

## Effects of Dietary Intake and Physical Activities on the Performance of Primary Health Care Workers in Nasarawa State Nigeria

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### **Abstract**

*This study adopted a cross-sectional design and deployed a quantitative methodology to assess the effect of dietary intake and physical activities in Nasarawa state. The questionnaire was adapted as an instrument for data collection. 400 respondents were sampled through a multistage sampling technique and 300 were interviewed using the epi-info mobile data collection tool. Data from the field survey were presented in frequency and simple percentages informed by the chart. The study revealed that although the majority of PHC staff get daily exercise from engaging in daily activities like walking, cooking, sweeping, etc. only a few (43.33%) on average followed a planned exercise program and exercised vigorously at least three times weekly as recommended by WHO. The study also reveals that the dietary component of the PHC staff interviewed consists mostly of free sugars, saturated fats, trans-fats, and high levels of salt intake. More also the findings reveal that poor diet and exercise habits influence the performance of primary health care workers. It was concluded that Primary Health Care workers in Nasarawa state maintain an inadequate level of diet and physical activities, dietary intake and physical activities affect the performance of PHC staff, and PHC workers don't practice and maintain good diet and physical activities habit, therefore there is need for promotion of health education activities related to diet and physical activities at PHC level across the state to inspire and motivate PHC staff to take up a healthy diet and exercise habit.*

**Keywords:** *Dietary, Effect, Exercise, Habit, Healthy, Intake, Performance, Physical, Planned, Study.*

### **Introduction**

A healthy diet helps protect against malnutrition and diet-related non-communicable diseases such as diabetes, heart disease, stroke, and cancer [1]. An adequate diet and required physical activity remained vital for human growth and development. Inadequate diet intake is associated with cardio-metabolic risk factors which cause high blood pressure, high blood glucose level, high insulin level, and lipid profile [2] as blood pressure rises so does the risk of heart disease and stroke [3].

The Global Burden of diseases that are diet and lifestyle-related choices stands at 71.3% of deaths in 2015 as compared to only 57.6% in 1990 [4].

There is compelling evidence across many nations to suggest that the proportion of physically inactive individuals is increasing [5]. The economic burden of sedentary is large. Globally, almost 500 million (499,208 million) new cases of preventable Non-Communicable Diseases will occur between 2020 and 2030, incurring treatment costs of over US\$ 300 billion (INT\$ 524 billion) or around US\$ 27 billion (INT\$ 48 billion) annually if there is no change in the current prevalence of physical inactivity. Nearly half of these new cases of NCDs (47%) will result from hypertension, and 43% will result from depression. Three-quarters of all cases will occur in lower- and upper-middle-income countries. The largest economic cost is set to occur among high-

income countries, which will account for 70% of healthcare expenditure on treating illnesses resulting from physical inactivity [6].

Obesity is a major public health concern that needs to be addressed using interventions that are accessible to children and adolescents along with focusing on the various factors that are involved such as environment [7][8].

Regular Physical activity and exercise can help you stay healthy, energetic, and independent as you age. Exercise plays a vital role in preventing health diseases and stroke [9][10].

It is perceived that health workers may not be actively watching their dietary intake and physical exercise in Nasarawa State. Thus, there is a need to examine the effect of dietary intake and physical exercise on the performances of primary health care workers in the primary health care centers in 147 wards across the 13 Local Government Areas in the state.

This study will go a long way in ensuring that the health workers are healthy to take care of their patients, clients, catchment population they cover and become better role models on dietary intake with routine exercise towards improving the health of the general public.

Improving Nutrition is core to Global Development which is also critical in achieving Sustainable Development Goals (SDGs). The SDGs look at the Global commitment to address malnutrition and hunger. The aims are generally to end hunger, enhance food security and improve nutrition (SDG-2). Success in Nutrition is linked to all the SDGs and a foundation to improve health and end poverty, addressing clean water and sanitation, renewable energy, education, gender equity, and so on is sacrosanct [11].

People who regularly participate in moderate amounts of physical activity and fitness can live longer and healthier and also, and physical activity and fitness not only help prevent illness and diseases but also promote quality of life [12]. Gender, year of education, and college

were significantly associated with physical activity [13]. Age, education, and diet patterns (intakes of food groups) are important determinants of nutrition and physical activity knowledge [14]. Based on this premise, the study assessed the effect of dietary intake and exercise among the Primary Health Care center workers in Nasarawa State.

This study covers all public health care center staff on the government payroll and trained volunteers in Nasarawa state who consult or care for the primary health center registers. It is generally known that a lack of routine exercise could lead to certain medical conditions that can affect certain life physiological functioning. Health Workers are viewed by the general public to be role models in every aspect of health including health promotion activities and practice [13] hence the survey was conducted to keep them abreast of their daily dietary needs and exercise to stay healthy to perform their daily job role.

