

Article

An evaluation of Eating Pattern and Nutritional Status of Police Personnel in the Tamale Metropolis in Ghana

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Abstract: Police work is mentally demanding and stressful, which takes a heavy toll on the health of police personnel. This study was conducted to assess the eating pattern, physical activity and nutritional status of police personnel in the Tamale Metropolis. A cross-sectional research design was adopted for the study. The population of this study involved all the 1590 police personnel with two years working experience within the Tamale Metropolis in the Northern Region of Ghana. Simple random sampling technique was used to select three hundred and eighty-four (384) respondents for the study. The main instrument for data collection was questionnaire. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 21.0. Chi-square and Fisher's exact tests were used to test associations. Logistic modeling was used to test the strength of the associations. $P < 0.05$ was used to denote significance. The study revealed that the police eat two main meals, skip breakfast or eat in between meals, consume alcohol, ate foods belonging to the meat, soft drinks, fish, grain and eggs groups and their diet were more moderately diverse. The study also concluded the police personnel had normal BMI while was overweight and obese respectively. It is recommended that the police department should institute health education programs on the benefits of good dietary practices to achieve optimal health, to avoid the practice of police eating two main meals, skipping breakfast, consuming more alcohol but rather consumes diet that is moderately diverse to sustain him or her. It is also recommended that police department should institute a health education and screening exercise policy to examine the personals periodically to warrant their good health in the service.

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1. Introduction

Policing is an integral part and function of governments globally and are charged with the responsibility to maintain peace and security by making themselves available all the time to quickly respond to, and deal with challenging physical situations [1-4]. To adequately execute their mandate, police personnel carry additional weights on their pistol belts such as a handgun, baton, mace, handcuffs, and Taser. This, therefore, requires the police to remain fit and healthy by engaging in moderate to vigorous physical activity at leisure time, which has been associated with health benefits among police personnel [5]. It is an important factor for the success of policing [6].

Additionally, police work like many other occupations that provide 24-hour service run shifts including night shift which is relatively longer than other shifts, meanwhile working longer hours has been linked to comorbidities such as obesity and metabolic syndrome [3]. Indeed, even though shift work is vital to meet numerous of the round-the-clock necessities of a utilitarian and progressively worldwide 24-h society, it isn't without fetched. Aside its effects on performance and

fatigue, the role of shiftwork on health risks have been well documented [7-9]. Indeed, shift work is linked to increased chances of obesity, hypertension, diabetes, and cardiovascular disease [10-13]. An extensive body of scientific evidence suggests that stress, poor diets and work environments that blend sedentary hours with sudden physical exertion make police officers more significantly vulnerable [14]. Shift work among police personnel has also shown significant association with the prevalence of hard intensity physical activity among men and very hard intensity physical activity among women, with afternoon workers reporting the highest prevalence [15]. The effect of shift work on irregular, poor dietary patterns in the police have also been reported [16].

1.1. Eating pattern of Police Personnel

Health and lifestyle habits often change when employees like police work in unconventional hours. It is not uncommon to sleep during the day and eat at times considered unusual by most of the population. What, when, how much, and how often a person eats are factors that comprise one's eating patterns, and these can be affected by working shifts. The concept of dietary habits or eating patterns is complex and multi-dimensional [17]. A study recommended that changing staff like the police consume breakfasts before bedtime to prevent waking due to hunger, stick to regular food consumption habits between day and night, split the 24-hour consumption into food activities with three complete meals, each supplying 20-35 % of the 24-hour intakes; To ensure that the use of comfort foods and high carbohydrate foods during the shift is not over-dependent since diets with a high carbohydrate can have adverse metabolic impacts by increasing triglycerides and reducing LDL. In the study, they recommended that the most meat they consume, the better calories would gain, and the healthier foods such as organic soups, vegetables, fruit bowls, pasta, sandwiches, cottage cheese or cheese (with fruit bunches), scrambled eggs, nuts and green teas (promoting antioxidants), the more they would consume, the more they would be able to eat and the safer they would be eating [18]. researchers have shown that, unlike today's highly processed products and sugar, these products are detrimental to the quickly evolving insulin levels from quick digesting and absorption to foods that have fiber and micronutrients, they are best equipped to prioritize whole-grain and other less processed and complex carbohydrates [19]. The most adverse health consequences are higher intakes of refined starches and low intake sugar with trans fatty acids. Police employees, however, tend to use high-fat and high-sugar foods [20].

