

INFLUENCE OF SOCIO-DEMOGRAPHIC FACTORS AND LENGTH OF DISEASE ON ADHERENCE OF PATIENTS WITH ARTERIAL HYPERTENSION

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Summary: INTRODUCTION: The World Health Organization defines patient adherence as the willingness to adapt its behavior (in terms of therapy, diet, lifestyle, and diagnostic procedures) to the recommendations agreed with the healthcare provider. Objective. The study aimed to determine the impact of socio-demographic factors and length of elevated blood pressure on the adherence of patients with arterial hypertension. **METHOD:** The study was performed as a cross-sectional study. The sample consisted of 170 patients, 88 (51.8%) women and 82 (48.2%) men, with a mean age of 58 ± 7.9 years. In addition to the general questionnaire, the study used the Adherence in Chronic Diseases Scale. **RESULTS:** Statistically significantly higher adherence was found in subjects aged 60-69 years and participants in the study with arterial hypertension for more than 15 years ($p < 0.05$). Subjects with completed primary school had statistically significantly lower adherence ($p < 0.05$). Place of residence, employment status and gender of the respondents did not show a statistically significant influence on the adherence of the respondents (NS). **CONCLUSION:** It uses the age, educational status and duration of arterial hypertension in the adherence of examination statistics. Place of residence, employee status and gender of respondents do not show a statistically significant impact.

Keywords. Hypertension, patient s adherence, cooperation, medical doctor.

INTRODUCTION

Arterial hypertension is one of the leading causes of death in the world (5 - 13% of global mortality). Suboptimal blood pressure control due to poor adherence is cited as the main reason for high mortality [1,2,3]. The World Health Organization (WHO) defines patient adherence as the willingness to adjust their behavior (in terms of respect for therapy, diet, lifestyle and implementation of diagnostic procedures) to the agreed recommendations of the health worker [1,4,5]. On the other hand, poor adherence implies refusal or inadequate use of medications, unadapted lifestyle or diet, refusal or inadequate implementation of diagnostic procedures. Poor adherence can be primary (the patient is unable to meet the agreed recommendations) and secondary (there is an intention not to follow the agreed recommendations or they are inadvertently violated due to demographic, social, psychological or clinical variables) [1,4,5]. Patient adherence is negatively affected by: treatment complexity, drug side effects, imbalance between established medical guidelines and own beliefs, poor patient-physician communication, patient dissatisfaction

with health system, socioeconomic factors, socio-demographic factors, high treatment costs, and lack of medical insurance [3]. The absence of manifest symptoms in the initial phase of the disease, younger age and low level of education were identified as the most constant etiological factors.

A large number of studies indicate the ubiquitous poor adherence of patients with arterial hypertension. It is estimated that one third of patients are fully compliant with the recommended treatment, another third sometimes in compliance, while a last third is never compliant with the recommended treatment. Suboptimal blood pressure control due to poor adherence leads to 54% of cerebrovascular incidents and 47% of ischemic heart disease. Adherence can be assessed in two ways, in direct contact with patients or by reviewing medical records. Interventions to improve adherence include supportive measures, reviewing drug needs, and improving communication with the patient [1,4,5,6,7,8].

OBJECTIVE

The study aimed to assess the influence of socio-demographic factors and the duration of

high blood pressure on the adherence of patients with arterial hypertension.

METHOD

The research was performed as a cross-sectional study in a period of seventeen months, from 02/01/2019. to 07/01/2020. The study sample consisted of 170 individuals, heterogeneous socio-demographic and health characteristics selected by random selection. Criteria for inclusion of respondents in the study were: arterial hypertension for at least twelve months, age between 40 and 69 years, completed primary school. Excluded from the study were: people over 69 and under 40, with arterial hypertension lasting less than twelve months. Data were collected through a general and specific questionnaire. The general questionnaire collected socio-demographic data (age, gender, place of residence, level of education, employment status).

The Adherence in Chronic Diseases Scale (ACDS) was developed by a group of authors from Poland with the aim of assessing the adherence of patients with chronic diseases. It consists of 7 questions, ie five questions about adherence and two questions about doctor-patient communication. To each question,

respondents have five offered answers that are scored with a score of 0-4. The total score <21 corresponds to low adherence, while the score 21-26 speaks in favor of moderate adherence. A score > 26 confirms the high adherence of the respondents [9,10]. Descriptive statistical methods were used for data analysis: arithmetic mean, standard deviation and percentages. An χ^2 -independence test was used to determine statistical significance. The significance level is set to 95% confidence interval. The results are presented textually, tabularly and graphically.

