

Maja N. Račić¹, Srebrenka H. Kusmuk¹,
Srđan R. Mašić¹, Nedeljka M. Ivković²,
Vedrana R. Joksimović¹, Jelena M. Matović¹

¹Department for primary health care and public health, Faculty of medicine, University of East Sarajevo, Bosnia and Herzegovina

²Department of Dentistry, Faculty of medicine, University of East Sarajevo, Bosnia and Herzegovina

Impact of the physician-patient relationship on the treatment outcomes of arterial hypertension

Key words:

family medicine,
patient-centred care,
arterial hypertension,
treatment, outcomes

Abstract

Objective: The primary objective is to analyze the impact of the physician-patient relationship on the outcomes of hypertension treatment.

Method: The study included 8 family physicians and 240 patients with arterial hypertension, selected according to specific criteria. Physicians were divided into two groups. Group 1 consisted of physicians who have had completed training in communications, while group 2 was comprised of those with no training in medical communications. Each physician was accompanied by a group of thirty patients with hypertension. The interaction between physician and patient was evaluated using the Bales interaction process analysis. During the 12 months, the functional parameters, blood pressure, patient compliance and patient satisfaction were monitored.

Results: Statistically significant differences were found between two groups of physicians in all 12 categories of Bales Interaction Analysis. Physicians from group 1 were showing more empathy, humor, understanding, interest for patient background and their opinion compared to group 2 physicians. The mean systolic blood pressure level of the patients treated by physicians which belonged to group 1 decreased from 155.25 to 137.16 mmHg and diastolic from 94.20 to 79.3 mmHg. Statistically significant improvements in work performance, activities of daily living, psychological function, social activity, compliance and patient's satisfaction were also found in group 1 after 12 months.

Conclusion: The study showed that physician-patient relationship significantly affects treatment outcomes in patients with arterial hypertension. Communication with patients can be improved by introducing interaction elements that are not exclusively related to the causes and characteristics of diseases, giving the relevant information and increasing intelligibility of this information during the encounter.



Introduction

Hypertension affects 42 percents of the adult population in Bosnia and Herzegovina and is among the most common health problems in a primary care setting. Although uncontrolled hypertension is a major risk factor for cardiovascular and renal disease, most patients diagnosed with hypertension have poorly controlled blood pressure.¹ In the study of van de Berg et al., it was shown that only 4.12% of the patients without risk-comorbidity reach the target blood pressure values of $\leq 140/90$ mmHg after 5 years of follow-up.²

An important reason for this shortfall might be lack of patient adherence to therapy.³⁻⁶ A systematic review of 25 studies reported that there is no convincing empirical evidence to support the hypothesis that poor compliance accounts for inadequate blood pressure control in many patients.⁷ However, a subsequent report from the ANBP2 hypertension trial in elderly patients found that patients who forget to take their medication significantly more frequently experience a cardiovascular event or death.⁸

Beside poor patient adherence to medications and lifestyle changes, other factors contribute to low rates of blood pressure control, including the lack of awareness about hypertension, physician's failure to adhere to published treatment guidelines, and limited access to medical care and financial barriers to obtain medications.⁹

For instance, unique characteristics of the physician-patient relationship may result in improved blood pressure control, but few studies have analyzed actual dimensions of this issue that may impact blood pressure level or how improved physician-patient communication could have an impact upon hypertension treatment.¹⁰

The physician-patient relationship has been and remains a cornerstone of care, data gathering, diagnoses and plans, concordance, adherence, patient activation and support.¹¹

Objective

The primary objective of this study is to analyze the impact of the physician-patient relationship on the outcomes of hypertension treatment. The secondary objective is to analyze the elements of interaction that contribute to establishing the quality of communication between physicians and hypertensive patients in Bosnia and Herzegovina.

Method

Study sample

The prospective, cohort study was conducted in eight family medicine practices in the Bosnia and Herzegovina.

Family physicians were divided in two groups. Group one (G1) consisted of four family physicians who recently completed additional training in the field of medical communication, randomly chosen from the course participants' list. Group two (G2) included four family physicians, who did not have any additional training in communication skill beside basic one during undergraduate studies and who were matched with G1 physicians according to the age, gender and years of experience.