Previous studies show that, shift workers' overall energy intake is similar to that of day labour [21, 22]. While the actual intake of energy tends to be untouched, shift work will impact the consistency of diet. Macronutrient consumption alterations such as increased saturated fat intake and decreased intake of polyunsaturated fat and dietary fiber were found following the introduction of change activities [22-24]. Besides, decreased intakes of several essential micronutrients, such as vitamins A, D and E, and Zn is documented among shift workers, relative to day workers [23]. Furthermore, there has been a decrease consumption by shift workers compared to day Labourers of a variety of essential micronutrients, such as vitamins A, D and E and Zn [23]. Moreover, one study indicated a significantly more pro-inflammatory diet for shift workers and, in particular, rotating shift workers, but this biological significance for dietary inflammatory load remains a controversial problem. Alongside food quality shifts, other new studies have shown that changing workers are isolated from day laborers in terms of their 24-hour energy consumption [22, 25]. Flawed meals, increased energy consumption and increased snacks later in the afternoon are common, with several snacks consumed in place of a full meal during the night shift. It is important to understand the importance of these modified dietary

habits. There is strong evidence that evening meals can contribute to endogenous circadian cycles in comparison with daytime meals, which in comparison with day shifts can contribute to substantially higher plasma glycosis rates [26, 27]. This can have adverse effects on health, particularly in the case of insulin resistance risk, type 2 diabetes mellitus (T2DM), and metabolic syndrome (MS).

Evidence gathered from scientific research revealed that police personnel do not get the recommended sleep and eat four fast meals per week due to their shift work [28]. Consequently, it has been recommended to restrict the fat intake of staff not prepared for night-shift jobs at night [29].

In a cross-sectional survey of 100 police in Bangladesh the findings found that almost all respondents had a sedentary lifestyle, almost everyone consuming rice two to three times a day and none consuming rice meat two or three times a day. Less than half of them took bread once a day and about 40 % took potatoes once a day. Therefore, roughly 50% of these people took poultry 2-3 days a week and once a week ate beef and mouton. More than half of the respondents had egg and fish once a day [30]. In validation, a survey to test university students who have undergone military training in Malaysia's diet and physical exercise has shown that respondents have strong eating and food consumption skills except for erratic food time [31].

In developing countries, many police suffer from divergent forms of malnutrition-related to insufficient food intake largely due to their work schedules [32, 33]. The goal of improving the eating routine and a decent balanced diet among the policemen is adequate awareness about the food choices made and food safety [2]. To achieve and maintain good health, police must have basic knowledge about the importance of proper food habits for their health [4]. Studies have shown that meal skipping has been common among police, especially during middle and late ages where the desire for certain body image reached a certain level [2]. Studies suggest that limited amounts of Trans- fats come from ruminant animal products, but in the most diet, free fatty acids are derived by the partial hydrogenation of liquid vegetable oils, which can raise (LDL) and decrease (HDL), and thus researchers conclude that partially hydrogenated oils will remove trans- fat. Trans-fats are therefore to be removed from the process [19]. Insufficient eating habits may have a huge impact on police overweight/obesity. It may be because of its high energy density and its low nutritional content, the impact of fatty foods on the BMI's benefit. Besides, by promoting excess consumption the taste of these foods can gain weight [34]. Excess consumption of salt (sodium chloride) is irrefutably linked to high blood pressure which is most common with foods eaten by people on duty out of the home. A review on healthy eating estimated that, a reduction 3g per day of salty and pickled foods would reduce the incidence of stroke by 22% and of cardiovascular heart diseases by 16% and that, many case-control studies have associated the consumption of salty and pickled foods with stomach cancer [19].

