Factors associated with physical activity amongst patients with hypertension in two community health centres in uMgungundlovu health district, KwaZulu-Natal, 2018

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**Background:** Hypertension (HPT) is a global public health challenge. It predisposes to cardiovascular diseases, kidney diseases and disability as well as contributing to high death rates. HPT is increasing tremendously in sub-Saharan Africa with HPT-related mortality risk having increased by 25\% in less than 10 years in South Africa. Physical activity is a cost-effective way of reducing, controlling and preventing hypertension. The aim of the study was to establish the level of physical activity, and factors associated with physical activity, amongst patients with hypertension, in two community health centres in uMgungundlovu Health District, KwaZulu-Natal, 2018.

**Methods:** An observational, cross-sectional descriptive study with an analytic component was implemented. Data were collected utilising an interviewer-administered questionnaire. Frequency distribution tables and the chi-square test were used in the analysis of data. A \( p \)-value less than 0.05 was deemed statistically significant.

**Results:** A total of 374 questionnaires were administered of which 373 were adequately completed, yielding a response rate of 99.7\%. The results showed that 39.1\% were highly physical active, 32.4\% were moderately physical active and 28.4\% had low physical activity. Age, marital status, employment status and level of education were significantly associated with physical activity. Major barriers to physical activity included health problems and having no time to exercise. Health-related reasons were reported to be the major motivator towards physical activity.

**Conclusion:** Over a third of the participants presented with high levels of physical activity. Health education should focus on promoting physical activity for HPT clients.

**Keywords:** physical activity level, hypertension, exercise, non-communicable diseases
increased by 25%.19 According to the District Health Information System (DHIS), in uMgungundlovu District, a total of 181 304 HPT clients were seen in 2017; on a monthly basis, an average of 16 500 HPT clients are seen. The community health centres (CHCs) where the study was conducted attended to a total of 12 159 and 12 261 HPT clients, respectively, in 2017 and on a monthly basis they attend to an average of 1 100 and 1 200 HPT clients, respectively.

Studies that look at the level of PA in clients living with HPT are limited in South Africa, yet it is important to know factors associated with barriers to and motivators of physical activity in order to implement appropriate strategies. The aim of the study was to establish the level of physical activity, and factors associated with physical activity, amongst patients with hypertension, in two community health centres in uMgungundlovu Health District, KwaZulu-Natal (KZN), in 2018.

Methods

Study design

An observational, cross-sectional, descriptive study design with an analytic component was implemented.

Patients who have been diagnosed with HPT between the ages of 18 and 69 years and who had been on treatment for more than six months were invited to participate in the study. A systematic random sampling strategy was used to select study participants. Interviewer-administered questionnaires were used to assess the PA and factors associated with physical activity in HPT patients. The questionnaire was adopted from the International Physical Activity Committee (IPAQ), which measured the PA level and factors associated with physical activity.

The questionnaire was pretested with 10 patients to ensure that it was user-friendly.

Study area

The study was conducted in two Community Health Centres (CHCs) in uMgungundlovu Health District, KZN. The CHCs where the study was conducted are two high-volume CHCs, both in the Msunduzi Local Municipality. According to data from the DHIS, a total of 12 159 and 12 261 HPT clients were seen in each of them respectively in 2018, and on a monthly basis 1 200 and 1 100 HPT clients came for follow-up care in each of these CHCs.

Table 1: Participants’ sociodemographic characteristics

| Variable       | Characteristics | Frequency | Percentage |
|----------------|-----------------|-----------|------------|
| Age            | 18–34           | 10        | 2.7        |
| Gender         | Male            | 112       | 30.0       |
|                | Female          | 261       | 70.0       |
| Marital status | Single          | 89        | 23.9       |
|                | Married         | 182       | 48.8       |
|                | Divorced        | 26        | 7.0        |
|                | Widowed         | 76        | 20.4       |
| Employment     | Employed        | 91        | 24.4       |
|                | Not employed    | 253       | 67.8       |
|                | Self-employed   | 29        | 7.8        |
| Education levels | No formal education | 35 | 9.4 |
|                | Primary         | 116       | 31.1       |
|                | Secondary       | 160       | 42.9       |
|                | Tertiary        | 62        | 16.6       |
| Dwelling place | Rural           | 118       | 31.6       |
|                | Urban           | 254       | 68.1       |

Table 2: Levels of participation in physical activity

| Level of physical activity | Percentage | Median MET-mins/week (IQR) | Standard MET-mins/week |
|---------------------------|------------|-----------------------------|------------------------|
| High                      | 39.1       | 6 336.00 (5 742.00)         | ≥ 3 000                |
| Moderate                  | 32.4       | 1 462.00 (1 112.50)         | ≥ 2 999                |
| Low                       | 28.4       | 132.00 (305.25)             | < 599                  |
significantly associated with physical activity. Most participants were highly motivated to engage in physical activity by wanting to be healthy ($n = 238; 63.8\%$) and being told to exercise ($n = 104; 27.9\%$). Major barriers to physical activity included health problems ($n = 171; 45.8\%$), getting dizzy ($n = 63; 16.9\%$) and having no time to exercise ($n = 61; 16.4\%$) (Tables 3–5).

