

# ADHERENCE TO THERAPY AND QUALITY OF LIFE IN HYPERTENSIVE PATIENTS

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**SUMMARY** – This cross-sectional study aimed to evaluate the association between medication adherence and Health-Related Quality of Life (HRQoL) in 120 hypertensive patients. Personal Information Form, SF-36 Quality of Life Scale (SF-36 QoL) and Medication Adherence Self-Efficacy Scale (MASES) were used for data collection. Data were analyzed with SPSS program using percentage, mean value, standard deviation, significance test of difference between two means, analysis of variance, Mann-Whitney U test, Kruskal-Wallis test and  $\chi^2$ -test. MASES and SF-36 QoL scores of the patients were found to be low. Adherence to medication and compliance were found to be low in males, patients using two or more drugs, and those that did not control their blood pressure regularly. In addition, a statistically significant positive relationship was found between adherence to medication/compliance, self-efficacy and quality of life ( $p < 0.001$ ). Regular and continuous adaptation programs addressing patients on antihypertensive therapy will improve the quality of life of these patients.

**Key words:** *Hypertension; Medication adherence; Quality of life*

## Introduction

Hypertension is a disease which may lead to different organ injury and target of life-long hypertension therapy is keeping hypertension under control<sup>1,2</sup>. In more than one-half of these patients, blood pressure is not under optimal control<sup>3</sup>. The most often reason for this is therapy non-compliance<sup>4-6</sup>. Being able to understand, manage and interpret makes the 'sense of compliance'. Sense of compliance is related to interpretation of the current condition. In that case, the person can live safely by estimating his own power, the events inside and outside, preparing sensations and behaviors according to it<sup>7</sup>. Compliance to therapy was found to be influenced by gender, marital status, level of education, level of income, and being educated about hypertension in hypertensive patients<sup>8,9</sup>.

Medications used in hypertension treatment are also stated to be effective in perceiving the disease and compliance<sup>9,10</sup>.

On the other hand, hypertension impairs the quality of life (QoL) in advanced stages of the disease and shortens life span, although its course is silent at the beginning. Hypertensive patients feel the psychology of having a chronic disease and have difficulties to change their lifestyle; accordingly, there are negative effects on QoL. In previous studies, factors like diet and exercise were found to have negative effects on QoL in hypertensive patients<sup>11-13</sup>.

Several studies are available in the literature about compliance to therapy and QoL in different chronic diseases<sup>14-18</sup>. Different factors affect QoL of hypertensive patients and few studies are available about compliance to therapy and QoL in these patients<sup>3,11-13</sup>. The aim of this study was to determine the relationship between adherence to therapy and QoL in hypertensive patients. Therefore, using comparison with the existing literature, we investigated the relationship between adherence to therapy and QoL and identi-

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fied the factors influencing medication adherence and QoL in hypertensive patients.

## Patients and Methods

### Sample

The study sample included 120 patients aged  $\geq 18$ , treated at the Medicine and Endocrinology Departments, Cumhuriyet University Hospital, diagnosed with hypertension at least three months before, who were free from any disorders that could affect their cognitive functions and participated in the study on voluntary basis. Hypertension, known as high or elevated blood pressure, is a condition in which blood vessels have persistently raised pressure<sup>2,3,5</sup>. Normal adult blood pressure is defined as blood pressure of 120 mm Hg when the heart beats (systolic) and blood pressure of 80 mm Hg when the heart relaxes (diastolic). When systolic blood pressure is equal to or above 140 mm Hg and/or diastolic blood pressure is equal to or above 90 mm Hg, the blood pressure is considered to be raised or high<sup>3,7</sup>.

### Data collection

After explanations had been given to patients by the researcher, data were collected through interviews with patients. All patients included in the study filled in three data collection tools: Personal Information Form (PIF), self-efficacy SF-36 Quality of Life Scale (SF-36 QoL) and Medication Adherence Self-Efficacy Scale (MASES).

*Personal Information Form.* This form was prepared by the researchers in the light of information in the literature<sup>3</sup> for the purpose of determining some socio-demographic and clinical characteristics of hypertension patients. The form contains 15 sociodemographic and patient history-related questions about patient age, gender, marital status, place of residence, educational status, employment status, occupation, and duration of illness.

