

**Original Research Article**

**RELATIONSHIP BETWEEN PERCEIVED BODY WEIGHT AND BODY MASS INDEX AMONG  
HEALTH CARE WORKERS IN A LIMITED RESOURCE SECONDARY HEALTH CARE FACILITY IN  
NORTH CENTRAL NIGERIA**

**ABSTRACT**

**Aims:** Overweight and obesity are leading causes of preventable deaths globally and healthcare workers should educate patients and the public about the danger of obesity. This is enhanced if they have an appropriate perception of their weight. We aimed to determine the relationship between perceived body weight and body mass index among healthcare workers in a secondary healthcare facility.

**Study design:** Cross sectional study using stratified random sampling technique.

**Place and duration of study:** Vom Christian Hospital, a faith-based, secondary health facility in Jos South, Plateau State, North Central Nigeria, in January 2015.

**Methodology:** Using a structured questionnaire, socio-demographic variables, risk factors for overweight/obesity and participant's self-perception of weight was obtained. Actual weight status based on BMI ( $\text{Kg/m}^2$ ) was calculated.

**Results:** Only 30 (19.4%) perceived themselves to be overweight/obese, but 86 (55.5%) were overweight/obese based on BMI. Considering self-perception as a screening test and actual BMI as gold standard, the sensitivity was 89.4%, specificity 38.2%, positive predictive value 51.6%, negative predictive value 82.9%, diagnostic accuracy 60.0%, likelihood ratio of a positive test 1.4, likelihood ratio of a negative test 0.3 and diagnostic odds 5.2. Those who

24 practiced for  $\geq 10$  years (OR 3.15, CI 1.07 – 9.30) were more likely to perceive themselves to  
 25 be overweight/obese; male workers were less likely to have a perception of being  
 26 overweight/obese (OR 0.26, CI 0.09 – 0.78; and those who did some exercise were less likely  
 27 to have a self-perception of being overweight/obese (OR 0.31, CI 0.11 – 0.88). Staff who had  
 28 practiced for  $\geq 10$  years were more likely to be actually overweight/obese (OR 2.74, CI 1.14 –  
 29 6.60,) and male workers were less likely to be overweight/obese (OR 0.45, CI 0.21 – 0.95).

30 **Conclusion:** There was a high prevalence of overweight and obesity, and staff were five  
 31 times more likely to be overweight compared to their weight self-perception.

32 **Key words:** Body Mass Index; Health personnel; Obesity; Overweight; Weight perception

33

## 34 INTRODUCTION

35 Overweight and obesity imply excess body adiposity which is unhealthy. Globally, 35% of  
 36 the adult population, 20 years and older, are overweight and 11% obese accounting for  
 37 more than 1.4 billion adults.<sup>1</sup> In recent times it has been observed that more than one-third  
 38 of African women and a quarter of African men are overweight, and the World Health  
 39 Organization (WHO) predicts that this will rise to 41% and 30% respectively within the next  
 40 decade.<sup>1,2</sup> The WHO uses the Body Mass Index (BMI) to calculate overweight and obesity.  
 41 BMI greater than 25 and 30 are classified as overweight and obesity respectively.<sup>3</sup> Obesity is  
 42 a well-known risk factor for cardiovascular diseases, diabetes, some cancers, heart diseases,  
 43 and sleep apnea.<sup>2</sup> Moreover, obesity and overweight in adulthood are associated with  
 44 decreased life expectancy.<sup>2</sup> In contrast, the WHO defines underweight as a BMI below 18.5.  
 45 Although underweight is not as commonly mentioned, especially among adults, as  
 46 frequently as obesity in health-related discussions, it is unhealthy and harmful. In fact,

underweight has been identified as a cause of eating disorder, mental disorder, and irregular menstruation.<sup>2</sup>

In Ghana, the crude prevalence of overweight and obesity determined by Amoah et al, were 23.4% and 14.1% for females and males respectively among adults aged 25 years and above.<sup>1</sup>