Several social factors and lifestyles could be associated with diet and exercise-related diseases, these factors include; gender, year of education, and college, and were significantly associated with physical activity [14]. Age, education, and diet patterns (intakes of food groups) are important determinants of nutrition and physical activity knowledge [15]. This study investigated the primary health care gatekeepers' (Primary Health Care Workers) social life concerning diet and exercise habits which will help boost the health and wellness of PHC Staff.

The study will enable the population accessing services at the PHC level to take up optimum healthy diet and physical exercise habits.

The study can serve as a think tank for the government and policymakers in terms of policy formulations related to diet and physical activities at the PHC level in Nigeria.

This study was limited by time and finance as the study was very elaborate and had to be concluded within a given time frame,

communal clashes, inter-tribal crises, crime like kidnapping, armed robbery in some parts of the state, and poor access roads in some part of the state make some of the health facility at ward level ‘hard to reach’ at the time of the survey thus reducing the study calculated sample data size of 400 to 300 data being collected.

## Materials and Methods

A cross-sectional study design [16] was implored and the participants were selected across Primary Health Care Centers in Nasarawa State to determine the effect of diet and exercise to breach identified gaps among PHC Center workers in Nasarawa State. Epi-info was deployed to collect data for this survey because the studies involved investigating dietary/nutritional intake and exercise patterns among Primary Health Care Workers, hence quality data were collected from multiple locations and were analyzed verbatim using the same database software which minimizes data entry errors during data entry and analysis. Semi-structured standardized interviewer-administered, electronic questionnaires adapted from similar studies and validated before data collection. The contact, data was collected face-to-face with the respondents. The sample size for this study was determined using the formula,  $N = \frac{z^2 (pq)}{d^2}$ , where, N= Sample size;

$P = 20.3$ , (Prevalence of health state from previous literature);  $q = 80$  ( $100 - p$ );  $d = 4$ , (Relative Precision probability (z value from the probability table, and substituting the above in the formula gave  $N = \frac{2^2 (20 \times 80)}{4^2} = \frac{4 (1600)}{16} = 400$ ). Therefore, the sample size for this study was 400 being the largest sample size obtained based on the research objective. A multistage sampling technique was used to select respondents for the study. Two PHC Centers per ward [17] across 147 political wards in Nasarawa State were used for this study. In a situation where only one PHC was found in a ward two health workers were selected and interviewed by the sampling technique. Two PHC Centers trained healthcare workers per ward across 147 political wards in Nasarawa State with complete contact addresses were randomly selected via multi-stage and stratified random sampling for the study until the desired sample size was achieved. In addition, three PHC-trained workers in each ward with more PHC centers were selected for interviews. Data quality checks such as pre-defined values (code sets) for categorical data, range restrictions for numeric data, and logic checks implemented minimized data duplication and other data entry errors. Data was analyzed with epi-info v7 and the hypothesis using 2\*2 tables and chi-square.

## Result

**Table 1.** Relationship between Exposure to Butter and the Outcome of Diabetes, Hypertension, Obesity, and Stroke.

Butter	Relationship between Exposure to Butter and the Outcome of Diabetes, Hypertension, Obesity, and Stroke											
	Diabetes			Hypertension			Obesity			Stroke		
	Yes	No		Yes	No		Yes	No		Yes	No	
Yes	0	28	28	2	26	28	0	28	28	0	28	28
Row %	0.00 %	100.00%	100.00%	7.14 %	92.85%	100.00%	0.00%	100.00%	100.00%	0.00 %	100.00%	100.00%
Col %	0.00%	9.46 %	9.33 %	7.41 %	9.52 %	9.33%	0.00%	9.40 %	9.33%	0.00 %	9.3 %	9.33 %
No	4	268	272	25	247	272	2	270	272	0	272	272
Row%	1.47%	98.53%	100.00%	9.19 %	90.81%	100.00%	0.74%	99.26%	100.00%	0.00 %	100.00%	100.00%

Col%	100.00 %	90.5 4%	90.6 7%	92.5 9%	90.4 8%	90.67 %	100.0 0%	90.6 0%	90.67 %	0.00 %	90. 67 %	90.67 %
Total	4	296	300	27	273	300	2	298	300	0	300	300
Row%	1.33%	98.6 7%	100. 00%	9.00 %	91.0 0%	100.0 0%	0.67%	99.3 3%	100.0 0%	0.00 %	100 .00 %	100.0 0%
Col%	100.00 %	100. 00%	100. 00%	100. 00%	100. 00%	100.0 0%	100.0 0%	100. 00%	100.0 0%	0.00 %	100 .00 %	100.0 0%