Discussion
This study sought to establish the level of physical activity and factors associated with physical activity, amongst patients with HPT in two CHCs in uMgungundlovu Health District. Physical activity plays an important role in preventing and managing HPT\textsuperscript{8,19} Physical activity is a cost-effective, practical, natural and effective way of controlling HPT\textsuperscript{2,8} Despite the existence of evidence that confirms the health benefits of PA in reducing and preventing diseases, a majority of people in the world remain physically inactive.\textsuperscript{2,23} The results of this study showed that 39.1\% of the participants demonstrated high levels of PA, with a median of 6 336.00 MET-minutes per week. Similar results have been reported where clients with chronic diseases reported low levels of physical activities.\textsuperscript{2,23–26} A study that looked at physical activity and hypertension amongst black adults found that 57\% of the participants were not physically active.\textsuperscript{27} More educational programmes and intervention measures for reducing the prevalence of physical inactivity should be targeted to patients with HPT.\textsuperscript{27} Physical activity research shows that physical activity declines with age.\textsuperscript{27–29} A study conducted in Australia reported that adults 60 years and above were not physically active due to ill-health and injuries.\textsuperscript{17} The current study found a statistically significant relationship between physical activity and age

Table 3: Relationships between levels of physical activity and sociodemographic profile

| Character             | Low n (%) | Moderate n (%) | High n (%) | $p$-value |
|-----------------------|-----------|----------------|------------|-----------|
| Age:                  |           |                |            |           |
| 18–34                 | 10 (0.0)  | 0 (0.0)        | 10 (100)   | < 0.001** |
| 35–50                 | 8 (9.1)   | 33 (37.5)      | 79 (33.4)  |           |
| 51–69                 | 98 (34.5)| 83 (29.2)      | 103 (36.3) |           |
| Gender:               |           |                |            |           |
| Male                  | 31 (27.7)| 36 (32.1)      | 45 (40.2)  | 0.95      |
| Female                | 75 (28.7)| 80 (30.7)      | 106 (40.6) |           |
| Marital status:       |           |                |            |           |
| Single                | 10 (11.2)| 34 (38.2)      | 45 (50.6)  | < 0.001** |
| Married               | 41 (22.5)| 63 (34.6)      | 78 (42.9)  |           |
| Divorced              | 8 (30.8)| 6 (23.1)       | 12 (46.2)  |           |
| Widowed               | 47 (61.8)| 13 (17.1)      | 16 (21.1)  |           |
| Employment status:    |           |                |            |           |
| Employed              | 9 (9.9)  | 34 (37.4)      | 48 (52.7)  | < 0.001** |
| Not employed          | 97 (38.3)| 72 (28.5)      | 84 (33.2)  |           |
| Self-employed         | 0 (0.0)  | 10 (34.5)      | 19 (65.5)  |           |
| Level of education:   |           |                |            |           |
| No formal education   | 15 (42.9)| 6 (17.1)       | 14 (40.0)  | 0.004**   |
| Primary               | 40 (34.5)| 29 (25.0)      | 47 (40.5)  |           |
| Secondary             | 40 (25.0)| 50 (31.3)      | 70 (43.8)  |           |
| Tertiary              | 11 (17.7)| 31 (50.0)      | 20 (32.3)  |           |
| Nature of dwelling place: |     |                |            |           |
| Rural                 | 41 (34.7)| 29 (24.6)      | 48 (40.7)  | 0.140     |
| Urban                 | 65 (25.6)| 86 (33.9)      | 103 (40.6) |           |

Table 4: Motivators of physical activity

| Motivators to physical activity | Not a motivator n (%) | Slight motivator n (%) | Moderate motivator n (%) | Major motivator n (%) |
|--------------------------------|-----------------------|------------------------|--------------------------|-----------------------|
| I want to be healthy           | 36 (9.7)              | 37 (9.9)               | 61 (16.4)                | 238 (63.8)            |
| I was told to exercise         | 77 (20.6)             | 62 (16.6)              | 130 (34.9)               | 104 (27.9)            |
| I have someone to exercise with | 97 (26.0)             | 65 (17.4)              | 141 (37.8)               | 70 (18.8)             |
| I have money to go to the gym  | 180 (48.3)            | 52 (13.9)              | 70 (18.8)                | 71 (19.0)             |
| I have time to exercise        | 206 (55.2)            | 43 (11.5)              | 93 (24.9)                | 31 (8.3)              |
| I like exercising              | 181 (48.5)            | 62 (16.6)              | 64 (17.2)                | 66 (17.7)             |
| I want to lose weight          | 200 (53.6)            | 46 (12.3)              | 77 (20.6)                | 50 (13.4)             |
| I want to look good            | 188 (50.4)            | 57 (15.3)              | 38 (10.2)                | 90 (24.1)             |
| Other                          | 0 (0.0)               | 0 (0.0)                | 0 (0.0)                  | 0 (0.0)               |
Table 5: Barriers to physical activity

