

# May Measurement Month in Nepal: Five-year comparison of blood pressure screening results in 2017 - 2021

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**Objective:** Nepal has been participating in the May Measurement Month (MMM) aiming to raise hypertension awareness and improve health seeking behavior to control high blood pressure in communities and present data for policymakers. This study compares the results from 2017 to 2021.

**Design and Methods:** Opportunistic cross-sectional surveys to measure the proportion of hypertension, its awareness, treatment, control, and risk factors among  $\geq 18$  years of age annually from 2017 to 2021 in Nepal. Although MMM was not executed globally due to the COVID-19 pandemic in 2020, it was conducted in Nepal by following safety measures. We administered the structured questionnaire and took three BP readings while sitting at 1-minute intervals. Measures of association were calculated using the logistic regression model adjusting for age and sex. The same definition of hypertension (a mean of 2nd and 3rd BP reading  $\geq 140/90$  mmHg, or participants were treated with medicines for known hypertension) was applied for all years.

**Results:** The summary characteristics from 2017 to 2021 are presented in Table 1. Baseline characteristics were similar for all five studies except for low tobacco use in 2017. The proportion of hypertension ranges from 20.6% to 31.3% (24.4% in 2017, 27.8% in 2018, 27.5% in 2019, 31.3% in 2020, and 20.6% in 2021). Awareness, treatment, and control were also similar across five years, ranging from 39.5% to 49.9%, 29.5% to 39.1%, and 46.0% to 56.0% respectively. Smoking, alcohol use, body mass index  $\geq 25$ , diabetes, and history of myocardial infarction (MI) or stroke were associated with hypertension after adjusting for age and sex across multiple studies.

**Conclusions:** A five-year comparison of the MMM study in Nepal showed that hypertension awareness, treatment, and control have been suboptimal, suggesting an urgent need to implement a nationwide prevention and control program together with a national screening program.

Table 1: Summary of MMM studies in Nepal from 2017 to 2021

	2017	2018	2019	2020	2021
Total participants	5,972	15,561	74,205	11,486	5,172
Female, %	63.0	41.3	41.9	57.0	49.9
Mean Age (SD)	39.3 (16.0)	38.4 (15.8)	39.3 (15.4)	45.0 (17.0)	39.69 (16.4)
Hypertension, %	24.4	27.8	27.5	31.3	20.6
Awareness, %	n/a	49.9	46.3	40.2	39.5
Treatment, %	37.6	39.1	37.5	32.0	29.5
Control, %	54.8	52.6	54.3	46.0	56.0
Tobacco use, %	11.7	21.8	23.6	19.8	21.7
Alcohol drink, %	20.9	23.8	22.2	22.2	21.9
BMI $\geq 25$ , %	30.4	39.9	35.1	n/a	n/a
Diabetes mellites, %	3.4	6.4	6.7	4.4	4.1
MI or stroke, %	1.47	1.77	1.28	1.29	0.5
Major risk factors*	Smoking OR 1.27 [1.05-1.55], alcohol OR 1.38 [1.17-1.62], BMI $\geq 25$ OR 1.79 [1.55-2.06], MI/stroke OR 1.68 [1.03-2.74]	Smoking OR 1.34 [1.21-1.49], alcohol OR 1.24 [1.18-1.31], BMI $\geq 25$ OR 1.75 [1.55-1.98], MI/stroke OR 3.11 [2.31-4.20]	Smoking OR 1.06 [1.02-1.10], alcohol OR 1.27 [1.23-1.30], BMI $\geq 25$ OR 1.88 [1.80-1.97], diabetes OR 1.86 [1.74-1.98], MI/stroke OR 1.88 [1.62-2.17]	Smoking OR 1.50 [1.35-1.67], alcohol OR 1.53 [1.37-1.70], BMI $\geq 25$ OR 1.60 [1.46-1.75], diabetes OR 2.36 [1.94-2.87], MI/stroke OR 2.0 [1.39-2.86]	Alcohol OR 1.53 [1.27-1.83], diabetes OR 2.71 [1.99-3.68], MI/stroke OR 2.56 [1.05-6.24]