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Short Reports

Tropical Doctor

Awareness of personal height and weight among community-dwelling people in West New Britain Province, Papua New Guinea

Short title: Awareness of weight/height in PNG

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[a-d] All authors take responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation. All authors have approved the final article.

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Authorship

T.S. and A.B. designed the study, collected and analysed the data, interpreted the results, and prepared the manuscript. N.M., and K.I. supervised the data analysis and manuscript preparation.

Keywords

Papua New Guinea; obesity; body height; body weight; body mass index

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Summary

In this study, we investigated the accessibility of height- and weight-measurement tools and the awareness of one's own height and weight in a specific population in West New Britain Province (WNBP), Papua New Guinea, where obesity is prevalent. Of 558 participants (34.8 ± 14.0 years, 48.2% female with average body-mass index of 25.1 ± 4.83), over 70% had limited access to measurement scales, and 97.5% lacked accurate knowledge of their own height and weight. Our findings imply that increased access to measurement tools and awareness of personal height and weight is necessary to improve the feasibility and effectiveness of weight-management interventions in areas such as WNBP.

Introduction

Papua New Guinea (PNG) is one of numerous countries facing the challenges of non-communicable diseases (NCDs), which are responsible for 56% of deaths in this country (1). Excess body weight is a risk factor for NCDs (1), and the percentage of people in PNG who are overweight or obese is approximately 30% (2). Thus, weight management represents an urgent public health challenge (3).

According to several literature reviews (4-7), regular self-monitoring of body weight is a promising weight-management method when implemented as part of multi-component regulation strategies (MRSs), which comprise self-monitoring (dietary intake and physical activity) and behavioural-change intervention. Regular and frequent self-weighing can increase personal awareness of current weight as well as weight patterns; such awareness must surely be mandatory for self-evaluation and self-adjustment in relation to weight (7).

Some researchers, however, have noted that weighing scales are not available in some lower-middle income countries (8, 9). Owing to such restrictions, individuals have limited knowledge, or even total unawareness, of their own weight and body-mass index (BMI). This must impede MRSs.

Residents of PNG, which is categorised as a lower-middle income country (10), appear to face similar weight-monitoring challenges. Our study examined a sample of community-dwelling people in WNBP, PNG, seeking to investigate this assumption. We had two specific aims: (1) to clarify the availability of scales for measuring height and weight and participants' experience regarding taking

measurements; and (2) to examine participants' knowledge of their own height and weight, and the accuracy of this knowledge.

Ours was a cross-sectional questionnaire-based survey. Data collection was conducted in a single local community in WNBP from 29 November to 19 December 2019. The clinical service directorate of Kimbe Provincial Hospital approved this study. Informed consent was obtained from all participants.

Researchers established a temporary survey site at Kimbe, a downtown area located in central WNBP. Participant recruitment was conducted using a convenience-sampling method. Individuals at the survey site were approached by the researchers and asked to participate in this survey. The inclusion criterion was: healthy community-dwelling adult or child, of any sex, age, race, or religion, who could walk independently around town. We excluded participants who could not communicate effectively in English.

Participants initially engaged in a face-to-face questionnaire survey, and then underwent objective height and weight measurements. The questionnaire was written in both English and Tok Pisin. The face-to-face interviews were conducted in English, and the interviewer noted participants' answers to each verbally presented question. The questionnaire focussed on four topics: (1) demographic data, (2) access to measuring scales, (3) most recent experience of measurement, and (4) knowledge of personal height and weight, which was tested verbally. Specific questions and corresponding responses are described in Table 1.

Personal knowledge regarding height and weight was confirmed if self-reported figures were within ± 5% of our respective objective measurements.

For descriptive purposes, we calculated the numbers, percentages, means, and standard deviations (SDs) of data by age groups.

Results

Of the 565 participants initially recruited, 7 were excluded from final analysis owing to missing data (n=3) and refusal to participate (n=4). The average (SD) age, height, weight, and BMI

were 34.8 (14.0), 162 (7.63), 66.6 (13.8), and 25.1 (4.83), respectively). Table 1 shows the results of our descriptive analysis.

Discussion

Our findings indicate that at least 70% of participants did not possess means to measure their own height or weight, and approximately 80% had not measured their height or weight within the past year (Table 1). Moreover, approximately 60% did not know their own height or weight, and almost all participants (97.5%) did not have accurate knowledge (Table 1). Similar data trends were observed for all age groups (Table 1). These findings imply that community-dwelling people in WNBP currently have limited opportunities to measure their own height and weight, and have a poor awareness of their respective measurements. Such information means that MRSs cannot really be feasible or effective.

Our study has several limitations. Firstly, an analysis of the definite correlation between accessibility of height- and weight-measurement tools and the awareness of one's height and weight was outside its scope. Secondly, the generalisability of our findings may be in question, especially as a bias may have been introduced by excluding non-English speaking persons. Further studies with nationally representative samples of people are required in order to deepen our knowledge on the subject.