Breakfast is the most frequently missed meal among the police, since there are no time for officers, having to sleep later in the morning, a lack of appetites and a loss of weight in the diet [4]. Another study confirmed that 74% of women and 28% of men missed breakfast for no cause during survey day in the police division [35]. A research on police eating habits revealed that 33.8% of respondents had taken two meals a day, 63.5% had three meals and 2.7% had four meals a day on a regular day. Although 1.4% had one meal a day at weekends, 23% had two dinners, 62.2% had three dinners, 12.2% had four dinners, and 1.4% had fifteen meals a day. The findings indicate that more participants had three meals a day during the week and weekends. Such reports suggest that most female police officers did not provide the required regular meals. The findings show that most professional officers have time to eat in the evening (85.1%). They tend to get more than those who snack before work in the morning (58.1%) [36].

1.2. Nutritional status of police personnel

Nutrition is the foundation of good health; health is the foundation of all happiness, skill and performance [37]. In many countries, policemen who deviate from the optimum nutritional status are compulsorily given leave to regain their fitness. Several studies have documented the nutritional status of police, indicating that the majority of the police in Kota Kinabalu had a high prevalence of overweight and body fat [1, 37-39]. Similarly, a study conducted in Turkey among police personnel found that about 32% of them were normal, 52% were overweight and about 16% were obese [40]. A study found that 34%, 43% and 22% of Malaysian royal police were normal, overweight and obese respectively [1]. It has likewise been indicated that the danger of weight builds as indicated by the span of the presentation to move work [41]. Studies that recorded longitudinal patterns in BMI and specialist move status found that holding or changing occupation move status could affect BMI [42, 43]. The individuals who kept up examples of move work, or who moved from customary daytime hours to moving work, had a critical increment in BMI. Those affiliations stayed in the wake of jumbling factors were balanced. While BMI is a valuable apparatus for assessing muscle versus fat, abdomen and midriff circuit: hip proportion helps evaluate focal related to expanded wellbeing hazard. Studies assessing focal adiposity uncovered a critical relationship between moving work and expanded abdomen: hip proportion, yet these examinations didn't uncover any noteworthy relationship among BMI and moving work. This proposes while moving work may not really increment generally speaking body weight it might unfavorably influence the conveyance of muscle versus fat with a propensity towards focal adiposity, which may have potential ramifications for move laborers' metabolic and cardiovascular wellbeing. A study conducted to determine the nutritional status of police officers and trainees revealed that although there is overweight and obesity among police and trainees in Negeri Sembilan, trainees have a better nutritional status [39, 44, 45].

However, obesity was highly prevalent among police personnel [12]. A cross-sectional study conducted to assess police health issues in Viayawada reported 58 % being average, 35 % being overweight and 7 % being obese. It has also been recorded that 25 % of police personnel were anaemic in agreement, majority (72%) of police personnel in Bangladesh had normal nutritional status, 24% were overweight, 3% were obese, while underweight was negligible [36, 37].

Additionally, Santana and colleagues conducted a study among 53 police personnel to determine their nutritional status and reported that 64% were overweight, about 45% were pre-obese while 18% were obese. Waist circumference did not indicate any risk in almost 68% of them but the increased risk was observed in about 20% and substantially increased risk was observed in about 11% police officers. Excess fat was reported in 53% of the police officers and total cholesterol was recorded in about 33% of the police officers [46]. Another study was carried out among 837 police personnel with the New York police department to establish the relationship between health and personal risks and reported that 30% of them had elevated waist circumference, 15% had elevated triglycerides and 21% had glucose intolerance [47].

Assessment of the nutritional status of the polish army revealed that 3% were underweight, almost 13% were overweight and about 1% were obese. About 82% recorded a normal body mass index (BMI) [48]. Evidence from another study among Indian police also showed that 46% of them had normal nutrition, 44% of them had hyper nutritional status and the remaining 10% of them were obese [2]. The prevalence of overweight and obesity among military trainees in Kuala Lumpur was 14% [49]. The nutritional status and physical activity of Royal Malaysian police

personnel and trainees at the police training centre and reported that the trainees had better nutritional status than the personnel [39]. Approximately, 42.2 % and 8.3 % were overweight and obese respectively while about 23 % of the trainees were overweight. In terms of waist circumference, almost 58 % of the police personnel and about 35 % of the trainees had a waist circumference above the cutoff point of 90cm for male and 80cm for female. For the waist hip ratio, most of the personnel and trainees were reported to have a waist-hip ratio below the cutoff point of 1cm for male and 0.85cm for female [39].

