MEASUREMENT OF WALKING LEVEL IN HYPERTENSIVE PATIENTS

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Abstract:

This study aimed to know the level of walking activity by comparing it with what is recommended by international organizations, as well as knowing the attitudes of patients with high blood pressure towards walking. The research sample consisted of 356 participants between the ages of 62-78 years with high blood pressure from wilaya "EL OUED". **Materials**: The researchers used the questionnaire to collect data, as the questionnaire was prepared by the researchers, verifying its validity and then distributing it to the participants.**Results**: The study concluded that 20.79% of the participants walk regularly and 79.21% do not walk regularly.77.25% cover a distance of less than 2 km, 22.75% cover a distance of more than 3 km. 62.64% allocate less than 30 minutes to a session, 37.36% allocate more than 30 minutes to a session. conclusion: level of walking among the participants is less than what is recommended by the international organizations, and him attitudes were negative towards walking.

key words: **walking, level, hypertension**, **attitudes**

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Introduction:

Hypertension, is a major risk factor for cardiovascular diseases. It is defined as a pathological chronic condition in which systolic blood pressure is more than 140 mm Hg and diastolic blood pressure is 90 mm Hg. More people develop high blood pressure every year. The number of persons with high blood pressure may reach 1.5 billion by 2025, an increase of around 15 to 20%(Dif et al., 2023)

Physical activity is a low-cost and effective way to fend against illnesses, improve health and well-being, and foster social integration. Researchers have shown over the past 50 years that being physically inactive or unfit has serious adverse effects on one's health throughout one's lifetime (Guebli et al., 2021)

Technological development in the present time has made life demands easily and effortlessly, this has made the lifestyle characterized by inactivity and lack of movement among society members. Research and studies have unanimously agreed that lifestyle plays an important role in the prosperity or decline of the health status of individuals(Hechaichi & Chelroum, 2021). According to the World Health Organization (2011), there is a direct connection between current illnesses and a lack of physical exercise(Latreche, 2022).

Physical inactivity, is a risk factor for non-communicable diseases and the fourth leading cause of premature death worldwide(Mahdjoub Araibi, 2022). It is estimated that the lack of physical activity causes 600,000 deaths per year (5 to 10 of total mortality, depending on the country(Zouaghi, 2016). Physical inactivity led to 9% of premature deaths (5·3 million deaths) in 2008(Gamage & Seneviratne, 2021).

The WHO and US government physical activity guidelines recommend 150 min/week of moderate-intensity or 75 min/week of vigorous-intensity aerobic activities to maintain and improve health. In addition, the physical activity guidelines recommend to combine aerobic physical activity with muscle-strengthening activities for at least 2 days/ week for additional health benefits(Bakker et al., 2018; Barnett et al., 2016). A large number of adults (54.2%) do not meet the WHO's recommended level of physical activity, especially office workers, who maintain sedentary behaviors during the workday for 82.0% of the time(Zhang et al., 2022). Approximately 31% of the global population aged ≥15 years engages in insufficient physical activity, and it is known to contribute to the death of approximately 3.2 million people every year(Park et al., 2020).

Walking is a fundamental form of human locomotion. It is practiced

worldwide by people and by nearly all age groups. It is an integral part of many tasks of daily life, and it is one of the most common forms of leisure-time physical activity. walkers are healthier than their sedentary counterparts, and they have lower blood pressure and more favorable body mass index values. according to prospective longitudinal studies, we know that walking is associated with a reduced risk of coronary heart disease(Bassett et al., 2008). It is a preferred, prevalent and recommended activity for aging populations(Cerin et al., 2011). Walking ability has emerged as important indicator of general health and has even been proposed to be a 'vital sign'. Significant correlations between walking parameters and health outcomes such as mortality, morbidity, and quality of life have been established in recent years(Wohlrab et al., 2022).

Measurement of walking is not new. In ancient Rome, distances were measured by counting steps(Bassett et al., 2008)**.** Key aspects of walking behaviors of interest to researchers are walking time, duration, speed, purpose, leisure, transportation, and work activities. Measuring each of these areas provides insight to the relations between walking behavior and health(Bassett et al., 2008)**.**

In this context, this article aims to measure the level of walking in patients with high blood pressure, by asking the following question: What is the level of walking in patients with high blood pressure?

1.2- Sub-questions:

1- What are the attitudes of hypertensive patients towards walking?

2- What is the level of walking for patients with high blood pressure?

1.3. Hypotheses:

1- Attitudes of patients with high blood pressure towards walking are not positive.

