ORIGINAL ARTICLE

General self-efficacy and hypertension treatment adherence in Algerian private clinical settings

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Abstract

Background. The purpose of this study was to investigate the connection between self-efficacy and treatment adherence, working on the assumption that self-efficacy plays a role in determining treatment adherence in chronic diseases. Hypertension affects one-third of the world's population. In Africa, hypertension is a leading cause of death from a non-communicable disease. Modifications to lifestyle and behavior, as well as increased access to pharmaceuticals, are necessary for every African nation to bring the prevalence of hypertension and cardiovascular disorders under control.

Methods. In order to assess the predictive association between the two, we conducted research on 216 hypertensive patients who were treated in private clinics in Algeria. These patients were given two assessments to fill out: one was called the general self-efficacy scale (GSES), and the other was called the treatment adherence scale. Comparisons of male and female self-efficacy and adherence were made with the help of Pearson's correlation coefficient and a sample independent t-test (self-efficacy, adherence to treatment).

Conclusions. Self-efficacy in general has been shown to be connected with adherence to hypertension therapy (r(214) = 0.496, p=0.01, <0.05). There is no significant difference between the sexes in either self-efficacy (t(214)=0.985, p=0.326, >0.05) or hypertension treatment adherence (t(214)=0.034, p=0.973, >0.05). A higher level of self-efficacy was found to have a positive correlation with a higher level of treatment adherence; it is possible to increase the medication adherence of hypertension patients by enhancing their level of self-efficacy. It is important for those working in health care to acknowledge the significance that self-care plays in overall health.

Keywords: adherence to treatment, hypertension, Algeria, self-efficacy.

INTRODUCTION

With more active lifestyles, people of all ages can decrease or prevent health problems.[1] In order to avoid problems, people with chronic diseases must engage in secondary prevention (e.g., taking their medications on time, engaging in appropriate physical activity, and keeping their medical appointments); in other words, they must stick to their treatment.[2]

The adherence project has adopted the following definition of adherence to long-term therapy, a merged version of the definitions of Hayens and Rard: the extent to which a person's behaviors - taking medication, following a diet, and/or executing lifestyle changes - correspond with agreed recommendations from a health care provider.[3]

Assessing and increasing treatment adherence is a complex challenge for the individual's health, as a number of factors, including the type of medication (short-acting or long-acting), length of treatment, medication side effects, gender and age of the patient, the presence of comorbidities, and the type of medical center (government or private) have been reported to influence the adherence of patients to treatment instructions.[4]

Poor adherence to medications is a major public health challenge.[5] In a meta-analysis of the literature on medication non-adherence rates in the elderly, it was shown that from 29 to 59% of outpatients do not take medications as prescribed. On average, it has been estimated that only half of those who are prescribed pharmacological therapies take enough doses of the medication to experience a therapeutic effect.[6] In developed countries, non-adherence to the treatment of chronic diseases ranges from 30% to 50%, and this rate has escalated in the developing countries.[7] Cardiovascular illnesses are a global public health issue affecting a substantial section of the population.[8] This includes coronary heart disease, congestive heart failure, ischemic and hemorrhagic stroke, renal failure, and peripheral arterial disease.[9] Blood pressure (BP) or hypertension is the most prevalent chronic condition in the world. According to the most recent data from the "Report on Disease of Cardiovascular in China 2019", 330 million people in China have been diagnosed with cardiovascular disorders, including 245 million with hypertension.[10] According to the Algerian statistics association of hypertension for 2003, 35% of adults over the age of 18 suffer from essential hypertension. It indicates that 7 million persons are afflicted with this condition. One patient out of every five does not adhere to his treatment.[11]