In a cross-sectional investigation including 378 male military faculty in Kuala Lumpur, 3.2 % of them were accounted for to be underweight, 54.8 % were ordinary, 32.8 % were overweight and 9.3 % were large. It was additionally seen that 40.2 % of the police workforce had abdomen periphery estimation of 90cm or more and were considered as having high hazard for diabetes and cardiovascular illnesses [50]. Numerous word related components can add to stoutness rates among law requirement populaces, for example, the nature and amount of work, changing calendar of movements and stress-related with the work. When all is said in done, cop jobs require a few hours of additional time, frequently as move work, which may prompt sporadic rest designs, decreased responsibility to an exercise schedule, and deficient chance to design and eat nutritious dinners. Furthermore, officials regularly have no entrance to sound food decisions or refrigeration when working in the field, further adding to a decrease in diet quality [51]. Adequate vitality isn't created, and body tissues can't create except if the supplement components that the body needs are taken at the necessary levels, because of which ailing health happens [52]. Ailing health can likewise happen if the off-base food is chosen, food isn't taken in the necessary amounts and assortments or food is improperly cooked [53].

Policing is a very significant biophysical social mechanism in which insufficient diet can affect individual performance and intellectual capacity; this maybe of particular relevance to the quality of life in developing countries such as Ghana, where its people face a multitude of adverse nutritional, socio-economic, and cultural conditions [30]. The situation among police personnel in Ghana is indifferent. Overweight among police officers in Ghana is on the rise, with more than a quarter being hypertensive and about two-thirds suffer dyslipidemia, high risk of cardiovascular disease [54]. Meanwhile, 22 per cent of police officer deaths are caused by heart disease [14]. To recognize contributors to the global burden of non-communicable diseases (NCDs) such as diabetes, cancer, and cardiovascular diseases that are hitting hardest in low- and middle- income countries such as Ghana, individual responsibility in the form of physical inactivity cannot be overlooked, among others. However, little is known about the dietary habits and nutritional condition of Ghana police officers, particularly Tamale Metropolis. There was therefore the need to examine the pattern of eating and nutritional status of police personnel in the Tamale Metropolis. The purpose of this study was to examine the eating pattern, and nutritional status of Police personnel in Tamale Metropolis in the Northern Region of Ghana. The study was guided by these research questions – (1) What is the eating pattern of police personnel in the Tamale Metropolis? (2) What is the nutritional status of the police personnel in the Tamale Metropolis?

2. Materials and methods

A cross-sectional research design was adopted for the study. The population of this study involved all the 1590 police personnel with two years working experience within the Tamale Metropolis in the Northern Region of Ghana. Simple random sampling technique was used to select three hundred and eighty-four (384) respondents for the study. This sampling technique was chosen to give each police officer equal opportunity of taking part in the study. The main instrument for data

collection was questionnaire. Data were entered and analyzed statistically using Statistical Package for Social Sciences (SPSS version 21). Frequencies were generated to detect errors and missing values during data cleaning. Univariate analysis was run to generate descriptive statistics for eating pattern, and nutritional status of police. Tables, graphs, percentages and frequencies are used to present results. Chi-square or Fisher exact tests of significance were used to compare frequencies in categorical variables, as appropriate. Variables that showed significance at $p < 0.05$ were incorporated into a logistic model.

3. Results

3.1. Eating pattern of police personnel in the tamale personnel

This section presents results of eating pattern of police personnel in the Tamale Metropolis. Nine food groups were used to assess the dietary diversity of the police personnel. Of the 384 respondents, more than three quarters, 320 (83.3%) of them took 2 meals a day followed by 40 (10.4%) who took three meals a day. About 5% of the police personnel took a meal a day while the remaining 1% took more than three meals a day. In terms of the source of meals, 95% of them bought food, 4% prepared it at home and 1% were provided with food at work. About 74% of the police personnel skipped breakfast, 24% skipped lunch and about 1% skipped supper. Almost all (91%) the respondents reported eating in between meals. For alcohol consumption, 320 (83.3%) reported consuming alcohol and of this number, more than half (65.6%) consumed alcohol weekly, 15.6% consumed alcohol daily, 10.6% consumed alcohol monthly and 8.1% consumed alcohol occasionally. In terms of smoking, only 53 (13.8%) reported smoking. Of this number of smokers, about 37% smoked daily, 34% smoked occasionally and about 28% smoked weekly.