Source: epi7 dietary intake/physical exercise Dashboard

The table above shows that out of the 300 PHC workers interviewed, those who consumed butter and have diabetes are 0 (0%), those who consumed butter and did not have diabetes, 28 (9.33%), 4 (1.33%) do not eat butter and has diabetes, 268 (89.67%) do not eat butter and has no diabetes. Again, 2 (0.67%) of them consumed butter and had hypertension, 26 (8.67%) consumed butter and did not have hypertension, subsequently, 25 (8.33%) did not eat butter and did have hypertension and 247

(82.33%) do not eat butter and does not have hypertension. However, 0 (0%) eat butter and are obese, 28 (9.33%) eat butter and do not have obesity, 2 (0.67%) do not eat butter and have obesity, and 270 (90.33%) do not eat butter and do not have obesity. Lastly, 0 (0%) eat butter and have a stroke, and 28 (9.33%) do not consume butter and do not have a stroke. 0 (0%) do not eat butter and have a stroke, while 272 (90.67%) of them do not consume butter and do not have a stroke.

**Table 2.** Relationship between Exposure to Goat Meat and the Outcome of Diabetes, and Obesity.

Goat meat	Diabetes			Diabetes		
	Yes	No		Yes	No	
Yes	2	182	184	1	183	184
Row %	1.09%	98.91%	100.00%	0.54%	99.46%	100.00%
Col %	50.00%	61.49%	61.33%	50.00%	61.41%	61.33%
No	2	114	116	1	115	116
Row %	1.72%	98.28%	100.00%	0.86%	99.14%	100.00%
Col %	50.00%	38.51%	38.67%	50.00%	38.59%	38.67%
Total	4	296	300	2	298	300
Row %	1.33%	98.67%	100.00%	0.67%	99.33%	100.00%
Col %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

From the table above out of 300 survey participants, 2 (1.09%) persons who eat goat meat suffer from diabetes. In contrast, 182 (98.91%) of persons who eat goat meat do not suffer diabetes 2 (1.72%) who don't eat goat meat suffer diabetes and 114 (98.28%) of participants who don't eat goat meat don't

suffer diabetes. 1 (0.54%) person who eats goat meat suffers from obesity while 183 (99.46%) of persons who eat goat meat do not suffer from obesity 1 (0.86%) who don't eat goat meat suffer from obesity and 115 (99.14%) of a participant who doesn't eat goat meat don't suffer obesity.

**Table 3.** Relationship between Exposure to Beverages and Soft Drinks and the Outcome of Diabetes, and Obesity.

Beverages and soft drink						
	Yes	No	Total	Yes	No	Total
0	1	138	139	0	139	139
	0.72%	99.28%	100.00%	0.00%	100.00%	100.00%
	25%	46.62%	46.33%	0.00%	46.64	46%33%
1	2	141	143	2	141	143
	1.40%	98.60%	100.00%	100.00%	47.32%	47.67%
	50.00%	47.64%	47.67%	100.00%	47.32%	47.32%
2	1	17	18	0	18	18
	5.56%	94.44%	100.00%	0.00%	100.00%	100.00%
	25.00%	5.74%	6.00%	0.00%	6.04%	6.00%
TOTAL	4	296	300	2	298	300
	1.33%	98.67%	100.00%	0.67%	99.33%	100.00%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Dietary intake/physical exercise Dashboard

From the above out of 300 participants interviewed on drinking beverages and eating sugary snacks, only 1 (0.72%) participant who drinks and eats beverages and sugary snacks daily suffers diabetes, 138 (99.28%) participants who drink and eat beverages and sugary snacks daily do not suffer diabetes, 2 (1.40%) participants who suffer diabetes drink beverages and eat sugary snacks weekly, while

141( 98.6%) participants who do not suffer diabetes do not drink nor eats beverages and sugary snacks on weekly basis. In the same light, 1 (5.56%) of participants who suffer from diabetes do not drink beverages and eat sugary snacks at all, while 17 (94.44%) participants who do not suffer from diabetes do not drink soft drink beverages and eat sugary snacks at all.

**Table 4.** Relationship between Exposure to Salt and the Outcome of Diabetes, and Hypertension

Exposure (Daily salt intake)	Outcome (95% Confidence Interval)	
	Diabetes	Hypertension
Statistical calculation		
Odd ratio	0.5332	0.7883
Chi-square	0.0012	0.1244
2 tail p-value	1.0000000000	0.6802353399

From the table above, the odd ratio for participants who are exposed to a daily salt intake of more than 1 teaspoon and suffer from diabetes is less than 1 which implies that there is no association between daily salt intake of more than 1 teaspoon and diabetes among

participants. The odd ratio of Survey participants exposed to daily salt intake of more than 1 teaspoon and suffer hypertension is also less than 1, implying no significant association between consumption of more than 1 teaspoon and hypertension.