In between fifty percent and seventy-five percent of hypertensive patients, blood pressure is uncontrolled mostly due to inadequate adherence to medication. It has caused significant harm to human health and consumed a substantial amount of medical resources worldwide, making it a prominent issue in the management and promotion of global public health.[10] It is responsible for at least 7.6 million fatalities per year (13.5% of all deaths) worldwide. High blood pressure causes substantial morbidity, accounting for 7.0% of all worldwide disability-adjusted life-years lost, primarily in low- and middle-income nations (LMICs). Ten percen of the world's total health care expenses are attributable to suboptimal blood pressure. More than 90% of anti-hypertensive treatment expenditures, or over $50 billion annually, are incurred in high-income countries.[12]

Several lifestyle modifications (non-pharmacological treatment) and antihypertensive medication have been found to lower blood pressure in this situation. They are regarded as the most advantageous recommendations for the effective management of hypertension.[13] Additionally, knowing the cognitive processes that drive health behavior, such as medication adherence, is advantageous when attempting to identify barriers and increase treatment adherence.[14]

Consequently, various cognitive factors such as health locus of control, patient personality, social support, etc. influence patients' adherence to therapy. Self-efficacy appears to be one of the cognitive characteristics with the largest influence on people's

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behavior; numerous models include self-efficacy as a determinant of adherence.[15]

Self-efficacy refers to a person's confidence in his or her ability to execute the actions necessary to achieve particular performance outcomes.[16,17] Self-efficacy, or the degree to which a person believes he or she has the ability to achieve a particular objective, can affect motivation and tenacity.[13] It is the primary idea that governs the behavior of individuals and the amount of effort they expend to adopt the habit.[10] It is related to health-promoting activities, such as enhancing communication with doctors, engaging in suggested health practices, and adapting to disease and treatments.[18]

Health behavior change typically incorporates three fundamental constructs: patient's readiness for change, perceived significance of change, and belief in one's ability to change (self-efficacy).[19] Treatment adherence self-efficacy is the confidence to practice adherence in a range of challenging settings (e.g., when one is stressed, has financial difficulties, or has side effects).[20]

This study intends to address the following questions based on the premise that it appears to have a good influence on treatment adherence:

- exists a correlation between self-efficacy and hypertension patient adherence to treatment?

- Exist major disparities in self-efficacy between males and females?

- Exist major disparities between males and females in treatment adherence?

MATERIALS AND METHODS

Design and recruitment of participants

This cross-sectional study was done in private clinical settings in Algeria, from December 2018 to December 2019, The study adopted a convenience sampling design in recruiting 216 patients (102 males, 114 females), aged between 20-79 years old, with essential high blood pressure, those diagnosed to have secondary hypertension were excluded, The participants were asked about their age, marital status, educational attainment, duration of disease, their mean age was 57 years old, with the majority of them was aged between 60-69 years old, 16.5% of them were widowed, 73.8% were still married, 4.7% were never married and 5% were divorced. The majority of these patients belong to the middle social class with different educational attainment (Table 1).

Instruments

Informed consent was obtained from all patients before the study. Data were collected primarily by self-administered questionnaires. All eligible patients were invited to complete two self-administered questionnaires:

General s elf-efficacy. Self-efficacy was measured by the scale of Schwarzer and Jerusalem. It contains 10 items, and it assesses the strength people's beliefs in their own abilities to respond to difficult situations.[21] (Annex 1). The scale's psychometric characteristics were calculated by applying it to a sample of 100 patients, results were found to be:
- Validity of the scale = 0.91
- Reliability of the scale: the reliability was assessed using Cronbach's Alpha (α); the results revealed that the general self-efficacy with ten items (α=0.84) was found reliable.

Adherence to treatment. A scale of adherence to treatment among patients with hypertension was developed by the researcher; it contains 32 items measuring different axes of adherence to treatment integrated with each other[2] (Annex 2). The researcher has calculated the psychometric characteristics of the scale.
- Validity of the scale = 0.92
- Reliability of the scale = 0.86 (The reliability was assessed using split half).

Statistical analysis. All data were analyzed using SPSS 22.0.

● Descriptive statistics; percentage and means.

● The degree of correlation between variables was assessed using Pearson's correlation coefficient.

● The statistical significance of differences between groups was tested using one-sample independent t-test for continuous variables.