A recent review from Nigeria indicates that the prevalence of overweight/obesity ranges from 4.0% to 49.0% and two-thirds of urban, professional, high socioeconomic cadre adults are either overweight or obese.<sup>4</sup> Investigators have reported a high prevalence of obesity among health workers in Jos, Ido-Ekiti, Enugu, Benin, Ogbomosho, Ibadan, Bayelsa, and Lagos, Nigeria.<sup>4</sup> These high prevalence rates are occurring in the same context where more than 80% of urban, professional Nigerian adults do not meet the World Health Organization (WHO) recommendations for physical activity.<sup>4</sup>

Even though health care workers are a group considered to be well informed about etiology and risks of overweight and obesity, studies conducted in some countries including USA, Mexico, South Africa and Nigeria have consistently found them to be disproportionately at higher risk of overweight and obesity compared to the general population.<sup>5</sup> Health care workers are susceptible to being overweight because of the stress levels they experience at work and the irregular working hours.<sup>5</sup> Although the mechanisms are still unclear, the shift duty nature of health care workers makes them prone to metabolic disturbances.<sup>6</sup> Obesity is associated with early retirement, increased morbidity and mortality. Thus obesity has the potential of reducing long-term retention of health service providers in inadequately staffed health systems of developing countries.<sup>7</sup>

Perception of body weight has been defined as the picture of our own body formed in our own mind.<sup>8</sup> A wrong perception of one's actual body weight and having a personal

71 preference for an ideal body weight that is greater than that recommended by the WHO  
72 might reduce the person's motivation to lose weight and maintain a healthy weight.

73 Actual weight and weight perceptions may be influenced by food habits and environments,  
74 nutritional knowledge, cultural norms and expectations and mass media depictions of what  
75 constitutes an ideal figure, in addition to lifestyle differences that affect physical activity.<sup>9</sup>  
76 These factors differ from place to place, and in the black population, culture-related attitude  
77 plays a vital role. Most African women, especially in black populations, think that being  
78 overweight is 'beautiful and attractive' hence they view themselves as being of normal  
79 weight, healthy or very healthy.<sup>3</sup> Regardless of whether a person is obese or underweight,  
80 one main aspect of weight control is behavioral change. Weight perception plays an  
81 important role in managing an appropriate body weight. Weight perception can overlook  
82 overweight, obesity or underweight, thereby missing an opportunity for subjective control  
83 of weight. Thus, encouraging people to perceive weight appropriately may be an alternative  
84 and effective method for managing body weight.<sup>2,9</sup> Healthcare workers (HCW) are  
85 considered to be professionals who should have a good knowledge about health promotion,  
86 and should act as health role models for their patients.<sup>3</sup> Therefore, gaining an  
87 understanding of the body size perceptions held by healthcare workers has important  
88 health implications, and encouraging people to perceive accurately their weight may be an  
89 effective method for managing body weight.<sup>8</sup>

90 Despite the importance of weight perception, only a few studies have examined the  
91 differences between weight perception and actual values and in particular among HCW. The  
92 study was undertaken to investigate how health care workers in a low resource setting  
93 perceive their weight and to determine the agreement between their weight perception

94 and measured BMI as a means of adopting an appropriate weight management strategy  
95 among HCW, who in turn would serve to educate the general populace.

## 96 **MATERIALS AND METHODS**

97 This was a cross sectional study conducted at Vom Christian Hospital, in January 2015  
98 amongst HCW. Data was obtained from a routine medical check-up as part of health  
99 promotion activities. Vom Christian Hospital, situated in Jos South local government area of  
100 Plateau state, is a faith based hospital that provides secondary health care services. It is the  
101 only 'general' hospital in the local government and offers health care services to the  
102 surrounding communities. Using a stratified random sampling technique, hospital staff were  
103 recruited into the study.