**Table 5.** Relationship between Exposure to Skipping Meals and the Outcome of Diabetes, and Ulcer

N14 Do you skip a meal	Diabetes			Ulcer		
	Yes	No		Yes	No	
Yes	1	132	133	42	91	133

Row %	0.75%	99.25%	100.00%	31.58%	68.42%	100.00%
Col %	25.00%	44.59%	44.33%	51.22%	41.74%	44.33%
No	3	164	167	40	127	167
Row %	1.80%	98.20%	100.00%	23.95%	76.05%	100.00%
Col %	75.00%	55.41%	55.67%	48.78%	58.26%	55.67%
Total	4	296	300	82	218	300
Row %	1.33%	98.67%	100.00%	27.33%	72.67%	100.00%
Col %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

From the table above out of 300 survey participants, 1 (0.75%) a person who skip meals suffers from diabetes. In contrast, 132 (99.25%) persons who skip meals do not suffer from diabetes 3 (1.80%) who don't skip meals suffer from diabetes, and 164 (98.20%) of participants who don't skip meals don't suffer from

diabetes. 42 (31.58%) persons who skip meals suffer from ulcers while 91 (68.42%) of persons who skip meals do not suffer ulcers 40 (23.95%) who don't skip meals suffer ulcers and 127 (76.05%) of participants who don't skip meal don't suffer ulcer.

**Table 6.** Relationship between Exposure to Skipping Meals and the Outcome of Diabetes, and Ulcer

Exposure (skip a meal)	Outcome (95% Confidence Interval)	
	Diabetes	Ulcer
Statistical calculation		
Odd ratio	0.4152	1.4654
Chi-square	0.0767	1.8013
2 trail p-value	0.7818120339	0.1795597489

Source: *epi7 dietary intake/physical exercise Dashboard*

From the table above, the odd ratio of a participant who skips a meal and suffers from diabetes is less than 1 which implies that there is no association between skipping meals and diabetes among participants. Odd ratio of

Survey participants exposed to skipping meals and suffering ulcers is also more than 1 implying that there is a significant association between meals and ulcers.

**Table 7.** Relationship between Exposure to Alcohol Consumption and the Outcome of Diabetes

N15 Do you consume alcohol	Diabetes		
	Yes	No	
Yes	0	21	21
Row %	0.00%	100.00%	100.00%
Col %	0.00%	7.09%	7.00%
No	4	275	279
Row %	1.43%	98.57%	100.00%
Col %	100.00%	92.91%	93.00%
Total	4	296	300
Row %	1.33%	98.67%	100.00%
Col %	100.00%	100.00%	100.00%

Source: *epi7 dietary intake/physical exercise Dashboard*

From the table above out of 300 survey participants, 21 (100%) of persons who consume Alcohol but do not suffer from

diabetes 4 (1.43%) who don't consume alcohol suffer from diabetes and 275 (98.50%) of

participants who don't consume Alcohol don't suffer diabetes.

**Table 8.** Relationship between Exercising Vigorously At least Thrice Weekly and Sleeping at Work

	Yes	No	Total
0	13	12	25
	52.00%	48.00%	100.00%
	10.83%	6.78%	8.42%
1	16	17	33
	48.48%	51.52%	100.00%
	13.33%	9.60%	11.11%
2	41	89	130
	31.54%	68.46%	100.00%
	34.17%	50.28%	43.77%
3	50	59	109
	45.87%	54.13%	100.00%
	41.67%	33.33%	36.70%
TOTAL	120	177	297
	40.40%	59.60%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
7.8876	3	0.0484	
Fisher's Exact		0.0458	

Source: *epi7 dietary intake/physical exercise Dashboard*

From the above out of 297 responses on exercising vigorously at least thrice weekly and sleeping at work, 13 (52%) participants who exercise vigorously at least three times weekly always sleep during working hours. 16 (48.48%) who routinely sleep at work exercise vigorously at least three times weekly. 41 (31.54%) who sometimes sleep during working hours exercise vigorously at least three times weekly and 50 (45.87%) who never sleep during working hours exercise vigorously at least three times daily on the other hand 12 (48.00%) who sleep always during working hours don't exercise vigorously at least thrice weekly, 17 (51.52%) who sleep routinely during working hours don't exercise vigorously

at least thrice weekly, 89 (68.46%) who sleep sometimes during working hours don't exercise vigorously at least thrice weekly and 59 (54.13%) who never sleep during working hours don't exercise vigorously at least thrice weekly.

Similarly, from the table above, the chi-square value for participants who are exposed to exercise at least thrice weekly is 7.8876 at fishers exact 0.0458 p-value 3df which is smaller than the alpha value at 0.05, therefore, it can be said that there is a significant relationship between sleep during working hours and exercise vigorously at least thrice weekly.