RESULTS

Data were collected from answers of 216 patients with hypertension on two questionnaires (self-efficacy - adherence to treatment):

Relationship between self-efficacy and a dherence to treatment: the correlation was calculated by Pearson's correlation (see Table 2).

Table 2 revealed that higher self-efficacy was significantly associated with higher adherence to treatment, and the score for the total self-efficacy scale was positively correlated with the score for the adherence to treatment scale at a significant level 0.01, r(214)=0.496, p=0.01, <0.05).

Sex differences i n self-efficacy: sex differences in self-efficacy were assessed using t test for independent sample (see Table 3). An independent samples t-test was conducted to compare self-efficacy between males and females. There was not a significant difference in self-efficacy between males (M=25.81, SD=6.61) and females (M=24.89, SD=7.04), t(214)=0.985, p=0.326, >0.05)

Sex differences i n adherence to treatment: the sex differences in adherence to treatment were assessed by t test for independent sample (see Table 4). As shown in Table 4, the adherence to treatment scores was compared between males and females. There was not a significant difference in adherence to treatment between males (M=41.09, SD=12.95) and females (M=41.15, SD=12.90), t(214)=0.034 , p=0.973, >0.05).

DISCUSSION

This study examined the association between self-efficacy and treatment adherence among hypertensive patients. The results indicate:

- There is a substantial positive association between self-efficacy and adherence to treatment: this finding is consistent with prior research, such as that of Shen et al., 2020,[10] which found that self-efficacy partially mediated the relationship between medication literacy and adherence. In addition, the study by

Zanatta et al., 2020,[22] found that the observed psychosocial and behavioral components have a beneficial influence on self-efficacy in connection to treatment adherence among older chronic patients with hypertension. Self-reported health status and medication self-efficacy were favorably associated with diabetic medication adherence, according to Huang et al., 2018.[23] Self-efficacy with regard to medicine was the greatest predictor of diabetic medication adherence. The conclusion of the present investigation was consistent with the findings of all three studies. The researcher illustrates the significant role that self-efficacy plays in the personal and health lives of individuals, and he concludes that the success of adherence to treatment is correlated with an individual's self-efficacy in their ability to take their medications and adhere to their treatment plan.

- There are no significant gender differences in self-efficacy. This conclusion makes sense, given self-efficacy is determined by a person's personality, not their gender. Bandura identified the factors that contribute to the development of self-efficacy, including mastery experiences, vicarious experiences, social persuasion, and emotional states,[24] and he has not demonstrated the significance of gender or the disparities between male and female efficacy. In addition, when we discuss mastery experiences and vicarious experiences and project these sources onto the study sample, we find that the majority of the participants were aged 60 to 69 (dominant age group). Compared to other age groups, this indicates that they likely shared similar experiences, lifestyles, and circumstances.

- There are no significant gender variations in treatment adherence: regarding the lack of gender differences in treatment adherence, the researcher ascribed this to the fact that males and females suffer from the same disease and that the factors influencing treatment adherence are numerous and identical for both genders. They

are not sexed differently. Numerous studies on the variables of treatment adherence indicate this. Personal, environmental (social support), psycho-cognitive (health locus of control, self-efficacy), and other factors such as drug kind, treatment duration, pharmaceutical side effects, etc.

CONCLUSIONS

Higher self-efficacy was significantly and positively connected with greater treatment adherence. It has been claimed that enhancing patients' self-efficacy through various interventions may boost drug adherence among hypertension patients. In addition, health care professionals should recognize the significance of cognitive processes such as self-efficacy in improving health.

INFORMATION

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TABLE 1: Patients' characteristics.

Total Study Population: 216 (Male 102, Female 114)			
Age (per years)	Age	Mean Age	Dominant Age	
	20-79	57	Between 60-69	
Marital status	Never married	Married	Divorced	Widowed
	4.7%	73.8%	45%	16.5%

TABLE 2: Correlations between self-efficacy and adherence to treatment.