The results are as shown in [Table 1](#).

Table 1. Meal pattern of respondents (n=384 unless otherwise stated)

Variables	Frequency(n)	Percentage (%)
Number of meals in a day		
1	20	5.2
2	320	83.3
3	40	10.4
>3	4	1
Usual source of meals		
Bought	366	95
Prepared at home	14	4
Provided at work	4	1
Skip meals		
Breakfast	286	74.5
Lunch	93	24.2
Supper	5	1.3
Eat between meals		
Yes	353	91.9
No	31	8.1
Take alcohol		
Yes	320	83.3
No	64	16.7
Frequency of alcohol intake		

Daily	50	15.6
Weekly	210	65.6
Monthly	34	10.6
Occasionally	26	8.1
Smoking		
Yes	53	13.8
No	331	86.2
Frequency of Smoking		
Daily	20	37.7
Weekly	15	28.3
Occasionally	18	34

Source: Field Survey, 2019, data are presented as n, %

3.1.1. Frequency of intake of main meals by police personnel

In the week preceding this survey, 71% did not take breakfast, 23% and 6% took breakfast often and not always respectively. Over half (52%) of them took lunch often while 27% did not take lunch and the remaining 21% took lunch not always. Forty-three percent of them did not take supper, 40% took supper not always and 17% took supper often. The results are as shown in [Table 2](#).

Table 2. Frequency of Intake of the Main Meals in the Week Preceding the Survey

Variable		Frequency (n)	Percentage (%)
Breakfast	Often	90	23
	Not always	23	6
	None		71
Lunch	Often	201	52
	Not always	79	21
	None	104	27
Super	Often	65	17
	Not always	155	40
	None	44	43

Data are presented as n, %; **Source:** Field survey, 2019

3.1.2. Frequency of consumption of different food groups by the police personnel.

In the week preceding the survey, about 86%, 71%, 61% and 50% ate foods belonging to the meat, soft drinks, fish, grain and eggs groups' ≥ 3 times respectively. About 92%, 89% and 84% of the respondents ate foods belonging to vegetables, fruits, and roots and tubers < 3 times respectively in the week preceding the survey. The results are as shown in [Table 3](#) below.

Table 3. Frequency of Consumption of Different Food Groups In the Preceding Week to the Interview (N=384 Unless Otherwise Stated)

Food groups	<3 times	≥3 times
Grains	147(38.3)	237(61.7)
Roots and tubers	326(84.9)	58(15.1)
Fruits	344(89.6)	40(10.4)
Vegetables	354(92.2)	30(7.8)
Meats	53(13.8)	331(86.2)
Eggs	190(49.5)	194(50.5)
Fish	109(28.4)	275(71.6)
Soft drinks	95(24.3)	289(75.3)
Data are presented as n,%		

Source: Field survey, 2019

3.1.3. Over all dietary diversity scoring of police

In terms of dietary diversity, the majority (48.7%) of the police had medium dietary diversity followed by high dietary diversity (25.8%) while 25.5% had low dietary diversity. The results are as shown in [Figure 1](#)