**Table 9.** Relationship between Exercising Vigorously At least Thrice Weekly and Attending to Many Patients at the Hospital

	Yes	No	Total
0	38	50	85

	43.18%	56.82%	100.00%
	31.40%	28.25%	29.53%
1	46	47	93
	49.46%	50.54%	100.00%
	38.02%	26.55%	31.21%
2	37	79	116
	31.90%	68.10%	100.00%
	30.58%	44.63%	38.93%
3	0	1	1
	0.00%	100.00%	100.00%
	0.00%	0.56%	0.34%
Total	121	177	298
	40.60%	59.40%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
7.5989	3	0.0551	
Fisher's Exact		0.0363	

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 298 responses on exercising vigorously at least thrice weekly and attending to many patients at the hospital, 38 (43.18%) participants who exercise vigorously at least three times weekly always attend to many patients at the hospital, 46 (49.46%) who routinely attend to many patients at the hospital exercise vigorously at least three times weekly. 37 (31.90%) who sometimes attend to many patients at the hospital exercise vigorously at least three times weekly and 0(0.00%) who never attend too many patients at the hospital exercise vigorously at least three times daily on the other hand 50 (56.82%) who don't attend to many patients always at the hospital don't exercise vigorously at least thrice weekly, 47 (50.54%) who don't attend too many patients routinely at the hospital don't

exercise vigorously at least thrice weekly, 89 (68.46%) who don't attend too many patients sometimes at the hospital don't exercise vigorously at least thrice weekly and 59 (54.13%) who never attend too many patients at the hospital don't exercise vigorously at least, thrice weekly.

Similarly, from the table above, the chi-square value for participants who are exposed to exercise at least thrice weekly is 7.5989 at fishers exact 0.0363 p-value at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant relationship between attending to many patients sometimes at the hospital don't exercise vigorously at least thrice weekly and exercise vigorously at least thrice weekly.

**Table 10.** Relationship between Exercising Vigorously At least Thrice Weekly and Going to Work Late at the Hospital

	Yes	No	TOTAL
0	7	14	21
	33.33%	66.67%	100.00%
	5.79%	7.95%	7.07%
1	16	10	26



	61.54%	38.46%	100.00%
	13.22%	5.68%	8.75%
2	63	121	184
	34.24%	65.76%	100.00%
	52.07%	68.75%	61.95%
3	35	31	66
	53.03%	46.97%	100.00%
	28.93%	17.61%	22.22%
TOTAL	121	176	297
	40.74%	59.26%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df		Probability
12.486	3		0.0059
Fisher's Exact			0.006

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 297 responses on exercising vigorously at least thrice weekly and going to work late at the hospital, 7 (33.33%) participant who exercise vigorously at least three times weekly always goes to work late, 16 (61.54%) who routinely goes to work late exercise vigorously at least three times weekly. 63 (34.24%) who sometimes go to work late exercise vigorously at least three times weekly and 35 (53.03%) who never go to work late exercise vigorously at least three times daily, on the other hand, 14 (66.67%) who don't go to work late always at the hospital don't exercise vigorously at least thrice weekly, 10 (38.46%) who don't go to work late

routinely at the hospital don't exercise vigorously at least thrice weekly, 121 (65.76%) who don't go to work late sometimes at the hospital don't exercise vigorously at least thrice weekly and 31 (46.97%) who go to work late hospital don't exercise vigorously at least thrice weekly.

Similarly, from the table above, the chi-square value is 12.4860 at Fisher's exact 0.0060p value at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between going to work late and exercising vigorously at least thrice weekly.

**Table 11.** Relationship between Exercising Vigorously At least Thrice Weekly and Closing from Work Late.

	Yes	No	TOTAL
0	19	25	44
	43.18%	56.82%	100.00%
	15.70%	14.12%	14.77%
1	7	17	24
	29.17%	70.83%	100.00%
	5.79%	9.60%	8.05%
2	77	122	199
	38.69%	61.31%	100.00%
	63.64%	68.93%	66.78%
3	18	13	31
	58.06%	41.94%	100.00%

	14.88%	7.34%	10.40%
TOTAL	121	177	298
	40.60%	59.40%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
5.643	3	0.1303	
Fisher's Exact		0.1366	

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 297 responses on exercising vigorously at least thrice weekly and closing from work late, 19 (43.18%) participants who exercise vigorously at least three times weekly always close from work late, 7 (29.17%) who routinely close from work late exercise vigorously at least three times weekly. 77 (38.69%) who sometimes close from work late exercise vigorously at least three times weekly and 18 (58.06%) who never close from work late exercise vigorously at least three times daily, on the other hand, 25 (56.82%) who don't close from work late always don't exercise vigorously at least thrice weekly, 17 (70.83%) who don't go to close from late

routinely at the hospital don't exercise vigorously at least thrice weekly, 122 (61.31%) who don't close from work late sometimes at the hospital don't exercise vigorously at least thrice weekly and 13 (41.94%) who close from work late at the hospital don't exercise vigorously at least thrice weekly.