2- The level of walking among patients with high blood pressure is less than recommended.

1.4. Objectives of the study:

1- Knowing the level of walking in people with high blood pressure

2- Knowing the direction of patients with high blood pressure towards walking

3- Identify the factors affecting the demand or lack of turnout from walking.

1.5. Previous studies:

* **Cerin et al., 2011**: the NPAQ has shown to be a reliable measure in adults, its reliability in older adults is unknown. Additionally its validity and the influence of type of neighborhood on reliability and validity have yet to be explored. Methods: The NPAQ walking component was adapted for Chinese speaking elders (NWQ-CS). Ninety-six Chinese elders, stratified by

social economic status and neighborhood walkability, wore an accelerometer and completed a log of walks for 7 days. Following the collection of valid data the NWQ-CS was interviewer-administered. Fourteen to 20 days (average of 17 days) later the NWQ-CS was re-administered. Test-retest reliability and validity of the NWQ-CS were assessed. Results: Reliability and validity estimates did not differ with type of neighborhood. NWQ-CS measures of walking showed moderate to excellent reliability. Reliability was generally higher for estimates of weekly frequency than minutes of walking. Total weekly minutes of walking were moderately related to all accelerometry measures. Moderate-to-strong associations were found between the NWQ-CS and log-of-walks variables. The NWQ-CS yielded statistically significantly lower mean values of total walking, weekly minutes of walking for transportation and weekly frequency of walking for transportation outside the neighborhood than the log-of-walks. Conclusions: The NWQ-CS showed measurement invariance across types of neighborhoods. It is a valid measure of walking for recreation and frequency of walking for transport. However, it may systematically underestimate the duration of walking for transport in samples that engage in high levels of this type of walking.

* **Barnett et al., 2016:** This study determined a MVPA hip-worn accelerometer cut point for older adults using measured RMR and overground walking. Following determination of RMR, 45 older adults (mean age 70.2 ± 7 years, range 60–87. 6 years) undertook an outdoor, overground walking protocol with accelerometer count and energy expenditure determined at five walking speeds. Results: Mean RMR was 2.8 ± 0.6 mL · kg−1 · min−1. The MVPA cut points (95% CI) determined using linear mixed models were: vertical axis 1013 (734, 1292) counts · min−1; vector magnitude 1924 (1657, 2192) counts · min−1; and walking speed 2.5 (2.2, 2.8) km · hr−1. High levels of inter-individual variability in cut points were found. Conclusions: These MVPA accelerometer and speed cut points for walking, the most popular physical activity in older adults, were lower than those for younger adults. Using cut points determined in younger adults for older adult population studies is likely to underestimate time spent engaged in MVPA. In addition, prescription of walking speed based on the adult cut point is likely to result in older adults working at a higher intensity than intended.

* **Hechaichi & Chelroum, 2021:** The study aimed to identify the level of physical activity (PA) and physical fitness (PF) in view of variables of sex (S) and body mass index (BMI) to a random sample of high school students in south region of Setif. the sample included 389 pupils (238 females; 151

males) and aged (15-19 years). To gather data about physical activity and fitness level, they had been applied the physical activity questionnaire for adolescents (PAQ-A), and a fitness test battery (FTB) to measure the level of (PF) components among high school students. The results showed that the physical activity level of students was generally above average, and had an average level in most fitness components, also the study found a significant difference in the (PA) level among students by sex in favor of male students. While, there were no significant differences in the (PA) level according to the (BMI) for each gender. The results indicate that BMI categories did not depending to physical activity (PA) levels. On the other hand, there were significant differences between female and male students in (PF) components, in favor of male students. Also, BMI category influences the fitness levels of students; Weight gain is followed by an increase in the throwing force in adolescent males. While, the low of weight is followed by an increase in the jumping force and agility in adolescent girls.

Discussing previous studies:

What is new in this study is the treatment of the walking variable, as well as shedding light on the category of hypertensive patients

1.6: Terminology:

1.6.1. Hypertension:

According to the American Heart Association (AHA) hypertension is defined as a persistent or intermittent high of systolic blood pressure equal to or above 140 mm Hg and diastolic blood pressure equal to or above 90 mm Hg(Dif et al., 2023)

1.6.2. Walking:

Walking is one of the simplest and most widespread forms of human movement. (Dif et al., 2023)

Normal human walking gait can be designated as a coordinated set of rotational movements of body parts in order to maintain the balance of the system throughout its forward movement(Dif et al., 2023).

2. Méthodologie :

It is a descriptive study conducted on patients with high blood pressure, in which the researchers used a questionnaire.