The research team randomly selected 240 hypertensive patients from the Hypertension

Registries administered by family physician database, so each physician was accompanied by a group of thirty patients with hypertension registered with the practice. Patients were registered as patients with arterial hypertension if they had systolic blood pressure (SBP) ≥ 140 mmHg and diastolic blood pressure (DBP) ≥ 90 mmHg and/or were treated with antihypertensive agents. Patients with an established cardiovascular disease, renal failure and other comorbidities were excluded from the study.

Before the beginning of the study, all eight physicians completed two-day long course on screening, identifying and effectively managing patients with hypertension.

Additional training in communication skills description

Additional training in communication skills was designed to change specific aspects of the physician-patient relationship, such as conversational behavior or patient participation in the medical care process.

It included 72 hours of teaching about communication skills, divided into 12 courses, 4 to 6 hours long. Each course dealt with a different communication issues such as: the biopsychosocial approach to care, patient-centered medicine, medical encounter, verbal and non-verbal communication, managing difficult patients, inquiry into the patient's problems, how the questions should be asked, how to interpret/respond to possible alternative answers by the patient, how to identify and respond to psychosocial and emotional clues that may emerge during the consultation.

Measurement of physician-patient conversation

In order to assess the impact of additional training on physician's behavior, physician-patient relationship and patients' health status over the period of 12 months, patients in both groups were scheduled to see their physician every three months, and each visit was observed, analyzed and rated. The number of raters was four and they were educated about instruments and calibrated assessment to be used. To limit bias influencing assessment due to knowledge of assignment,

all raters were unaware of the aims of the study. Each rater followed-up two physicians, one from each group. The inter-rater reliability measurement was provided from time to time to assure that the raters aren't changing.

The coding scheme for conversation analysis between physician and patient consisted of total of 30 conversational codes. These codes were divided among three categories, control, communication and affect. The scheme was derived from Bales Interaction Analysis.¹² Indicators of the style of physician-patient conversation taken from the basic codes in this scheme included information exchange, positive and negative affects expressed by physician and patients, physician's control and patient's control.

Measurement of treatment outcomes

The measures used to portray patient's health status and treatment outcomes included blood pressure levels and functional parameters. Data were collected at the first visit and after 12 months.

The average of three consecutive sitting systolic and diastolic blood pressures was used to measure hypertension control (office BP). Optimal outcomes were achieved with a target diastolic blood pressure of < 90 mmHg and target systolic blood pressure of <140 mmHg.¹³

To provide a comprehensive assessment of functioning in patients, modified Functional Status Questionnaire (mFSQ) was used.¹⁴ It included questions on activities of daily living (ADL), instrumental activities of daily living (IADL), psychological function, work performance, social activity and quality of social interaction.

Measurement of patient compliance and satisfaction

Patient compliance was determined for each of four dimensions: diet, physical activity, medication and regular check-ups. Responses were scored on a 5-point scale which ranged from "never" to "always". A single score was developed for overall compliance by taking the individual scores. Those who followed all instructions per dimension were considered highly compliant, while those who followed little or none were noncompliant.

Patient satisfaction was measured using a self-designed, 12-item scale assessing four different dimensions of patient's satisfaction with the health care process: satisfaction with care, treatment outcome, physician's personal characteristics and involvement in decision-making.

Satisfaction with care and physician was related to the process of medical intervention, while satisfaction with the outcome and involvement in decision-making focused on the results of the intervention. The items were scored and defined a scale ranging from 12 to 60.

Data collection took place from the 17th of March 2013 to the 17th of March 2014.

The study was conducted in accordance with the 1964 World Medical Association Declaration of Helsinki. The informed consent to participate in the study was obtained by all participants.

Statistical analysis

All multi-item scales, including the derived indicators of doctor-patient conversation, were tested for internal consistency reliability using Cronbach's alpha formula and were shown to be good (alpha >0.87) for group comparison. The chi-square test was used to compare conversational behavior between two groups. Mean levels of systolic and diastolic blood pressure and mean scores on the measures of functional status, patient compliance and patient satisfaction were determined for both groups. Analysis of variance (ANOVA) was used to examine difference between two groups for baseline and follow-up measures of all four health outcomes. To assess the impact of the doctor-patient conversation on patients' health outcomes Pearson product-moment correlations were calculated. The P values of less than 0.05 were considered as statistically significant. Statistical analyses were carried out using SPSS 20 (SPSS Inc., Chicago, IL, USA).