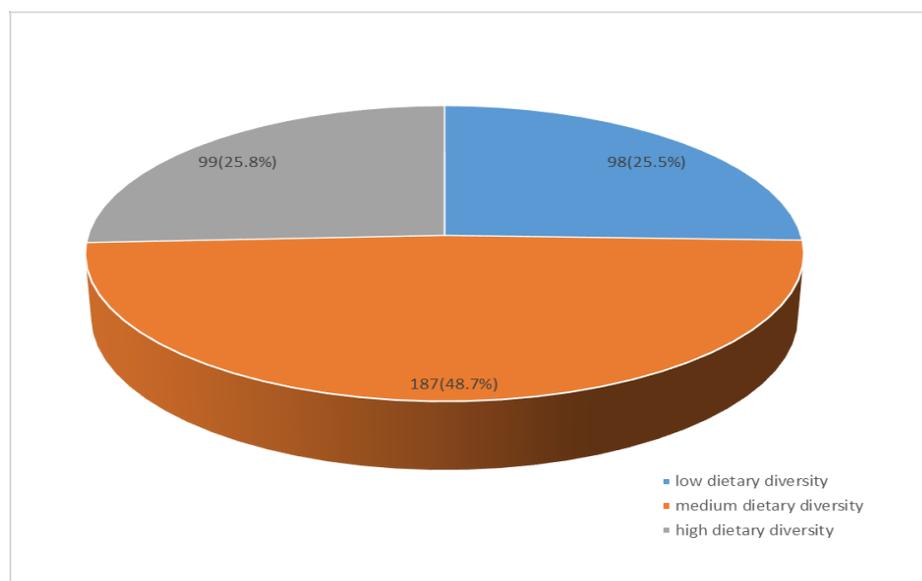


Figure 1. Overall dietary diversity of respondents in the preceding week to the survey

3.2. Nutritional status of police

This sub-section presents results on the nutritional status of police in Tamale Metropolis. This was determined by administering the dietary recall questionnaire and taking anthropometric measures of the study respondents. [Table 4](#), shows the distribution of variables related to the nutritional status of respondents. Of the 384 police personnel, the majority (65.9%) had a normal BMI, 20.1% were overweight, 8.1% were underweight and 6% were obese. More than two-thirds (77.1 %) of respondents had no risk of waist-based cardiovascular disease while 22.9 % had an elevated risk of cardiovascular disease. Concerning the waist-hip-ratio, the majority (72.3 %) had no risk of cardiovascular disease, while the risk of cardiovascular disease increased by 27.3 %.

Table 4. Distribution of Variables Related To The Nutritional Status Of Respondents, Tamale Metropolis. 2020 (N=384)

Variable	Frequency(n)	Percentage (%)
BMI (Kg/m²)		
Underweight	31	8.1
Normal	253	65.9
Overweight	77	20.1
Obese	23	6
Waist circumference (cm)		
No risk	296	77.1
Increased risk	88	22.9
WHR (cm)		
No risk	279	72.7
Increased risk	105	27.3

Data are presented as n, %; BMI=Body Mass Index; WHR=Waist-to-Hip Ratio; **Source:** Field survey, 2019

4. Discussion

4.1. Eating pattern of police personnel

This section presents discussion on the theme - *Eating pattern of police personnel*. The respondents' dietary pattern demonstrates that a greater part (83.3 %) of police laborers eat two fundamental dinners daily required for good wellbeing. This is like outcomes from an investigation did by Essien and associates, who expressed that most police laborers in Ghana eat two times every day [54]. This finding is additionally predictable with the discoveries of a Nigerian report among college understudies where most respondents ate a few primary dinners daily [55]. However, majority of the police personnel either skipped breakfast or ate in between meals (74% vs 91%), similar to the study in Negeri Sembilan which found that most police personnel skip their main meals and eat a large portion of food at an irregular time [39]. Skipping meals is a common practice among Ghana's police [54]. Even though morning meal is significant for the body's wellbeing and prosperity, police staff may think that it's hard to accept it as they are consistently in a rush to go for their initial morning obligations or return worn out and lethargic to their homes and may simply rest without eating. It may not always be the case though, because some may purposely miss breakfast because of their body weight and appearance consciousness. This is more common among females who know their diet more [56].

While the majority (83.3%) of the staff consume alcohol and smoking was very low (12.8%) among the staff, the majority of those who drink alcohol do so regularly and the majority of those who smoke do so daily or weekly. Knowledge of the health implications of alcohol consumption and smoking among police personnel may be responsible for avoiding such practices. Police personnel's dietary trend evaluations also suggest that most (95 %) of the workers consumed food outside their home. This agrees with the discoveries of a Ghana study that detailed that a higher lion's share of police staff ate food from outside food sellers, for example, food arranged outside the home [54]. Another investigation in the United States additionally announced comparable discoveries that cops expended food arranged outside the home over four days every week, cops devoured more calories because of high utilization of food arranged outside the home, especially quick nourishments [57, 58]. The probable reason is that police personnel spend more time outside their

homes of residence. Additionally, the police personnel although may be married, but may not be staying with their partners who can cook for them in the same environment because of the frequent nature of their transfers. Thus, this may affect their eating pattern and frequency of food consumed per day by the police personnel