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Declaration of Conflicting Interests

The authors declare that they have no conflicts of interest.

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References

1. **World Health Organization.** Non-communicable diseases progress monitor 2017. Geneva: World Health Organization, 2017. Accessed 17 Apr 2019. https://www.who.int/nmh/publications/ncd-progress-monitor-2017/en/
2. **Rarau P, Vengiau G, Gouda H, et al.** Prevalence of non-communicable disease risk factors in three sites across Papua New Guinea: a cross-sectional study. *BMJ Glob Health* 2017;2:e000221.
3. **Papua New Guinea National Department of Health.** National multisetoral strategic plan for the prevention and control of non-communicable diseases 2015-2020. 2017. Accessed 17 Apr 2019. https://extranet.who.int/nutrition/gina/en/node/25903
4. **Pacanowski CR, Linde JA, Neumark-Sztainer D.** Self-weighing: helpful or harmful for psychological well-being? A review of the literature. *Curr Obes Rep* 2015;4:65-72.
5. **Madigan, CD, Daley AJ, Lewis AL, Aveyard P, Jolly K**. Is self-weighing an effective tool for weight loss: a systematic literature review and meta-analysis. *Int J Behav Nutr Phys Act* 2015;12:104.
6. **Zheng Y, Klem ML, Sereika SM, Danford CA, Ewing LJ, Burke LE**. Self-weighing in weight management: a systematic literature review. *Obesity (Silver Spring)* 2015;23:256-65.
7. **Shieh C, Knisely MR, Clark D, Carpenter JS**. Self-weighing in weight management interventions: a systematic review of literature. *Obes Res Clin Pract* 2016;10:493-519.
8. **Molyneux E, Brogan R, Mitchell G, Gove S.** Children's weights: guess or measure by tape? *Lancet* 1999;354:1616.
9. **Popkin BM, Slining MM**. New dynamics in global obesity facing low- and middle-income countries. *Obes Rev* 2013;14:11-20.
10. **The World Bank**. Papua New Guinea. Accessed 27th April 2019. https://data.worldbank.org/country/papua-new-guinea

Table 1. Descriptive analysis results, presented in terms of age group.

Age (years)	≤ 29 (n = 224)	30–49 (n = 216)	≥ 50 (n = 118)	Total (n = 558)
Sex, female (N(%))	108(48.2)	107(49.5)	54(45.8)	269(48.2)
Education level, current student (N(%))	114(50.9)	0(0)	0(0)	114(20.4)
(Grade 8 or lower)	34	0	0	34
(Grade 9–12)	74	0	0	74
(University/college)	6	0	0	6
Education level, not currently a student (N(%))	110(49.1)	216(100)	118(100)	444(79.6)
(No formal education)	4	10	18	32
(Grade 8 or lower)	35	81	60	176
(Grade 9–12)	62	102	34	198
(University/college)	9	23	6	38
BMI < 25 (N(%))	158(70.5)	109(50.5)	51(43.2)	318(57.0)
25–29 (N(%))	48(21.4)	62(28.7)	45(38.1)	155(27.8)
≥ 30 (N(%))	18(8.0)	45(20.8)	22(18.6)	85(15.2)
Access to measuring scales (N(%))[a]				
'Yes' (height/weight)	48(21.4)/14(6.25)	71(32.9)/15(6.94)	37(31.4)/5(4.24)	156(27.96)/34(6.09)
Most recent experience of height and weight measurement (N(%))[b]				
'Within the past year' (height/weight)	54(24.1)/63(28.1)	31(14.4)/50(23.2)	11(9.32)/22(18.6)	96(17.2)/135(24.2)
'More than one year ago' (height/weight)	73(32.6)/81(36.2)	83(38.4)/81(37.5)	27(22.9)/30(25.4)	183(32.8)/192(34.4)
'Do not remember' (height/weight)	97(43.3)/80(35.7)	102(47.2)/85(39.4)	80(67.8)/66(55.9)	279(50.0)/231(41.4)

Knowledge of own height and weight (N(%))[c]				
'Yes' (height/weight)	62(27.7)/97(43.3)	59(27.31)/96(44.4)	26(22.03)/40(33.9)	147(26.3)/233(41.8)
Accuracy of height and weight knowledge (N(%))[d]				
Height	38(17.0)	44(20.4)	17(14.4)	99(17.7)
Weight	40(17.9)	48(22.2)	20(16.9)	108(19.4)
Both height and weight	4(1.79)	9(4.17)	1(0.85)	14(2.51)

BMI: body-mass index

[a] 'In your home, do you have any scales, such as body-weight scales or tape measures, with which you can measure your height and weight?' Possible responses were 'yes' or 'no'.

[b] 'When did you last measure your height and weight?' Possible responses were 'within the past year', 'more than one year ago', and 'don't remember'.

[c] 'Do you know your height and weight?' Possible responses were 'yes' or 'no'.

[d] Participants whose self-reported heights and weights were within ± 5% of the respective objective measurements.