Results

The study included 240 adult hypertensive patients, selected in 8 family medicine practices. Table 1. presents sociodemographic characteristics and duration of physician-patient relationship. Majority of patients in both groups were registered with their family practitioners for less than two years.

Table 1. Patients' socio-demographic characteristics

Characteristics	Group 1	Group 2	p
Age Mean age, Y(SD)	48.6 (7.8)	47.3 (6.4)	0.061
Gender, % Male gender	55.83	51.26	0.517
Education, % High school graduate, % University graduate, %	51 49	43 57	0.257
Married, %	66	57	0.245
Employment, % Employed	84.7	81.2	0.329
Duration of physician-patient relationship, % < 2 years	72	76	0.463
Mean number of pills per day (SD)	3 (1.5)	3 (1.5)	0.127

χ^2 tests were used to compare frequencies between the groups.
p-value <0.05 is considered significant

Statistically significant differences were found between two groups of physicians in all 12 categories of Bales Interaction Analysis. Physicians from G1 were showing more empathy and solidarity ($p=0.003$), humor ($p=0.003$), understanding ($p<0.001$) and interest for patient background ($p<0.001$), compared to G2 physicians. Also, they were less controlling ($p<0.001$), gave more topic related ($p=0.003$) and personal information ($p=0.002$) as well as showed more emotion ($p=0.002$). Physicians from G2 disagreed with their patients more and showed more antagonism and tension ($p<0.001$) (Table 2).

Table 2. Differences between two groups of physicians in categories of Bales' Interaction Process Analysis (N=240)

Category	Element	G1	G2	p
		N	N	
1	Show solidarity, raises other's status, gives help, reward	96	28	0.003
2	Show tension release, jokes, laughs, shows satisfaction	83	41	0.003
3	Agrees, shows passive acceptance, understands, concurs, complies	74	28	< 0.001
4	Gives suggestion, direction, implying autonomy for other	95	26	< 0.001
5	Give opinion, evaluation, repeats, analysis, express emotion, wish	82	53	0.002
6	Gives orientation, information, repeats, clarifies, confirms	79	25	< 0.001
6.1	Gives personal information	69	24	0.002
6.2	Gives topic-related information	92	39	0.003
6.3	Gives technical information	95	63	< 0.001
7	Asks for background, information, repetition, confirmation	112	75	< 0.001
7.1	Asks technical information	114	56	< 0.001
7.2	Asks topic-related information	107	64	< 0.001
8	Asks for opinion, evaluation, analysis, expression of feelings	96	28	< 0.001
9	Asks for suggestion, direction, possible ways of addiction	96	28	< 0.001
10	Disagrees, show passive rejection, formality, withhold help	40	100	< 0.001
11	Shows tension, asks for help, withdraws out of field	40	100	< 0.001
12	Shows antagonism, deflates other's status, defends or assert self	40	100	< 0.001

χ^2 test was used to compare frequencies between the groups.
 p-value <0.05 is considered significant

Table 3 shows the changes in the mean values of the health outcomes between both groups of patients after 12 months. Substantial differences favoring the G1 over the G2 were observed. The difference in systolic ($p<0.001$) and diastolic ($p<0.001$) blood pressure levels at follow-up was statistically significant. The mean systolic blood pressure level of the patients treated by physicians which belonged to G1 decreased from 155.25 mmHg to 137.16 mmHg and diastolic from 94.20 mmHg to 79.3 mmHg. The reduction of median BP level was also clinically significant as SBP reduced to 18.09 mmHg (standard ≥ 10 mmHg) and DBP 14.9 mmHg (standard ≥ 5 mmHg). The follow-up mean levels of the G2 also changed from baseline, but the change was not clinically significant (SBP reduction was 4.35 mmHg, DBP reduction was 3.67 mmHg).

At follow-up, the mean scores of ADL had statistically significant increase in G1 ($p=0.008$), from 87.67 points at baseline to 94.38 at follow up, while G2 patients rated their functional status as somewhat worse (85.93). Similar results were found in mean scores of IADL at baseline and at follow up ($p=0.006$) (Table 3)

Table 3. Comparisons of treatment outcomes in two examined groups of patients at baseline and at follow-up.