104 Ethical clearance for the study was obtained from the Research and Ethics Committee of the  
105 Jos University Teaching Hospital, Jos. Written informed consent was obtained from the staff  
106 after explaining the nature and purpose of the study. Data was obtained using a structured  
107 questionnaire where participant's bio-data, self-perception to weight and actual weight  
108 using the BMI was obtained. Anthropometric measurements were recorded using a  
109 bathroom scale (Hanson) for body weight in kilograms and a stadiometer for height in  
110 meters. BMI was then calculated as:  $BMI = \text{weight (kg)} / \text{height (m)} \times \text{height (m)}$ . BMI was  
111 classified according to WHO guidelines<sup>9</sup>: underweight (less than  $18.5 \text{ kg/m}^2$ ); normal weight  
112 ( $18.5\text{-}24.9 \text{ kg/m}^2$ ); overweight ( $25.0\text{-}29.9 \text{ kg/m}^2$ ); obese ( $30.0\text{-}39.9 \text{ kg/m}^2$ ) and severely  
113 obese ( $\geq 40 \text{ kg/m}^2$ ).

114 Data was analyzed using Epi info 3.5.3 statistical software (CDC, Atlanta GA) and  
115 represented as frequencies and percentages. The Chi square test was used to test  
116 association between bio-psychosocial demographic parameters overweight/obesity. Logistic  
117 regression was used to ascertain the determinants of overweight/obesity for self-reported

weight perception and BMI measurements. Variables that had bivariate relationship values of  $P \leq .25$  were included in the model. Probability values of  $P < .05$  were considered significant.

## RESULTS

### *Description of study population*

The study had 155 persons (87%) enrolled into the study out of the 178 hospital workers. Most 90 (58.1%) were female and the mean age was  $42.27 \pm 11.76$  years with a range of 22 – 68 years. Majority of the participants 112 (72.3%) were married or had been married before and about half, 79 (51.0%) had a secondary school education or less. The distribution of participants based on work cadre was as follows: Health service providers (HSP); doctors, lab scientists/technicians, nurses, other clinical staff and pharmacist/pharmacy technicians totaled 64 (41.3%) while health management and support workers; attendants and ‘support staff’ were 91 (58.7%). The study population had 84 (54.2%) who had practiced for not more than 10 years. Other baseline study characteristics are shown in Table 1.

Table 1: Characteristics of study population

| Variables      | N =155 | Percentage % |
|----------------|--------|--------------|
| Age (Years)    |        |              |
| 20 – 29        | 24     | 15.5         |
| 30 – 39        | 41     | 26.5         |
| 40 – 49        | 43     | 27.7         |
| 50 – 59        | 34     | 21.9         |
| 60 – 69        | 13     | 8.4          |
| Sex            |        |              |
| Male           | 65     | 41.9         |
| Female         | 90     | 58.1         |
| Marital Status |        |              |
| Married        | 112    | 72.3         |
| Separated      | 5      | 3.2          |

|                           |     |      |
|---------------------------|-----|------|
| Single                    | 22  | 14.2 |
| Widow/Widower             | 16  | 10.3 |
| Marital Status            |     |      |
| Not presently married     | 43  | 27.7 |
| Married                   | 112 | 72.3 |
| Years in practice         |     |      |
| 0 – 9                     | 77  | 49.7 |
| 10 – 19                   | 32  | 20.6 |
| 20 – 29                   | 16  | 10.3 |
| ≥ 30                      | 30  | 19.4 |
| Work Cadre                |     |      |
| Health Management Support | 91  | 58.7 |
| Health Service Provider   | 64  | 41.3 |
| Educational Qualification |     |      |
| Primary                   | 53  | 34.2 |
| Secondary                 | 26  | 16.8 |
| Tertiary                  | 76  | 49.0 |
| Do you exercise           |     |      |
| No                        | 84  | 54.2 |
| Yes                       | 71  | 45.8 |