The questionnaire was chosen because questionnaires are the most common method for assessing PA and depend on participants' recall ability. Questionnaires vary depending on what they measure(Sylvia et al., 2014).

A questionnaire was designed by researchers for the purpose of measuring the level of walking activity in patients with high blood pressure, and it was designed by considering previous studies. An initial image of the

questionnaire was designed and presented to a group of experts to measure the arbitrators' honesty, and then adjustments were made according to the arbitrators' notes to reach the final image of the questionnaire. And then distributed to the study sample.

Pilot study:

The exploratory sample consisted of 30 individuals with the same characteristics as the main sample, which is the incidence of high blood pressure.

Scale stability:

The Pearson correlation coefficient (r) was used to measure the stability of the gait level scale in patients with high blood pressure, by applying the test-retest method on the exploratory sample. The results were as shown in Table 1:

Table 1. shows the validity and reliability coefficients of the questionnaire used

	Pre-test	Post-test	Stability coefficient	Honesty coefficient
Walking level questionnaire	16.46± 7.38	19.14 ± 9.00	0.99	0.99

Source: Prepared by researchers based on the outputs of SPSS V26.

We note from the results obtained in Table 1 that the applied questionnaire has high degrees of validity and reliability

2.1 Participants:

The research sample consisted of 356 participants suffering from high blood pressure, the age of whom were patients ranging in age from 62 to 78 years. They were selected randomly.

Table 2. Characteristics of the participants

		Number	Percentage
Gender	Male	224	62.92%
	Female	132	37.08%
Social status	single	00	00%
	married	356	100%

	poor	**88**	**24.72%**
Standard of living	**medium**	**125**	**35.11%**
	high	**143**	**40.17%**
	Primary	**155**	**43.54%**
The educational level	**secondary**	**106**	**29.76%**
	university	**95**	**26.69%**

According to Table 2: The male percentage was 62.92%, and the female percentage is 37.08%. As for the family situation, it was 100% married, because all the participants are elderly. With regard to the standard of living, the forgotten was not offered much, as the percentage of the weak level was 24.72%, while the average reached 35.11% and 40.17% for the high standard of living. Concerning the primary and secondary educational level, university, the percentage was 43.54%, 29.76%. 26.69%, respectively.

2.2. Study fields:

2.2.1. Spatial field: The study was carried out in the wilaya "EL-OUED", It is located in southern Algeria

2.2.2. **Temporal field**: This field study was conducted in February 2023.

3. Results:

Table 3. Trends of walking (Q:7, 8, 9)

Question	The choices	Number	Percentage
Do you walking regularly?	Yes	74	20.79%
	No	282	79.21%
Do you know the benefits of walking?	Yes	121	33.99%
	No	235	66.01%
Do you rely on walking for your daily commute (to work, shopping, the mosque, etc.)?	Yes	139	39.04%
	No	217	60.96%

According to Table 3: The percentage of participants with blood pressure who exercise walking regularly was 20.79%. Or about the extent of the participants' knowledge of the benefits of walking, the proportion of the respondents was 33.99%, while the answers were no, they reached 66.01%. As for those who rely on walking in their daily movements, the percentage of fans was 39.04%, and the respondents are not 60.96%.

Table 4. Question 10: What is the reason that prevents you from practicing walking? For "no" respondents

Total number: 282	Number	Percentage
Long working hours	24	8.51%
Bad weather	10	3.55%
Fear of disease complications	153	54.26%
You don't see that you need it	40	14.18%
Prefer to do another sport	55	19.50%

According to Table 4: the percentages were varying in the factors that

impede the practice of walking, as the largest percentage of the factor of fear of the complications of the disease was 54.26%. As for those who think that they do not need it, their percentage was 14.18%, and for those who prefer to practice another sport, their percentage was 19.50%. Concerning workers with long working hours and bad weather, their percentage was 8.51% and 3.55%, respectively.

Table 5. Factors contributing to heading towards walking. For "yes" respondents.