Similarly, from the table above, the chi-square value is 5.6430 at Fisher's exact 0.0060p value at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between closing from work late and exercising vigorously at least thrice weekly.

**Table 12.** Relationship between Following a Planned Regular Exercise Program and Attending to Many Patients at the Hospital

	Yes	No	TOTAL
0	32	56	88
	36.36%	63.64%	100.00%
	28.32%	30.27%	29.53%
1	36	57	93
	38.71%	61.29%	100.00%
	31.86%	30.81%	31.21%
2	45	71	116
	38.79%	61.21%	100.00%
	39.82%	38.38%	38.93%
3	0	1	1
	0.00%	100.00%	100.00%
	0.00%	0.54%	0.34%
TOTAL	113	185	298
	37.92%	62.08%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
0.7636	3	0.8582	
Fisher's Exact		0.9643	

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 298 responses on following a planned regular exercise program and attending to many patients at the hospital, 32 (36.36%) participants who followed a planned regular exercise program always attended to many patients daily, 36 (38.71%) who followed a planned regular exercise program routinely attends to patients daily. 45 (38.79%) who followed a planned regular exercise program sometimes attended to many patients daily and 0 (0.00%) who never followed a planned regular exercise program attended to many patients daily, on the other hand, 56 (63.64%) who don't follow a planned regular exercise program always attends to

many patients daily, 57 (61.29%) who don't follow a planned regular exercise program routinely attends to many patients daily, 71 (61.21%) who don't follow a planned regular exercise program sometimes attends to many patients daily and 1 (100.00%) who never followed a planned regular exercise program attends to many patients daily

Similarly, from the table above, the chi-square value is 0.7636 at fishers exact 0.9643p value at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between attending to many patients daily and following a planned regular exercise program

**Table 13.** Relationship between Following a Planned Regular Exercise Program and Coming to Work Late.

	Yes	No	TOTAL
0	10	11	21
	47.62%	52.38%	100.00%
	8.85%	5.98%	7.07%
1	10	16	26
	38.46%	61.54%	100.00%
	8.85%	8.70%	8.75%
2	62	122	184
	33.70%	66.30%	100.00%
	54.87%	66.30%	61.95%
3	31	35	66
	46.97%	53.03%	100.00%
	27.43%	19.02%	22.22%
TOTAL	113	184	297
	38.05%	61.95%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
4.5254	3	0.21	
Fisher's Exact		0.2028	

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 297 responses on following a planned regular exercise program and coming to work late, 10 (47.62%) participants who followed a planned regular exercise program always came to work late, 10 (38.46%) who followed a planned regular exercise program routinely comes to work late. 62 (33.70%) who followed a planned regular

exercise program sometimes come to work late and 31 (46.97%) who followed a planned regular exercise program never come to work late, on the other hand, 11 (52.38%) who don't follow a planned regular exercise program always comes to work late, 16 (61.54%) who don't follow a planned regular exercise program routinely comes to work late, 122

(66.30%) who don't follow a planned regular exercise program sometimes comes to work late and 35 (53.03%) who never followed a planned regular exercise program come to work late.

Similarly, from the table above, the chi-square value is 4.5254 at fishers exact 0.2028p

**Table 14.** Relationship between Making an Effort to Sit or Stand Straight and Sleeping at Work

	Yes	No	TOTAL
0	20	5	25
	80.00%	20.00%	100.00%
	7.46%	17.24%	8.42%
1	30	3	33
	90.91%	9.09%	100.00%
	11.19%	10.34%	11.11%
2	118	12	130
	90.77%	9.23%	100.00%
	44.03%	41.38%	43.77%
3	100	9	109
	91.74%	8.26%	100.00%
	37.31%	31.03%	36.70%
TOTAL	268	29	297
	90.24%	9.76%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
3.3128	3	0.3459	
Fisher's Exact		0.3637	

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 297 responses on making an effort to sit or stand straight and sleeping at work, 20 (80.00%) participants who make an effort to sit or stand straight always sleep at work, 30 (90.91%) who make an effort to sit or stand straight routinely sleep at work. 118 (90.77%) make an effort to sit or stand straight sometimes sleep at work and 100 (91.74%) who followed a make effort to sit or stand straight never sleep at work, on the other hand, 5 (20.00%) who don't make effort to sit or stand straight always comes to work late, 3 (9.09%) who don't make effort to sit or stand

value at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between going to work late and following a planned regular exercise program.

straight routinely sleep at work, 12 (9.23%) who don't make effort to sit or stand straight sometimes sleep at work and 9 (8.26%) who never make effort to sit or stand straight never sleep at work.