133

134 ***Overweight/Obesity prevalence, risk factors, bivariate and multivariate analysis***

135 Although 30 (19.4%) were overweight/obese based on self-perceived weight status, 86  
 136 (55.5%) were overweight/obese based on BMI calculation. The age group that had the  
 137 highest number of overweight/obese persons based on self-perception were those in their  
 138 fifties, 12 (29.4%) while those in their twenties had the lowest 0 (0.0%). Similarly, the age  
 139 group that had the highest number of overweight/obese persons based on BMI were those  
 140 in their sixties and lowest, those in their twenties. Overweight/obesity was found to be  
 141 higher among females both based on BMI 55 (61.1%), and self-perception 25 (27.8%). Those  
 142 who were married, had more than 10 years practice experience, supportive HCW and those  
 143 that did not have more than a secondary school education were more overweight/obese

144 than their matched pairs however, this was less in those that did some form of exercise. See  
 145 Table 2 for details.  
 146 Table 2: Comparing perceived weight status and actual weight status (BMI) against socio-  
 147 demographic variables

| Variables                 | Perceived Weight Status |                  | Actual Weight Status |                  |
|---------------------------|-------------------------|------------------|----------------------|------------------|
| Age (Years)               | Normal                  | Overweight/Obese | Normal               | Overweight/Obese |
| 20 – 29                   | 24 (100.0)              | 0 (0.0)          | 19 (79.2)            | 5 (20.8)         |
| 30 – 39                   | 33 (80.5)               | 8 (19.5)         | 16 (39.0)            | 25 (61.0)        |
| 40 – 49                   | 33 (76.7)               | 10 (23.3)        | 18 (41.9)            | 25 (58.1)        |
| 50 – 59                   | 24 (70.6)               | 10 (29.4)        | 15 (44.1)            | 19 (55.9)        |
| 60 – 69                   | 11 (84.6)               | 2 (15.4)         | 1 (7.7)              | 12 (92.3)        |
| Sex                       |                         |                  |                      |                  |
| Male                      | 60 (92.3)               | 5 (7.7)          | 34 (52.3)            | 31 (47.7)        |
| Female                    | 65 (72.2)               | 25 (27.8)        | 35 (38.9)            | 55 (61.1)        |
| Marital Status            |                         |                  |                      |                  |
| Married                   | 90 (80.4)               | 22 (19.6)        | 46 (41.1)            | 66 (58.6)        |
| Separated                 | 3 (60.0)                | 2 (40.0)         | 1 (20.0)             | 4 (80.0)         |
| Single                    | 21 (95.5)               | 1 (4.5)          | 18 (81.8)            | 4 (18.2)         |
| Widow/Widower             | 11 (68.8)               | 5 (31.3)         | 4 (25.0)             | 12 (75.0)        |
| Marital Status            |                         |                  |                      |                  |
| Not presently married     | 35 (81.4)               | 8 (18.6)         | 23 (53.5)            | 20 (46.5)        |
| Married                   | 90 (80.4)               | 22 (19.6)        | 46 (41.1)            | 66 (58.9)        |
| Years in practice         |                         |                  |                      |                  |
| 0 – 9                     | 67 (87.0)               | 10 (13.0)        | 42 (54.5)            | 35 (45.5)        |
| 10 – 19                   | 24 (75.0)               | 8 (25.0)         | 14 (43.8)            | 18 (56.3)        |
| 20 – 29                   | 11 (68.8)               | 5 (31.3)         | 5 (31.3)             | 11 (68.8)        |
| ≥ 30                      | 23 (76.7)               | 7 (23.3)         | 8 (26.7)             | 22 (73.3)        |
| Work Cadre                |                         |                  |                      |                  |
| Health Management Support | 71 (78.0)               | 20 (22.0)        | 40 (44.0)            | 51 (56.0)        |
| Health Service Provider   | 54 (84.4)               | 10 (15.6)        | 29 (45.3)            | 35 (54.7)        |
| Educational Qualification |                         |                  |                      |                  |
| Primary                   | 42 (79.2)               | 11 (20.8)        | 26 (49.1)            | 27 (50.9)        |
| Secondary                 | 21 (80.8)               | 5 (19.2)         | 9 (34.6)             | 17 (65.4)        |
| Tertiary                  | 62 (81.6)               | 14 (18.4)        | 34 (44.7)            | 42 (55.3)        |