*Short Form-36 (SF-36).* This scale has been used in many different languages and cultures to measure QoL. The validity and reliability of the Turkish version of SF-36 has been reported by Pınar<sup>19,20</sup>. It is composed of simple questions on 8 subscales, including physical functioning, social functioning, physi-

cal role limitation, emotional role limitation, bodily pain, mental health, vitality, and general health. High scores on all SF-36 subscales reflect better QoL, and reduction in scores indicates deterioration in QoL. The scale was completed by patients under the supervision of a physician in order to obtain more accurate results<sup>21</sup>.

*Medication Adherence Self-Efficacy Scale (MASES).* MASES was developed by Ogedegbe *et al.* in 2003 to measure situation-specific efficacy beliefs regarding adherence to prescribed antihypertensive medications in a population at a high risk of hypertension-related morbidity and mortality<sup>22</sup>. The MASES is a 26-item, patient-derived, self-administered instrument. The participants were asked to rate their degree of confidence in taking their blood pressure medication in a variety of situations. The response to each item was formatted on a three-point Likert scale with 1 = not at all sure, 2 = somewhat sure, and 3 = very sure. The lowest total score is 26 and the highest is 78. All responses were added to obtain a summary score with higher scores indicating greater self-efficacy. The MASES has a Cronbach's alpha coefficient of 0.92. Results of the Cronbach's alpha and test-retest reliability demonstrate that this MASES is internally consistent and yields stable scores over time. The validity and reliability of the Turkish version of SF-36 has been reported by Gözüm and Hacıhasanoğlu. This scale is a brief instrument, which is easy for patients to use and to understand, taking on average five minutes to complete<sup>23</sup>. For this specific study, the internal reliability coefficient for the MASES was 0.92.

### Ethical considerations

Institutional approval was obtained from the Cumhuriyet University Medical Sciences Ethics Committee. Study aims, plans and benefits were explained to patients who met the study criteria. Patients were asked if they would voluntarily participate in the study and their written/oral consents were obtained. Confidentiality was maintained at all times.

### Data analysis

Taking  $\alpha=0.05$  and  $\beta=0.10$ , it was decided that 120 individuals should have been included in the study. The power of p test was 0.90662. Study data were loaded on the Statistical Package for Social Sciences (SPSS)

for Windows program, version 14.0. Percentage calculation, mean value, test of significance between two mean values,  $\chi^2$ -test, one-way analysis of variance, Mann-Whitney U test and Kruskal-Wallis test were used on data analysis. Data were given in tables using arithmetic mean and standard deviation. Values of  $p < 0.05$  were considered statistically significant.

Table 1. Patient characteristics

Characteristic	n (%)
Gender:	
male	26 (21.7)
female	94 (78.3)
Age (yrs):	
35-54	42 (35.0)
$\geq 55$	78 (65.0)
$\chi \pm SD$	57.34 $\pm$ 8.88
Occupation:	
housewife	76 (63.3)
retired	23 (19.2)
officer	14 (11.7)
unemployed	7 (5.8)
Marital status:	
married	76 (63.3)
single	44 (36.7)
Level of education:	
literate	74 (61.7)
elementary/junior high school	46 (38.3)
Blood pressure checkups and hypertension treatment:	
yes	16 (13.3)
no	104 (86.7)
Reasons for not performing blood pressure checkups and hypertension treatment:	
forgetting	104 (86.7)
well-being	16 (13.3)
Blood pressure value:	
139/90 mm Hg	56 (46.7)
$\geq 140/90$ mm Hg	64 (53.3)
Number of antihypertensive drugs:	
monotherapy	72 (60.0)
polytherapy	48 (40.0)
mean $\pm$ SD	1.5 $\pm$ 0.6 (1-3)
Medication adherence self-efficacy scale (MASES) ( $\chi \pm SD$ )	40.08 $\pm$ 5.61

## Results

The mean age of study patients was 57.34 $\pm$ 8.88 years, 78.3% were female and more than half (63.3%) were housewives, 19.2% were retired and the remaining 11.7% were unemployed, only 61.7% were literate, and 63.3% were married.