Similarly, from the table above, the chi-square value is 3.3128 at fishers exact 0.3637 p-values at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between sleeping at work and making an effort to sit or stand straight

**Table 15.** Relationship between Making an Effort to Sit or Stand Straight and Coming to Work Late

	Yes	No	TOTAL
0	19	2	21
	90.48%	9.52%	100.00%
	7.09%	6.90%	7.07%
1	22	4	26
	84.62%	15.38%	100.00%
	8.21%	13.79%	8.75%
2	168	16	184
	91.30%	8.70%	100.00%
	62.69%	55.17%	61.95%
3	59	7	66
	89.39%	10.61%	100.00%
	22.01%	24.14%	22.22%
TOTAL	268	29	297
	90.24%	9.76%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
1.2251	3	0.747	
Fisher's Exact		0.6205	

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 297 responses on making an effort to sit or stand straight and coming to work late, 19 (90.48%) participant who makes an effort to sit or stand straight always attends to go to work late, 22 (84.62%) who make an effort to sit or stand straight routinely comes to work late. 168 (91.30%) make an effort to sit or stand straight sometimes come to work late and 59 (89.39%) who followed a make effort to sit or stand straight never attend to comes to work late, on the other hand, 2 (9.52%) who don't make effort to sit or stand straight always coming to work late 4

(15.38%) who don't make effort to sit or stand straight routinely comes to work late, 16 (8.70%) who don't make effort to sit or stand straight sometimes comes to work late and 7 (10.61%) who never make effort to sit or stand straight comes to work late.

Similarly, from the table above, the chi-square value is 1.2251 at Fisher's exact 0.6205 p-value at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between coming to work late and making an effort to sit or stand straight

**Table 16.** Relationship between Performing Stretching Exercises Daily and Sleeping at Work

	Yes	No	TOTAL
0	17	8	25
	68.00%	32.00%	100.00%
	9.14%	7.21%	8.42%
1	16	17	33
	48.48%	51.52%	100.00%
	8.60%	15.32%	11.11%
2	77	53	130
	59.23%	40.77%	100.00%

	41.40%	47.75%	43.77%
	76	33	109
	69.72%	30.28%	100.00%
3	40.86%	29.73%	36.70%
TOTAL	186	111	297
	62.63%	37.37%	100.00%
	100.00%	100.00%	100.00%
Chi-square		Df	Probability
6.1149		3	0.1062
Fisher's Exact			0.1083

Source: epi7 dietary intake/physical exercise Dashboard

From the above table out of 297 responses on performing stretching exercises daily and sleeping at work, 17 (68.00%) participants who perform stretching exercises daily always sleep at work, and 16 (48.48%) who perform stretching exercises daily routinely sleep at work. 77 (59.23%) perform stretching exercises daily and sometimes sleep at work and 76 (69.72%) who perform stretching exercises daily never sleep at work late, on the other hand, 8 (32.00%) who don't perform stretching exercises daily always sleep at work 17

(51.52%) who don't make perform stretching exercise daily routinely sleep at work, 53 (40.77%) who don't perform stretching exercise daily sometimes sleep at work and 33 (30.28%) who perform stretching exercise daily sleep at work.

Similarly, from the table above, the chi-square value is 6.1149 at fishers exact 0.1083 p-values at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between sleeping at work and performing stretching exercises daily

**Table 17.** Relationship between Performing Stretching Exercises Daily and Attending to Many Patients' Daily

	Yes	No	TOTAL
	57	31	88
	64.77%	35.23%	100.00%
0	30.48%	27.93%	29.53%
	53	40	93
	56.99%	43.01%	100.00%
1	28.34%	36.04%	31.21%
	76	40	116
	65.52%	34.48%	100.00%
2	40.64%	36.04%	38.93%
	1	0	1
	100.00%	0.00%	100.00%
3	0.53%	0.00%	0.34%
TOTAL	187	111	298
	62.75%	37.25%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
2.4481	3	0.4847	
Fisher's Exact		0.5129	

From the above table out of 297 responses on performing stretching exercises daily and attending to many patients daily, 57 (64.77%) participant who perform stretching exercises daily always attends to many patients daily at work late, on the other hand, 31 (35.23%) who don't perform stretching exercise daily always attends to many patients daily 40 (43.01%) who don't make perform stretching exercise daily routinely attends to many patients daily, 40 (34.48%) who don't perform stretching

exercise daily sometimes attends to many patients daily and 0 (0.00%) who perform stretching exercise daily attends to many patients daily.