Question	The choices	Number	Percentage
Where do you go for a walk?	Sports vehicles	23	31.08%
	the public road	51	68.92%
With whom do you walk?	On your own	46	62.16%
	with friends	14	18.92%
	with a sports group	14	18.92%
What is your goal of walking?	Healthy	62	83.78%
	Recreational	8	10.81%
	Physical	4	5.41%
What is your motivation for walking?	Doctor's advice	51	68.92%
	Media awareness of the importance of walking	12	16.22%
	Other motives	11	14.86%

Table 5 shows that the majority who practice walking on a regular basis practiced walking on the public road, where the percentage was 68.92%, while those who practiced it in sports vehicles reached 31.08%. Concerning those who practice walking, the percentages were 62.16%, 18.92%, and 18.92% for walking alone, with friends, and with a sports group, respectively. For the physical goal, it reached 5.41%, while the recreational goal reached 10.81%. Regarding the factors driving the practice of walking, they were different. The doctors' advice to practice walking to patients amounted to 68.92%, while the media awareness factor to practice walking was 16.22%. The percentage was 14.86% due to other factors such as work

conditions or not owning a car that makes it necessary for the participant to walk to carry out his daily tasks.

Table 6. Level of walking:

Question	The choices	Number	Percentage
How far do you walk per day?	Less than 2 km	275	77.25%
	more than 3 km	81	22.75%
How long is your practice in one session?	Less than 30 minutes	223	62.64%
	More than 30 minutes	133	37.36%
How many times a week do you walk?	less than 2 times	250	70.22%
	more than 3 times	106	29.78%

Table 6 shows: that the percentage of patients who cover a distance of less than 2 km per day was 77.25%, while those who cover a distance of more than 3 km, the percentage was 22.75%. Concerning the time allotted for one session, the percentage of those who allocate less than 30 minutes for a session was 62.64%. Regarding those who allocate more than 30 minutes, their percentage was 37.36%, while for those who program less than two days a week to walk, the percentage was 70.22%, and for those who program 3 days or more, the percentage was 29.78%.

Discussion:

It is noted that the attitudes of hypertensive patients towards practicing walking were weak, as only 20.79% of the participants walked regularly, which is a weak percentage compared to the results of a Saudi study(Samah Mohammed Alhmood ALghamdi, 2019) which found that 50.6% of the participants practiced walking. This indicates that patients with diseases need to intensify awareness campaigns about the importance and benefits of physical activity in general and walking in particular for its ease of exercise and the fact that it does not require equipment especially it is practiced in all places**.** This is shown by the percentage of knowledge about the benefits of walking, as 33.99% of the participants have knowledge of the benefits of

walking, as well as the percentage of those who do not depend on walking in their daily commute, which amounted to 60.96% of the research sample.

Regarding the reasons that prevent patients with high blood pressure from walking, the largest percentage of the reason for the complications of the disease was 54.26%, and this indicates that patients do not know the importance and role of walking in reducing and managing high blood pressure or not guiding them by the doctors specialized in how to practice Walking, thus refuting the prevailing idea that physical activities lead to complications of height blood pressure. However, one of the reasons for not practicing walking is multiple, such as long working hours and bad weather, and some of the participants do not see that they need walking for treatment, and there are also those who prefer to do another sport. With regard to the factors that contribute to the tendency of hypertensive patients to practice walking regularly, including the directions of doctors, which are consistent with the health goal, the factors also include the presence of sports vehicles, as well as the presence of the sports group or friends who push patients to practice walking, in addition to to the recreational side.

Regarding to the level of walking among patients with high blood pressure, the study showed that the largest percentage of the participants in the study, which amounted to 77.25%, who cover a distance of less than 2 km per day, and 62.64% allocate less than 30 minutes for the session; And 70.22% for those who program less than two days a week to walk. All numbers indicate a low level of physical activity (walking). And it shows a lower level than recommended by the World Health Organization, which recommends at least 150 minutes per week of moderate-intensity physical activity. Walking is one of its pillars. This is a higher percentage than what was shown by the study (Zhang et al., 2022), which concluded that 54.2% of adults do not achieve the recommended level of physical activity from the World Health Organization. And much more than what was indicated by the study (Park et al., 2020) that close to 31% of the world's population does not engage in sufficient physical activity.

In America, 55% of the population spends time on sedentary activities, and in Europe, 40% of the population spends their free time on passive activities(Priasmoro & Lestari, 2023). In Indonesia, almost all age groups lead sedentary lifestyles. This sedentary lifestyle varies between rural and urban areas. In urban areas, people spend 367.5 minutes per day, equivalent to 6 hours, while in rural areas they spend 415.7 minutes, equivalent to 6.5 hours.(Priasmoro & Lestari, 2023), The same study showed that 83.8% of the participants have a sedentary lifestyle, and only 16.2% have an active lifestyle.

4. CONCLUSION

The study concluded that the attitudes of hypertensive patients towards the exercise of walking were negative, due to the small percentage that practiced walking regularly, and concerning the level of walking, the study concluded that a large group of hypertensive patients participating in the study had a lower level than what is recommended of international Organizations.

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