When patients were questioned about their blood pressure and hypertension checkups, 86.7% were found not to control their blood pressure and hypertension treatment. The leading cause for this was forgetting (86.7%), followed by feeling well (13.3%). When blood pressure values were analyzed, blood pressure was 140/90 mm Hg and above in more than half (53.3%) of patients, and 60% were using only one hypertensive drug. MASES scores of the patients were low (mean 40.08, SD 5.61). None of the participants had received education about hypertension (Table 1).

When compliance to therapy was analyzed according to different parameters, compliance was higher in women as compared with men, with a statistically significant difference ( $p < 0.001$ ). Although the mean value of compliance was greater among patients aged 55 and older, the difference was not statistically signifi-

Table 2. Adherence according to some patient characteristics

Characteristic	MASES score $\chi \pm SD$	Statistical test
Gender:		
male	36.23 $\pm$ 5.81	$t=4.22$
female	41.15 $\pm$ 5.16	$p=0.000$
Age (yrs):		
35-54	39.48 $\pm$ 5.42	$t=0.86$
$\geq 55$	40.41 $\pm$ 5.71	$p=0.387$
Marital status:		
married	39.74 $\pm$ 4.21	$t=0.88$
single	40.68 $\pm$ 7.45	$p=0.376$
Amount of antihypertensive drug:		
monotherapy	42.97 $\pm$ 5.01	$t=6.71$
polytherapy	36.80 $\pm$ 2.99	$p=0.000$
Controls for blood pressure and hypertension treatment:		
yes	32.75 $\pm$ 1.00	$t=-6.52$
no	41.27 $\pm$ 5.15	$p=0.003$

cant. It was also found that compliance was higher in patients on monotherapy and controlling their blood pressure regularly; this difference was statistically significant ( $p < 0.001$ ). Although compliance to therapy scores of the single/widow patients was high, the difference was not statistically significant (Table 2).

On the other hand, while the mean SF-36 score was  $47.71 \pm 8.95$ , the mean physical field score was  $46.80 \pm 9.74$  and mental field score  $48.38 \pm 8.95$ . In correlation analysis done with the aim of analyzing the relationship between compliance to therapy and QoL in hypertensive patients, a strongly positive correlation was detected between MASES score and mean scores obtained on physical health and mental health, the two main dimensions of QoL fields ( $p < 0.001$ ). QoL was found to increase as compliance to therapy increased.

## Discussion

In the present study conducted with the aim of analyzing the relationship between compliance to therapy and QoL, more than half of the patients were female. This is considered to be due to the higher prevalence of hypertension among women, thus taking more place in records<sup>24-26</sup>. The vast majority of patients were found to fail to undergo regular checkups of blood pressure and hypertensive therapy. Hypertension follow up appears to be inadequate in Turkey<sup>24</sup>, which seems to be explainable by two main reasons: forgetting and feeling well. Advanced age of the participants may have contributed to their forgetting to take medicine. Similar results were also obtained in some previous studies<sup>27-30</sup>. The role of nurses in patient education about the importance of regular blood pressure control is unquestionable. None of the participants was found to have received education about hypertension. However, previous studies<sup>3,31,32</sup> revealed that compliance to therapy and lifestyle changes were greater in patients educated about hypertension. In the present study, the reason for high blood pressure may have been related to the lack of education about hypertension. Education and patient awareness are important in cases when treatment is to be continued at home, as is the case in hypertension. When results of the studies about patient education were analyzed, it was found to have favorable impact on compliance to medication and therapy, along with a decrease in blood pressure values<sup>5,10,33</sup>.

A statistically significant difference was found between compliance scores of male and female patients, i.e. compliance scores were greater in women as compared with men<sup>11,12</sup>. However, results of some studies indicate that compliance was higher in men than in women<sup>24,34</sup>. The reason for this may be the varying role of women among communities and different cultural approaches.