| Barriers to physical activity                  | Not a barrier n (%) | Slight barrier n (%) | Moderate barrier n (%) | Major barrier n (%) |
|-----------------------------------------------|---------------------|----------------------|------------------------|---------------------|
| I have health problems                        | 111 (29.8)          | 44 (11.8)            | 47 (12.6)              | 171 (45.8)          |
| I do not have time                            | 220 (59.0)          | 39 (10.5)            | 53 (14.2)              | 61 (16.4)           |
| I have no one to exercise with                | 170 (45.6)          | 63 (16.9)            | 107 (28.7)             | 33 (8.8)            |
| I have no access to a place to exercise       | 215 (57.6)          | 63 (16.9)            | 62 (16.6)              | 33 (8.8)            |
| I feel unsafe                                 | 218 (58.4)          | 58 (15.5)            | 59 (15.8)              | 37 (9.9)            |
| I was not told of the importance of exercise  | 209 (56.0)          | 61 (16.4)            | 88 (23.6)              | 15 (4.0)            |
| I get dizzy                                   | 244 (65.4)          | 45 (12.1)            | 21 (5.6)               | 63 (16.9)           |
| I do not like exercising                      | 254 (68.1)          | 25 (6.7)             | 54 (14.5)              | 40 (10.7)           |
| I have no one to look after the children      | 258 (69.2)          | 55 (14.7)            | 29 (7.8)               | 31 (8.3)            |
| Other                                         | 0 (0.0)             | 0 (0.0)              | 0 (0.0)                | 0 (0.0)             |

Factors associated with physical activity amongst patients with hypertension

(p < 0.001). Participants who were aged between 18 and 34 years displayed high physical activity (100%), followed by the 35–50-year-olds, where 53.4% had high levels of physical activity. Lastly, only about a third (36.3%) of participants aged between 51 and 69 years demonstrated high physical activity levels. This could be attributed to the fact that the majority of the older people could have higher comorbidities, which may limit their participation in physical activity.

This study also found that there is a statistically significant relationship between marital status and physical activity (p < 0.001). Half of the participants who were single had high PA levels (50.6%), followed by divorced participants (46.2%), and married participants displayed the lowest level of PA (42.9%). This is consistent with the results of the study conducted by Banyangiriki, which concluded that single participants and married participants displayed the lowest level of PA (< 0.001). Half of the participants who were single had high levels of physical activity.

Most participants (63.8%) were highly motivated to engage in PA because they want to be healthy. These findings are in line with findings from a number of research studies that also revealed exercising for health-related reasons as a major motivator to actively engage in physical activity. A study investigating the factors that influence regular exercise amongst those with different chronic diseases demonstrated that 98% of the participants responded by saying that knowing the health benefits would motivate them to exercise regularly.

Health problems (45.8%) and having no time to exercise (16.4%) were major barriers to physical activity in the current study. Research shows that being physically unfit is a barrier to PA. Previous studies also indicate that lack of time to exercise is identified as a barrier to physical activity. A qualitative study conducted in South Carolina University amongst clients with chronic arthritis found that participants stated that competing responsibilities rob them of time to exercise. Healthcare workers should counsel patients with HPT and highlight the benefits of physical activity to regulate blood pressure.

Study limitations

This was a cross-sectional study, making determinations of cause and effect impossible; therefore, only levels of associations were described but not causality. The information given is subjective since all data were self-reported. The self-reported level of physical activity was based on what participants could recall at the time of responding to the research questionnaire; therefore, it was vulnerable to exaggeration and/or underestimation. Recall bias may also be a limitation as patients had to remember their activities from the previous seven days.

Conclusion

This study was aimed at establishing the level of physical activity, and factors associated with physical activity, amongst patients with HPT, in two CHCs in uMngundlovu Health District. Over a third of the participants presented with high levels of physical activity. Health problems and having no time to exercise were common barriers to physical activity. Health-related reasons were found to be the major motivator towards physical activity, and this aspect can be used effectively when promoting physical activity amongst patients with hypertension and other chronic diseases.

Acknowledgements – The main author would like to thank participants who participated in this study as well as the institutions where the study was conducted.
Disclosure statement – No potential conflict of interest was reported by the authors.

Ethical clearance statement – Ethical approval to conduct the study was granted by the UKZN Biomedical Research Ethics Committee (BE638/17), and the provincial KwaZulu-Natal Department of Health (NHRD Ref: KZ_201801_039), as well as the Chief Executive Officers from both CHCs where the study was conducted.

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Received: 17-04-2019 Accepted: 3-09-2019