group of 41- 50 years. These finding was similar to the observations in the present study. Majority i.e. 51.72% of the ASHA workers were in the age group 41-50 years in the study conducted by Mayadhar Panda et al [9] Similar findings were observed in the study conducted by Farah N. Fathima et al, [10] revealed 90% ASHA workers were currently- married women. Swathi Shet et al [8] observed 100% of ASHA workers participated in the study were married.

In the present study, among 350 ASHA, majority of ASHA workers were having secondary schooling (85.14%) Farah N. Fathima et al [10] in their study among ASHA workers observed nearly 90% (264/294) of ASHAs had completed eight years of schooling. Swathi Shet et al [8] in a study observed majority of the ASHA workers (65%) had finished secondary level of education. This shows that the selection criteria of the ASHA workers were as per

the norms of NHM guidelines, which was also supported by study conducted by Garg P et al. [11]

The distribution of ASHA workers according to socio-economic status showed majority of ASHA workers belongs to lower middle class 156 (44.57%) followed by middle class 114 (32.57%). Farah N. Fathima et al [10] observed that majority of ASHAs (59%) were from households with income of 1,000 to 3,000 Indian Rupees (INR) (US\$ 18-50) per month. Swathi Shet et al [8] in a study observed 88% of ASHA workers with household income of 10–25 thousands per year.

In the present study, the prevalence of diabetes among ASHA workers found to be 8.29%. Senthil Kumar Subramani et al [12] in a study on prevalence of Type 2 Diabetes observed prevalence of 6.1% among rural females. Anuj Jangra et al [13] observed overall prevalence of diabetes in females was 10.8%. Jaya Prasad Tripathy et al [14] observed that prevalence of diabetes in females and in rural area were 8.2% and 7.6% respectively. Finding in these studies was similar to the observations in present study. In contrast to the present study higher prevalence of diabetes was observed by Sanjay D. Bhalerao et al [15] reported prevalence of type 2 Diabetes Mellitus in rural population was 17.7%. The above studies were conducted in different parts of the world and thus the considerable variation was found and may be considered to ethnic, genetic and life style and environmental changes. The mean fasting blood sugar level was 129.18 \pm 20.18 mg/dL.

The mean postprandial blood sugar level was 158.48 \pm 42.21mg/dL. The mean HbA1c level was 6.12 \pm 1.73 %. Similar finding was observed by Sanjay D Bhalerao et al [15] in rural population revealed mean fasting blood sugar in diabetic individuals was 128.2 \pm 35.1. The distribution of ASHA workers according to prevalence of risk of diabetes according to Indian diabetes risk score showed the prevalence of high risk of diabetes among ASHA workers was 31 (8.86%) followed by moderate risk 41(11.71%) and low risk 278 (79.43%)

Sheikh Mohd Saleem et al [16] conducted study to assess Indian Diabetic Risk Score- observed population were classified to be low, medium and high risk for developing type 2 diabetes were 70.4%, 19.5% and 10.1% respectively. Reshma S

Patil et al [17] identified 36.55% of individuals at high risk for diabetes by using IDRS. Chowdhury Ranadip et al [18] conducted a study on distribution and determinants of Indian Diabetic Risk Score (IDRS) among rural population of West Bengal, observed that 108 (46%) participants had moderate risk (IDRS 30-50); 74(31.5%) had high risk (IDRS \geq 60) and 53(22.6%) had low risk (IDRS <30). The difference in risk prevalence between the current study and other studies may be due to variance in lifestyles of the populations. The IDRS was a simple tool used in a community-based study to detect individuals at high risk for diabetes.

Due to time constraint study was conducted in selected blocks which may limit the generalizability of the findings. The study was not able to identify the different types of DM, and this is the other limitation of the study. Increasing prevalence of diabetes can be tackled using a multidisciplinary approach for promoting healthy lifestyles because early identification of at-risk individuals and appropriate intervention in the form of weight reduction, changes in dietary habits and increased physical activity could greatly help to prevent, or at least delay, the onset of diabetes.

Conclusion

The present study concluded that the prevalence of diabetes mellitus is increasing among working females. The IDRS is a simple tool that can be used in the community-based study to detect and educate individuals at high risk for diabetes.

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