The respondents' meal pattern also shows that most of them consumed more of meat, soft drinks, fish, grain and eggs, and fewer foods belonging to the group of vegetables, fruits, and roots and tubers. This can influence the accessibility to the respondents of the supplements inborn in those nutritional categories. The respondents' dietary decent variety scoring (DDS) shows that a greater amount of them ate at least 3 nutrition types, which gives the supplements expected to ideal wellbeing. The respondents' dietary decent variety may mirror a superior comprehension of the essential health benefits of the different nutrition classes. High dietary assorted variety incorporates food from numerous nutrition types (almost 3), which gives for ideal wellbeing adjusted supplements. The respondents' high DDS demonstrates their utilization of wide food assortments which guarantees the accessibility of valuable and adjusted supplements. This guarantees ideal nourishment which decidedly influences their dietary and wellbeing status. A few people may imagine that missing dinners might be useful, because they eat less calories, wanting to get thinner. Sadly, this isn't the situation, in actuality, missing suppers can prompt voraciously consuming food. Skirting a dinner cause somebody to feel hungrier, and prompts more than typical eating. What's more, the individuals who miss dinners expend less calories and have less vitality. What's more, the individuals who miss suppers devour less calories and have less vitality. This identifies with the digestion of a person. At the point when food is eaten, the degrees of digestion increment. Digestion levels go down without processing food. No food in an unfilled stomach implies there can be no picking up vitality. These unfriendly wellbeing impacts incorporate weight gain, voraciously consuming food, lower paces of digestion, mental fixation misfortune and expanded danger of diabetes advancement.

4.2. Nutritional status of police personnel

This sub-section presents discussion on the theme - *Nutritional status of police personnel*. Most police officers are aware of good nutrition, and physical activity can help keep a healthy weight. But well nutrition benefits go beyond weight. Good nutrition can help to reduce the risk of certain diseases, including heart disease, diabetes, stroke, certain cancers and osteoporosis. Good nutritional status helps a person maintain all important functions of the body so that the person can properly grow and develop and lead healthy, active lives. Nutrition is the foundation of all happiness, skill, performance etc. The present study found most (65.9%) of the police personnel had normal BMI. On the contrary, the majority of the police personnel in Kota Kinabalu were overweight (54.9%) and having high body fat percentage [38]. Prevalence of overweight and obesity in the present study were 20.5% and 6% respectively. A prevalence study conducted in Bangladesh among police personnel revealed that 42.2% and 8.3% were overweight and obese respectively (Hoque & Babu, 2016). Another study conducted among Malaysian army found that 32.8% were overweight while 9.3% were obese (Nadiy et al., 2013). Findings of this study suggest there is a need to enhance nutrition education among the Police. The police department in Ghana and for that matter Tamale Metropolis may institute good nutrition courses for personnel. There is also the need for creating an enabling environment where police staffs working outside jurisdictions with healthy food can access good nutrition, perhaps by providing them with such foods while at field post instead of consuming fast foods. Eating premises within the Police Department should be directed by nutrition standards to ensure that the police are supplied with

easy, nutritious, diverse, appropriate and inexpensive meals to avoid dependence on unhealthy easy fast foods that expose police to preventable health risks in the future. Peer support provides the potential for strong linkages within police networks and motivation. Further studies on the intake of strategic nutrients by police can be conducted and factors influencing their dietary practices can be investigated as they exhibited average nutritional knowledge and strong positive attitude towards nutrition but not optimal dietary practice. Effective implementation of a physical fitness program, regular balanced diet, inoculation of stress management training can improve police staff's life and make them less likely to be obese and related [59].

5. Conclusions and Recommendations

The study revealed that the police eat two main meals, skip breakfast or eat in between meals, consume alcohol, ate foods belonging to the meat, soft drinks, fish, grain and eggs groups and their diet were more moderately diverse. The study also concluded the police personnel had normal BMI while was overweight and obese respectively. It is recommended that the police department should institute health education programs on the benefits of good dietary practices to achieve optimal health, to avoid the practice of police eating two main meals, skipping breakfast, consuming more alcohol but rather consumes diet that is moderately diverse to sustain him or her. It is also recommended that police department should institute a health education and screening exercise policy to examine the personals periodically to ensure their good health in the service.

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