Patient's health outcome ^a	Group 1	Group 2	p ^b	p ^c
Systolic pressure Baseline At follow up	155.25 (± 13.45) 137.16 (± 6.39)	153.92 (± 13.11) 149.67 (± 12.46)	< 0.001	0.005
Diastolic pressure Baseline At follow up	94.20 (± 10.6) 79.3 (± 6.85)	92.43 (± 10.82) 88.76 (± 6.85)	< 0.001	0.008
Activity of daily living Baseline At follow up	87.67 (± 11.14) 94.38 (± 5.91)	87.82 (± 8.46) 85.93 (± 9.5)	0.008	0.005
Instrumental activity Baseline At follow up	83.21 (± 14.98) 94.91 (± 5.8)	83.82 (± 13.67) 88.5 (± 12.64)	0.006	< 0.001
Psychological function Baseline At follow up	85.37 (± 14.91) 91.31 (± 10.73)	89.19 (± 12.94) 88.91 (± 13.10)	< 0.001	< 0.001
Work performance Baseline At follow up	87.07 (± 11.5) 93.93 (± 6.41)	84.51 (± 10.76) 82.17 (± 11.28)	0.003	0.002
Social activity Baseline At follow up	84.88 (± 13.72) 94.79 (± 9.55)	84.36 (± 10.88) 82.26 (± 11.84)	0.006	0.009

Quality of social interaction Baseline At follow up	83.05 (±14.45) 92.73(±11.66)	83.62 (±11.55) 81.18(±12.65)	< 0.001	0.003
Patient compliance Baseline At follow up	9.78(±4.02) 18.64(±5.11)	12.26(±4.17) 12.45(±4.74)	0.005	< 0.001
Patient satisfaction Baseline At follow up	44.37(±15.12) 57.03(±5.80)	51.83(±9.57) 51.21(±9.81)	< 0.001	0.002

One-way ANOVA was used to examine difference between two groups for baseline and follow-up measures

p-value <0.05 is considered significant

^aData presented are means with standard deviations in parentheses

^bStatistical difference between the groups

^cStatistical difference between baseline and follow up measurements within groups

The statistically significant difference was found between two groups of patients at follow up in psychological function ($p<0.001$), work performance ($p=0.003$), social activity ($p=0.006$) and quality of social interaction ($p<0.001$) (Table 3).

The mean score of the G1 after 12 months improved from the category of “moderate” to “high” ($p=0.005$), while the mean score of the G2 did not significantly change. The mean score of patient satisfaction of the G1 increased from 44.37 to 57.03 points at follow up ($p<0.001$), and the change in the mean score of the G2 was not significant (51.83 to 51.21).

Significant statistical differences between baseline and follow up measurements of SBP ($p=0.005$), DBP ($p=0.008$), ADL ($p=0.005$), IADL (<0.001), psychological function ($p<0.001$), work performance ($p=0.002$), patient compliance ($p<0.001$) and patients satisfaction ($p<0.002$) were also found within groups (Table 3).

There was a consistent relationship between conversational behavior and improvements in patients' health outcomes.

Patients who were more controlling, showed more emotions, particularly negative emotion, and improved their effectiveness in eliciting information from their physicians, showed improvements in functional status, patient compliance and satisfaction. Significant negative correlations were found between physician's negative affect and patient satisfaction ($r=-0.44$, $p<0.05$), compliance ($r=-0.26$, $p<0.05$), systolic blood pressure ($r=-0.39$, $p<0.05$), diastolic blood pressure ($r=-0.39$, $p<0.05$) and functional status ($r=-0.32$, $p<0.05$). Patients or physicians, who were less controlling, gave more information, obtained more information and showed more emotion had better blood pressure control at follow-up. Patients and physicians who spent proportionally more of their conversation in the affect-opinion exchange conversational pattern had improved all four health outcomes at follow-up (Table 4).