When the level of compliance to therapy was analyzed according to age distribution, the attitude toward antihypertensive medications improved with advancing age, although the difference was not statistically significant. While compliance to therapy decreased with advancing age in some studies<sup>11</sup>, others report opposite observations<sup>12,23</sup>. Compliance increasing with age, although statistically nonsignificant, may be explained with the individuals becoming more responsive, tending to accept the prescribed therapy. According to the results of this study, a statistically significant difference was found between compliance and number of medications. In previous studies, compliance score was found to be higher in patients taking only one medication<sup>35,36</sup>. In the study by Göçgeldi *et al.*, the number of antihypertensive drugs was found to have negative impact on QoL<sup>8</sup>. While compliance scores of single/widow patients were higher than those of married subjects, the difference did not reach statistical significance.

There was no significant difference in compliance between patients having regularly undergone blood pressure and antihypertensive treatment checkups and those that did not. Compliance of patients who regularly checked their blood pressure was higher<sup>13,37</sup>. This result could be expected (the lack of statistical significance was probably due to the small number of study patients) and confirms the need of patient education about regular checkups.

The mean mental health score of participants was higher than their physical health score. Hypertension is known to affect physical health more than mental health<sup>3,8,19</sup>. While early signs of hypertension are physical, mental symptoms occur in later stages. Therefore, it is striking to find that the physical aspect of QoL is influenced. Previous studies report similar results to ours and the mean QoL score of physical health was lower<sup>3,8</sup>. The study also revealed positive correlation between compliance and general health,

physical health and mental health. QoL was found to increase as compliance increased.

Low adherence has been proposed as an important barrier to achieving hypertension control<sup>31,32</sup>. The exact mechanism through which HRQoL is associated with medication adherence is unknown; however, HRQoL appears to be part of a complex web of antihypertensive medication adherence characteristics which can negatively impact patient ability to manage their chronic disease. Previous studies conducted among patients with chronic physical diseases have linked HRQoL to factors identified as precursors to medication adherence, such as patient beliefs that they are able to carry out a behavior (self-efficacy)<sup>38</sup>, patient disability and activities of daily living<sup>39</sup>, their attitudes and knowledge about disease treatment<sup>40</sup>, their perceived level of competence and their overall outlook on life (optimism)<sup>39,41</sup>. Further research is needed to understand the mechanisms through which HRQoL affects adherence to antihypertensive medications and ultimately cardiovascular health. Health care professionals should consider nonadherence to medication when evaluating a patient with poor blood pressure control. In selecting an intervention to improve compliance to medications, clinicians should consider engaging the patient in an intervention that overcomes the patient-specific barriers.

In conclusion, adherence to therapy/compliance self-efficacy and QoL were found to be low. In addition, compliance was found to positively influence QoL. Risk factors affecting compliance and QoL are male sex, age <55, marital status, using two or more drugs, and not going for blood pressure checkups. Assessment of QoL and compliance is important for health care.

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## Sažetak

## PRIDRŽAVANJE TERAPIJE I KVALITETA ŽIVOTA HIPERTENZIVNIH BOLESNIKA

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Cilj ove presječne studije bio je procijeniti udruženost pridržavanja farmakoterapije i kvalitete života povezane sa zdravljem (*Health-related Quality of Life*, HRQoL) kod 120 hipertenzivnih bolesnika. Za prikupljanje podataka rabili su se sljedeći alati: *Personal Information Form*, *SF-36 Quality of Life Scale* (SF-36 QoL) i *Medication Adherence Self-Efficacy Scale* (MASES). Podaci su analizirani pomoću programa SPSS uz primjenu postotka, testa značajnosti razlike između dviju srednjih vrijednosti, analize varijance, Mann-Whitneyjeva U testa, Kruskal-Wallisova testa i  $\chi^2$ -testa. Vrijednosti MASES i SF-36 QoL dobivene kod bolesnika bile su niske. Pridržavanje farmakoterapije bilo je nisko kod muškaraca, a bolesnici koji su uzimali dva lijeka ili više njih nisu redovito kontrolirali krvni tlak. Uz to, utvrđen je statistički značajan pozitivan odnos između pridržavanja farmakoterapije, samostalnog odlučivanja o tome i kvalitete života ( $p < 0,001$ ). Kvalitetu života ovih bolesnika može se poboljšati redovnim i trajnim programima prilagodbe usmjerenim ka bolesnicima koji uzimaju antihipertenzivne lijekove.

Ključne riječi: *Hipertenzija; Farmakoterapija, pridržavanje; Kvaliteta života*