Do you exercise

|     |           |           |           |           |
|-----|-----------|-----------|-----------|-----------|
| No  | 60 (71.4) | 24 (28.6) | 34 (40.5) | 50 (59.5) |
| Yes | 65 (91.5) | 6 (8.5)   | 35 (49.3) | 36 (50.7) |

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150 Considering determinants for obesity/overweight, based on self-perception, multivariate  
 151 analysis showed that years in practice of 10 or more years (OR 3.15, CI 1.07 – 9.30,  $P = .04$ ),  
 152 being male (OR 0.26 CI 0.09 – 0.78,  $P = .02$ ) and participating in some exercise (OR 0.31, CI  
 153 0.11 – 0.88,  $P = .03$ ) had a significant relationship with being self-perceived as  
 154 overweight/obese. Also, years in practice greater than or equal to 10 years (OR 2.61, CI 1.14  
 155 – 5.97,  $P = .02$ ) was related to being overweight/obese based on BMI, while male gender was  
 156 protective (OR 0.45, CI 0.21 – 0.95  $P = .04$ ). Other details are in Tables 3 and 4.

Table 3: Multivariate logistic regression of risk factors for overweight/obesity based on self-perceived weight status

| Variables                                                  | OR          | 95% CI             | P          |
|------------------------------------------------------------|-------------|--------------------|------------|
| Age less than or equal to 42 years                         | 1.39        | 0.46 - 4.01        | .57        |
| <b>Years in practice greater than or equal to 10 years</b> | <b>3.15</b> | <b>1.07 - 9.30</b> | <b>.04</b> |
| <b>Sex (Male)</b>                                          | <b>0.26</b> | <b>0.09 - 0.78</b> | <b>.02</b> |
| Health care provider                                       | 0.51        | 0.21 - 1.29        | .16        |
| <b>Exercise</b>                                            | <b>0.31</b> | <b>0.11 - 0.88</b> | <b>.03</b> |

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Table 4: Multivariate logistic regression of risk factors for overweight/obesity based on actual (BMI) weight status

| Variables                                                  | OR          | 95% CI             | P          |
|------------------------------------------------------------|-------------|--------------------|------------|
| Age less than or equal to 42 years                         | 1.05        | 0.46 - 2.39        | .90        |
| Exercise                                                   | 0.92        | 0.45 – 1.88        | .81        |
| Being married                                              | 1.70        | 0.78 – 3.74        | .18        |
| <b>Years in practice greater than or equal to 10 years</b> | <b>2.61</b> | <b>1.14 - 5.97</b> | <b>.02</b> |
| <b>Sex (Male)</b>                                          | <b>0.45</b> | <b>0.21 – 0.95</b> | <b>.04</b> |

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159

160 ***Self-perceived weight status as a screening test***

161 When the BMI measurements were compared with self-perceived weight status,  
 162 considering self-perception as a screening test, the sensitivity was 89.4%, the specificity  
 163 38.2%, the positive predictive value 51.6%, the negative predictive value 82.9%, the  
 164 diagnostic accuracy 60.0%, the likely ratio of a positive test 1.4, the likely ratio of a negative  
 165 test 0.3 and the diagnostic odds 5.2.

166 **DISCUSSION**

167 ***Prevalence of, and, agreement between overweight/obesity based on self-perception and***  
 168 ***BMI***

169 The study was undertaken to investigate how health care workers in a low resource setting  
 170 perceive their weight and to determine how matched their perceptions were to the  
 171 measured BMI.