Table 4. Relationship of Physician-Patient Conversation to Changes in Treatment Outcomes (N=240)

Communi- cation Measure	Diastolic blood ¹ pressure <i>r</i>	Systolic blood ² pressure <i>r</i>	Functional limitations <i>r</i>	Patient compliance <i>r</i>	Patient satisfaction <i>r</i>
Physician control	0.37	0.39	0.34	0.32	0.29
Patient control	-0.15	-0.17	-0.25	-0.31	-0.22
Physician information giving	-0.29	-0.29	-0.17	0.01	0.03
Patient information giving	0.28	0.25	0.05	0.11	0.19
Physician-directed pattern	0.15	0.17	0.07	0.13	0.04
Patient-directed pattern	-0.14	-0.11	-0.21	-0.01	-0.17
Communication ratio	-0.26	-0.26	-0.28	-0.39	-0.46
Affect-opinion exchange pattern	-0.43	-0.43	-0.52	-0.56	-0.78
Effectiveness index	-0.47	-0.47	-0.47	-0.62	-0.58
Physician positive affect	0.07	0.07	0.21	0.05	0.16
Patient positive affect	-0.19	-0.19	-0.02	-0.23	-0.09
Physician negative affect	-0.51	-0.51	-0.42	-0.58	-0.62
Patient negative affect	-0.39	-0.39	-0.32	-0.26	-0.44

* P-value <0.05 is considered significant and bolded

Data in the table are Pearson product-moment correlations for differences between measures of physician-patient conversation and baseline and follow-up measures of health outcomes.

Discussion

Our findings show the importance of specific aspects of interaction between patients and physicians for patient's health outcomes. The patients who expressed more control in their interaction with physicians during office visits had

significant improvements in blood pressure control as well as with improvements in functional status, patient compliance and satisfaction. On the contrary, more control expressed by the physician was associated with poor blood pressure control and deterioration in functional status. This is consistent with other studies showing an impact of encounter on improvement in health status^{10,15-16}. Two of the earliest studies on relationships between characteristics of physician-patient communication and treatment outcomes found that diabetes patients who were more participatory in their visits subsequently had lower blood pressure 8 to 12 weeks after their consultations compared to more passive patients¹⁰. According to Orth et al., the patients of physicians who gave proportionally more information had lower blood pressure at 2 weeks subsequent to the visit compared to their counterparts¹⁷.

A possible explanation for these findings could be found in the fact that strict control exercised by the physicians during the consultation prevents the exchange of information and emotion, which proved to be very important for an accurate assessment of health status, particularly of its functional parts¹⁸. Stiles et al. have reported that the exchange of information, where the physician initiates discussion and requests opinion or endorsement of understanding, increases patient satisfaction, and improves the long-term outcomes of treatment¹⁹. The exchange of information and opinions constituted a foundation for the establishment of an effective therapeutic relationship between patients and physicians in G1. Through informing and giving the patient the ability to express their views, ideas, fears, troubles and expectations, physicians had a positive influence on the process of medical care, shaped the patient's feelings towards the disease or the ability to establish personal control over the process of treatment and care, and finally led to these improvements translated into better improved blood pressure control.

The relationship that was found in the current study, between the negative affect or emotion expressed in physician-patient conversation and the health outcomes, has been found in other studies as well^{10,15}. Patients who were more successful in engaging physician in negotiation may improve their usual relationship in ways consistent with a healthier attitude toward hypertension management. However, further research is needed to clarify the nature of the influence of emotion in the context of physician-patient relationship.

Patient compliance significantly improved in G1 at follow-up. The meta-analysis, conducted by Zolnieriek and DiMatteo, supports the prediction that patient compliance is significantly related to the communication of physicians, and that can be improved when physicians are trained to be better communicators²⁰. Physician's communication skills during encounter may be a central factor in achieving patient compliance because it improves the transmission of important clinical and psychosocial information, facilitates patient involvement in decision making, allows open discussion of

barriers to adherence, builds trust and offers patients verbal and nonverbal support and encouragement²¹.

A statistically significant difference in patient satisfaction was found between the groups at follow-up, which is consistent with other studies showing the impact of physician-patient relationship on patient satisfaction^{22,23}. The belief that the doctor really cares for the patient could be the most important moment in achieving satisfaction, as well as meeting the expectations of the patient during the encounter. However, patient satisfaction is a short-term outcome, depending not only on physician's but also on patient's and practice's characteristics and it has to be approached to as such²⁴.