Similarly, from the table above, the chi-square value is 2.4481 at fishers exact 0.1083 p-values at 3df which is smaller than the alpha value at 0.05, therefore it can be said that there is a significant association between attending to many patients daily and performing stretching exercise daily

**Table 18.** Relationship between Performing Stretching Exercises Daily and Closing from Work Late

	Yes	No	TOTAL
0	20	24	44
	45.45%	54.55%	100.00%
	10.70%	21.62%	14.77%
1	8	16	24
	33.33%	66.67%	100.00%
	4.28%	14.41%	8.05%
2	137	62	199
	68.84%	31.16%	100.00%
	73.26%	55.86%	66.78%
3	22	9	31
	70.97%	29.03%	100.00%
	11.76%	8.11%	10.40%
TOTAL	187	111	298
	62.75%	37.25%	100.00%
	100.00%	100.00%	100.00%
Chi-square	Df	Probability	
18.5738	3	0.0003	
Fisher's Exact		0.0004	

From the above table out of 297 responses on performing stretching exercises daily and closing from work late, 20 (45.45%) participants who perform stretching exercises daily always close from work late, 8 (33.33%) who perform stretching exercises daily routinely close from work late. 137 (68.84%) perform stretching exercises daily sometimes close from work late and 22 (70.97%) who perform stretching exercises daily never close from work late, on the other hand, 24 (54.55%)

who don't perform stretching exercises daily always close from work late (66.67%) who don't perform stretching exercise daily routinely close from work late, 62 (31.16%) who don't perform stretching exercise daily sometimes close from work late and 9 (29.03%) who perform stretching exercise daily close from work late.

Similarly, from the table above, the chi-square value is 18.5738 at fishers' exact 0.0004 p-values at 3df which is smaller than the alpha

value at 0.05, therefore it can be said that there is a significant association between closing from work late and making an effort to sit or stand straight.

### **Summary of Findings**

The findings of this study revealed, that survey participant exposed to fried/frozen food suffers hypertension more than those who do not eat fried/frozen food, survey participants exposed to beverages/soft drink suffers obesity and diabetes more than those who do not consume beverages/soft drink and survey participant who skips meal suffers ulcer more.

The finding also reveals: that those who do not exercise vigorously at least three times weekly sleep more at work than those who exercise vigorously at least three times weekly; that those who exercise vigorously at least three times weekly attend to more patient daily than those who do not exercise vigorously at least three times weekly; that those who do not exercise vigorously at least three times weekly goes to work later than those who do exercise vigorously at least three times weekly: that those who exercise vigorously at least three times weekly stay longer at work than those who do not exercise vigorously at least three times weekly; that those who do not exercise vigorously at least three times weekly go to work late than those who do not exercise vigorously at least three times weekly; that those who followed a planned regular exercise program attend to many patients daily than those who do not; that those who don't followed a planned regular exercise program goes to work late; that those who followed a planned regular exercise program close from work later than those who do not followed a planned regular exercise program; that those who do not make effort to sit or stand straight sleep more at work than those who make effort to sit or stand straight: that those who do not make effort to sit or stand straight comes to work late than those who make effort to sit or stand straight; that those who make effort to sit

or stand straight close from work late than those who do not make effort to sit or stand straight; that those who do not make effort to sit or stand straight sleep more at work than those who make effort to sit or stand straight; that those who perform stretching exercise daily sleep less at work than those who do not; that those who perform stretching exercise daily attends to more patients at work than those who do not; that those who do not make effort to sit or stand straight comes to work late than those who do make effort to sit or stand straight; that those who do make effort to sit or stand straight close from work later than those who do not make effort to sit or stand straight.

It can be therefore concluded that poor diet and exercise habits influence the performance of primary health care workers.

This finding correlates with an article by WHO [18] "Integrating diet, physical activity, and weight management services into primary health care" which reveals that Europe is severely affected by non-communicable diseases (NCDs), which account for 77% of the burden of disease and nearly 86% of premature mortality. Global recommendations for halting the NCD epidemic include a comprehensive set of activities at both population and individual levels to reduce the risk factors. WHO [19] [20] believes that Primary health care plays a critical role in the provision of services to promote healthy diets, engage individuals in physical activity, and assist patients in weight management.

Furthermore, this finding correlates with a study by Ilyas et al [21] "Relationship between Nutrition Intake and the Fitness of Manufacturing Workers in Indonesia" which reveals that the majority of manufacturing workers are male and under 30 years of age, and about a third of them are centrally obese.

### **Conclusion**

From the findings of the study, it was concluded that Primary health care workers in Nasarawa state maintain poor levels, attitude,



and practice of diet and physical activities which may affect performance, therefore there is a need for the promotion of health education activities related to diet and physical activities at PHC level across the state to inspire and motivate PHC staff to take up a healthy diet and exercise habit.

Government/stakeholders can promote healthy diet and physical activity among PHC

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staff through the formulation of policies and provisions of IEC materials at the health facility level that can serve as a source of inspiration and motivation for PHC workers to take up a healthy diet and exercise habit in the state.

## Conflict of Interest

No conflict of interest was experienced during the survey

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