RESULTS

The study included 170 respondents. Among them were 88 (51.8%) women and 82 (48.2%) men. The largest number of participants in the study was aged 60-69 years, 72 (42.4%) respondents. The mean age of the study population was 58 ± 7.9 years. 84 (49.4%) participants in the research lived in the village, and 86 (50.6%) in the city. 17 (10.0%) respondents completed primary school, 108 (63.5%) secondary school. There were 45 (26.5%) respondents with a university degree. 81 (47.6%) respondents were employed, 89 (52.4%) were unemployed (Table 1).

Table 1. Socio-demographic characteristics of research participants

Characteristics		N (%)
Gender	Men	82 (48.2%)
	Women	88 (51.8%)
Age (years)	40 - 49	40 (23.5%)
	50 - 59	58 (34.1%)
	60 - 69	72 (42.4%)
Living place	Village	84 (49.4%)
	City	86 (50.6%)
Level of education	Primary school	17 (10.0%)
	High school	108 (63.5%)
	College	45 (26.5%)
Employment status	Employed	81 (47.6%)
	Unemployed	89 (52.4%)

35 (20.6%) subjects had arterial hypertension for 1 - 5 years, and 30 (17.7%) for 6-10 years. Arterial hypertension lasting 11 - 14 years was found in 40 (23.5%) respondents. The largest number of participants in the study had arterial hypertension lasting over 15 years, 65 of them (38.2%). Low adherence was verified in 40

(23.5%) subjects, moderate in 72 (42.4%), while 58 subjects (34.1%) had high adherence.

High adherence was found in 22 (26.8%) men and 36 (40.9%) women. The sex of the participants in the study did not have a statistically significant effect on adherence ($p=0.06$). 2 (5.0%) subjects aged 40-49 years, 9 (15.5%) subjects aged 50-59 years and 47

(65.3%) subjects aged 60-69 years had high adherence. Statistically significantly higher adherence was found in participants in the study aged 60-69 years ($p < 0.05$). Strong adherence was confirmed in 23 (27.4%) respondents living in rural areas and 35 (40.7%) respondents residing in the city. The place of residence of the study participants did not have a statistically significant effect on adherence ($p = 0.08$). Only 1 (5.9%) respondents with completed primary school had high adherence. Strong adherence

was found in 38 (35.2%) respondents with a high school diploma and 19 (42.2%) respondents with a university degree. Statistically significantly lower adherence was found in participants in the study with completed primary school ($p < 0.05$). High adherence was verified in 32 (39.5%) employed respondents and 26 (29.2%) unemployed respondents. Respondents' employment did not have a statistically significant effect on adherence ($p = 0.09$) (Table 2).

Table 2. Influence of sociodemographic factors on the Adherence in Chronic Diseases Scale index

Characteristics		ACDS score < 21**	ACDS score 21-26***	ACDS score >26****	p value*
Gender	Men	18 (22.0%)	42 (51.2%)	22 (26.8%)	NS, 0.06
	Women	22 (25.0%)	30 (34.1%)	36 (40.9%)	
Age (years)	40-49	19 (47.5%)	19 (47.5%)	2 (5.0%)	p < 0.05
	50-59	19 (32.8%)	30 (51.7%)	9 (15.5%)	
	60-69	2 (2.8%)	23 (31.9%)	47 (65.3%)	
Living place	Village	23 (27.4%)	38 (45.2%)	23 (27.4%)	NS, 0.08
	City	17 (19.8%)	34 (39.5%)	35 (40.7%)	
Level of education	Primary school	12 (70.6%)	4 (23.5%)	1 (5.9%)	p < 0.05
	High school	20 (18.5%)	50 (46.3%)	38 (35.2%)	
	College	8 (17.8%)	18 (40.0%)	19 (42.2%)	
Employment status	Employed	15 (18.5%)	34 (42.0%)	32 (39.5%)	NS, 0.09
	Unemployed	25 (28.1%)	38 (42.7%)	26 (29.2%)	

According to hi square test or Fisher test; Low adherence; **Intermediate adherence; ****High adherence.

High adherence was found in 3 (8.6%) subjects with arterial hypertension for 1 - 5 years, 5 (16.7%) subjects with arterial hypertension for 6 - 10 years, 6 (15.0%) subjects with arterial hypertension for 11 - 15 years and

44 (67.7%) subjects with arterial hypertension for > 15 years. Statistically significantly higher adherence was found in participants in the study with arterial hypertension for more than 15 years ($p < 0.05$) (Table 3).