Variables	General self-efficacy	Adherence to treatment
General self-efficacy	–	.496**
Adherence to treatment	.496**	–

*Note: **Correlation is significant at the level 0.01.*

TABLE 3: Sex differences in self-efficacy.

	Male		**Female**				95%CL		
Self-efficacy	M	SD	M	SD	t(214)	p	LL	UL	Cohn's d
Scores	25.81	6.61	24.89	7.04	.985	.326	-.92	2.75	.134

Note: M = Mean, SD = Standard deviation, LL = Lower limit, UP = Upper limit.

TABLE 4: Sex differences in adherence to treatment.

	Male		Female				95%CL		
Adherence to trt	M	SD	M	SD	t(214)	p	LL	UL	Cohn's d
Scores	41.09	12.95	41.15	12.90	.034	.973	3.53	3.41	.004

Note: M = Mean, SD = Standard deviation, LL = Lower limit, UP = Upper limit.

TABLE 5: Annex 1. General self-efficacy scale (GSE), Schwarzer R. and Jerusalem M. (1995).[21]

Items	Not all true	Hardley true	Moderatly true	Exactly true
1. I can always manage to solve difficult problems if I try hard enough.				
2. If someone opposes me, I can find the means and ways to get what I want.				
3. It is easy for me to stick to my aims and accomplish my goals.				
4. I am confident that I could deal efficiently with unexpected events.				
5. Thanks to my resourcefulness, I know how to handle unforeseen situations				
6. I can solve most problems if I invest the necessary effort.				
7. I can remain calm when facing difficulties because I can rely on my coping abilities.				
8. When I am confronted with a problem, I can usually find several solutions.				
9. If I am in trouble, I can usually think of a solution.				
10. I can usually handle whatever comes my way.				

1 = Not at all true, 2 = Hardly true, 3 = Moderately true, 4 = Exactly true.

TABLE 6: Annex2: Scale of Adherence to treatment among patients with essential high blood pressure. Elaborated by: KARA Said[2]

Items	Always	Sometimes	Never
1- Do you buy your prescribed drug?			
2- Are you convinced that the prescribed drug is the most suitable for you?			
3- Do you take your drug with you when you travel or during your absence?			
4- Do you (ask) consult your doctor about how to take the drug during the periods of habitudes changement (fast, travelling,…)?			
5- Do you respect the time of your drug?			
6- Do you feel anxious whenever you are in delay from taking your drug?			
7- Do you respect your limited medical posology?			
8- Do you neglect having your drug?			
9- Do you refrain from having your medication whenever you feel all right?			
10- Do you ask the view of your doctor in case you are exposed to secondary effect of your drug?			
11- Are you well informed about your illness?			
12- Are you conscious about the complications of the illness if you don't take the drug?			
13- Do you avoid taking drugs that are not prescribed to you?			
14- Do you ask (consult) your doctor if you take drugs of your own prescription (Automedication)?			
15- Do you renew the medical prescription frequently?			
16- Do you follow the medical instruction exactly?			
17- Do you respect your medical appointment?			
18- Do you do the periodic consultations?			
19- Do you measure your blood pressure frequently?			
20- Do you use blood pressure notebook?			
21- Do you measure your blood pressure before having a hot shower or hot bath?			

Table 6 continued

22- Do you trust in your doctor?		
23- Do you respect the instructions of your doctor and don't consult other?		
24- Do you take meals with limited salt amounts?		
25- Do you avoid having products that may rise your blood pressure? (Licorice, salted peanuts, …).		
26- Do you avoid fatty foods?		
27- Do you follow a special diet?		
28- Do you avoid the access of having coffee or tea?		
29- Do you take alcoholic beverages?		
30- Are you smoker?		
31- Do you practice physical activity regularly (walking, swimming, riding bicycle,…)?		
32- Do you avoid to be stressed or anxious (avoid stressing situation, going for picnic,…)?		

2= Always, 1= Sometimes, 0= Never, For Items (1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 31, 32) 2= Never, 1= Sometimes, 0= Always For Items (8, 9, 29, 30).