172 We found that 19.4% of workers perceived themselves as being overweight/obese, but  
 173 55.5% were actually overweight /obese based on measured BMI. Also, it was five times  
 174 likely that a staff's perceived weight to the actual weight status was incorrect. The findings  
 175 of misperceived weight status among health care workers in this study are no different than  
 176 studies carried out in South Africa where about 75% of HCW were overweight while about  
 177 50% of them perceived themselves to be normal weight.<sup>8</sup> A study done in Kenya among  
 178 HCW showed that the prevalence of overweight and obesity among HCW was 58.8% while  
 179 that done in Ghana was 38.0% and these were higher than the national prevalence's.<sup>1,8</sup>  
 180 These studies are in agreement with our study and could be explained by the fact that HCW  
 181 are usually concerned about the care of their patients and might even neglect their own  
 182 health due to the irregular and long hours they work.<sup>1</sup>

Similar studies done in Nigeria, among university staff showed that while the prevalence of overweight and obesity combined was 47%, 80% considered their weight to be normal.<sup>10</sup> This indicates that even though there may be differences in obesity based on geographical location, in this case a lower overweight/obesity rate, weight perception mismatch may not be directly related to the actual weight.

Among health service providers in Lagos, 27.3% reported they were obese and 72% were either overweight/obese.<sup>7</sup> The higher prevalence of overweight/obesity in Lagos compared to our study may be because the study was done in a cosmopolitan setting and among HSP who have a higher average income compared to workers in a semi –urban faith-based institution.

A study on the prevalence and correlates of obesity and overweight in healthcare workers at a tertiary hospital in Jos, gave the prevalence of obesity to be 23.2% and obese or overweight as 54.6%<sup>4</sup>. The overall prevalence (54.6%) compares closely with that obtained in this study (55.5%), even though the previous study was in a tertiary hospital and located in the city centre.

#### ***Determinants of overweight/obesity based on self-perception perception and BMI***

The study also showed that amongst workers; those who had practiced for 10 or more years were more likely to perceive that they were overweight/obese compared to those who had less years of practice. Men were less likely to perceive that they were overweight/obese compared to women, and those who did some exercise were also less likely to feel they were overweight. For those who were overweight/obese based on BMI, HCW who had practiced for 10 years or more were more likely to be overweight/obese, while males were less likely to be overweight/obese. The number of years of practice may be related to a higher income, education, older age and this as reported in studies has been associated with

being overweight/obese.<sup>1,7,11,12</sup> Most studies among HCW have reported that females were significantly more overweight/obese than males and their weight status perception of being overweight/obese compared to males was less, however, some studies reported the opposite.<sup>3,4,7</sup> Our finding of men in this study been less likely to perceive they were overweight may be due to the fact that females were more likely to be overweight or obese based on actual measurements. Based on this general observation, the men might have therefore assumed this general rule in the case of those who misperceived their weight status.

In a qualitative study in South Africa, the findings showed that women, particularly those that were overweight, did not only underestimate their body weights, but had low perceptions of the threat of obesity, unlike the obese and overweight men. The overweight women presumed their weight to be 'normal', perceived being overweight as attractive while obese men desired a reduction in their weight.<sup>13,14</sup> This differed from the findings in our study and may suggest that the health seeking behavior in the female study participants is better than the males.