Table 3. Influence of duration of arterial hypertension on subjects adherence to Adherence in Chronic Diseases Scale index

Duration of arterial hypertension (years)	ACDS score < 21**	ACDS score 21-26***	ACDS score >26****	p value*
1-5	20 (57.1%)	12 (34.3%)	3 (8.6%)	p < 0.05
6-10	10 (33.3%)	15 (50.0%)	5 (16.7%)	
11-15	8 (20.0%)	26 (65.0%)	6 (15.0%)	
> 15	2 (3.1%)	19 (29.2%)	44 (67.7%)	

According to hi square test or Fisher test; Low adherence; **Intermediate adherence; ****High adherence.

DISCUSSION

High adherence was detected in 38.3% of study participants. A study by a group of authors from Ethiopia found full adherence in 31.4% of respondents. Similar results were obtained in studies conducted in China 21.3–35.2%, Ghana and Nigeria 33.3%, Kenya 31.8%, Palestine 36.2% and Nepal 35.4%. A slightly

more significant percentage of high adherence was verified by studies in Italy 48.6%, Brazil 52.9%, the United Arab Emirates 54.4%, the United States 57.6% and Pakistan 77.0%. A study by a group of authors from Korea verified adequate adherence in 81.7% of respondents. Differences in the availability and quality of health care are cited as a possible reason for

differences in adherence in the mentioned research [3,11,12]. In our study, there was no statistically significant influence of gender on the adherence of the subjects.

A significant number of studies did not identify gender as a statistically significant factor in the adherence of the respondents, but it emphasizes a slightly higher adherence in females. The lack of gender differences in adherence in adolescents is explained by the fact that parents take responsibility for adhering to the therapeutic regimen in this age group. The better adherence observed among young women arises as a consequence of earlier cognitive maturation. The need for social desirability (the desire to meet social expectations) and a better perception of the disease in women may contribute to the observed differences. [13,14]. The study verified a statistically significantly higher adherence in people aged 60-69 years. Numerous studies have identified aging as a statistically significant factor in increasing patient adherence. A middle-aged person often inadvertently violates the therapeutic protocol due to lifestyle factors, social or psychological variables. Elderly patients devote more time to the treatment regimen and use a number of aids such as tablet boxes and a calendar. In addition, older people often have comorbidities and show greater concern for their health. Possible unintentional reduction of adherence in persons over the age of eighty occurs as a consequence of cognitive and physical deficiencies [1,5,15,16].

The research did not detect the existence of a statistically significant influence of place of residence on the adherence of the respondents. A study by a group of authors from Bangladesh found statistically significantly lower adherence in people residing in rural areas. Poor adherence of the rural population occurs as a result of lower socio-economic status, poorer access to health care, lack of specialist services and frequent changes in health care staff [15]. A study by a group of authors from Australia determined a distance of more than 10 kilometers from the nearest health facility as an independent predictive factor of poor adherence [17].

The study noted the existence of statistically significantly lower adherence in study participants with completed primary school. Studies by a group of authors from Ethiopia, Pakistan, Poland, Ghana and Nigeria have found a negative impact of lower education

on the adherence of subjects with arterial hypertension. Low income, unemployment, lack of awareness about the complications of hypertension and the importance of optimal blood pressure control are cited as possible reasons [3,9,10]. A study conducted in Ghana indicates that a low level of education may play an important role in a patient's decision to replace antihypertensive therapy with herbs and spiritual healing [18]. The study noted the existence of statistically significantly higher adherence in respondents who were employed. Studies by a group of authors in Iran found a statistically significant weakening of adherence in unemployed respondents with limited access to medicines. Participants in the low-income study were 18.5 times more likely to have poor adherence than respondents whose incomes were average [3,6]. The study detected a statistically significant increase in adherence with prolonged hypertension. A study conducted in China detected the duration of hypertension for an independent predictor of quality adherence [3]. Prolonged duration of hypertension is often accompanied by comorbidities but also an increase in awareness of the importance of optimal blood pressure control. Research by authors from Ethiopia has determined the negative impact of prolonged hypertension on the adherence of patients [19]. Participants in the study with a duration of hypertension of five or more years were more than five times more likely to have poor adherence compared to subjects in whom hypertension was diagnosed less than two years ago. With the stabilization of blood pressure, a significant number of patients are considered cured. In addition, long-term use of drugs burdens patients and leads to inadequate use or discontinuation of antihypertensive therapy [3,19]. A study by a group of authors from Malaysia did not establish a statistically significant association between the duration of hypertension and adherence [20]. According to the same, problems with adherence occur in the first six months after the introduction of antihypertensive therapy and persist for up to 4 years. At the end of this period, no statistically significant differences in therapeutic adherence were verified [20].

CONCLUSION

Adherence of the subjects was statistically significantly affected by age,

educational status and duration of arterial hypertension. Place of residence, employment

status and gender of respondents do not show a statistically significant impact

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