Our study found that those who did some exercise, as opposed to those who did not, were less likely to perceive that they were overweight/obese. This may be related to the fact that those who were exercising felt the exercise was reducing their weight. This is supported by the study which showed that people who did less exercise were more likely to self-perceive themselves to be overweight than those who did regular, strenuous exercise.<sup>12</sup>

### ***Relevance of health care workers knowing their weight status***

HCW are expected to give advice and act as role models to their patients by following a healthy lifestyle, promoting health and preventing diseases and illnesses. However, since they themselves are often overweight or obese, they might be reluctant to discuss issues

231 related to a healthy lifestyle with their patients. There has been evidence to show that  
232 doctors who engage in regular physical activity provided better counseling and motivation  
233 to their patients.<sup>3</sup>

234 In a study done in a rural mission hospital in South – East Nigeria, the prevalence of obesity  
235 was 6.0% and only 16.3% admitted that they were aware of their obese condition. The  
236 majority, 36.6% of those who were aware of their obese condition were informed by a  
237 health care worker. Other means of awareness were self-awareness (26.8%), relatives  
238 (22.0%), and friends/peers (14.6%).<sup>15</sup> This underscores the need for health workers serving  
239 as educators in weight awareness campaigns.

240 In a study done in Malaysia, where the association between self-perception of body weight  
241 status and weight control practices among adolescents was investigated, 13.8%  
242 underestimated their weight, 35.0% overestimated, and 51.2% correctly judged their own  
243 weight.<sup>16</sup> The overall appropriateness of weight control practices was 72.6%. HCW  
244 attempting to lose or gain weight need to have understanding towards desirable behavior  
245 changes.<sup>16</sup>

246 Studies have found that individuals move through a series of stages called the stages of  
247 change (SOC) when trying to modify their health behavior. The Transtheoretical Model  
248 posits five or six stages to describe the process of change in health behaviors, these stages  
249 include: Precontemplation, Contemplation, Preparation, Action and Maintenance. Each  
250 characterized by distinctive practices and motives that reflect variances in individual's  
251 willingness and readiness to make a behavior change.<sup>17</sup> In a study to examine the  
252 relationship between the individuals' perception of their weight status and the stage they  
253 are currently in among an overweight and obese, medically underserved population, a  
254 mismatch occurred in 20.2% of individuals. Participants who were overweight or obese and

255 viewed themselves as overweight were more likely to be in active SOC for weight loss.  
 256 Weight management interventions should therefore address weight perceptions in  
 257 overweight and obese individuals especially those who are at the lower stage of change for  
 258 weight loss.<sup>17</sup>

259 A study done in Jos among literate obese patients in primary care showed that the  
 260 prevalence of obesity was 17.4%. In assessing their readiness to lose weight, 25.0% were  
 261 pre-contemplation, 73.5% were contemplation and only 1.5% were in the preparation stage  
 262 of change.<sup>18</sup> It is worthy of note that majority (73.5%) were contemplating weight loss and  
 263 need to cross over to the action stage. Counseling methods using their self-perceived weight  
 264 status would therefore be helpful.<sup>8</sup>

## 265 **LIMITATIONS**

266 The study was a cross sectional study as such causality cannot be inferred from the results.

## 267 **CONCLUSION**

268 The study had a high prevalence of obesity and obesity among the study population and  
 269 staff were five times more likely to be overweight compared to their weight perception. This  
 270 calls on physicians managing health care workers to be deliberate in instituting weight  
 271 measurement so as to identify the overweight/obese. Educational programs targeted at  
 272 health workers should bear in mind that they would most likely have a mismatch between  
 273 their actual weights and their self-perception.

274

275 **TABLES**

276 Table 1: Characteristics of study population

277 Table 2: Comparing perceived weight status and actual weight status (BMI) against socio-  
278 demographic variables

279 Table 3: Multivariate logistic regression of risk factors for overweight/obesity based on self-  
280 perceived weight status

281 Table 4: Multivariate logistic regression of risk factors for overweight/obesity based on  
282 actual (BMI) weight status

283

284 **CONSENT**

285 All authors declare that 'written informed consent was obtained from the study  
286 participants.

287 **ETHICAL APPROVAL**

288 All authors confirm that ethical approval was obtained from the Research and Ethics  
289 Committee of Jos University Teaching Hospital.

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