Although this study showed that physician-patient relationship significantly affects treatment outcomes in patients with arterial hypertension, the pathways through which medical educators (especially in the field of general medicine) could identify specific communication elements that activate processes that can directly or indirectly contribute to improving a patient's health status need to be modeled and improved²⁵. The modeled pathways need to produce appropriate means for measuring communication variables.

This study has some limitations, however. First, the study did not analyze patient's knowledge of hypertension. Secondly, we used office blood pressure and did not analyze long-term treatment outcomes. Office blood pressure (oBP) does not necessarily predict ambulatory blood pressure (aBP) which is better indicator of cardiovascular strain and adverse outcome. The future studies are needed to explore other factors that could potentially influence physician-patient relationship such as practice organisation and health insurance politics.

Conclusion

Communication skills may have important implications for health outcomes, what emphasizes that training in communication should be carried out at all levels of medical education. Communication with patients can be improved by introducing interaction elements that are not exclusively related to the causes and characteristics of diseases, giving the relevant information, increasing the intelligibility of this information and showing more emotions during the encounter. It is necessary to define the boundaries of responsibility for care in the context of the physician-patient relationship and identify specific elements that must be preserved in order to maximize patient outcomes without compromising the quality of care.

Маја Н. Рачић¹, Сребренка Х. Кусмук¹,
Срђан Р. Машић¹, Недељка М. Ивковић²,
Ведрана Р. Јоксимовић¹, Јелена М. Матовић¹

¹Катедра за примарну здравствену заштиту и јавно
здравље, Медицински факултет, Универзитет у
Источном Сарајеву, Босна и Херцеговина

²Катедра за оралну рехабилитацију, Медицински
факултет, Универзитет у Источном Сарајеву,
Босна и Херцеговина

Утицај односа између лекара и болесника на исходе лечења артеријске хипертензије

Кључне ријечи:

породична медицина,
нега усмјерена ка болеснику,
артеријска хипертензија,
лечење, исходи

Сажетак

Циљ рада. Примарни циљ рада је анализирати утицај односа између лекара и болесника на исходе лечења хипертензије.

Метод. Студијом је обухваћено 8 лекара породичне медицине и 240 болесника оболелих од артеријске хипертензије, изабраних према специфичним критеријумима. Лекари су подељени у две групе. Групу 1 чинили су лекари са завршеном обуком из комуникологије, а групу 2 без обуке из медицинске комуникологије. Сваки лекар је пратио групу од 30 болесника са хипертензијом. Интеракција између лекара и болесника је процењивана примјеном *Bales*-ове анализе интеракцијског процеса. Током 12 месеци праћени су функционални параметри, вриједност крвног притиска, сарадња и задовољство болесника.

Резултати. Статистички значајне разлике између две групе лекара су пронађене у свих 12 категорија *Bales*-ове анализе интеракцијског процеса. Лекари из групе 1 су показивали више емпатије, хумора, разумевања, заинтересованости за пацијентово стање и њихово мишљење у поређењу са групом 2. Средња вредност систолног притиска код пацијената лечених од стране лекара групе 1 је смањена са 155.25 mmHg на 137.16 mmHg, а дијастолног са 94.20 mmHg на 79.3 mmHg. Статистички значајна побољшања радне способности, активности свакодневног живота, психичких функција, социјалних активности, сарадње и задовољства пацијента су такође пронађена у групи 1 након 12 месеци.

Закључак. Студија је показала да однос између лекара и пацијента значајно утиче на исходе лечења код пацијента са артеријском хипертензијом. Комуникација са пацијентом се може побољшати увођењем елемената интеракције који нису само повезани са узроцима и карактеристикама болести, давањем релевантних информација и повећањем разумљивости информација током сусрета са пацијентом.

References

Литература

1. Siljak S, Strkic D, Jandric LJ, et al. *Analysis of population health in Republic of Srpska, Bosnia and Herzegovina in 2013*. Banja Luka: Public Health Institute of Republic of Srpska; 2013.
2. van den Berg N, Meinke-Franze C, Fiss T. *Prevalence and determinants of controlled hypertension in a German population cohort*. BMC Public Health. 2013;13:594.
3. Lehmann A, Aslani P, Ahmed R, Celio J, Gauchet A, Bedouch P. *Assessing medication adherence: options to consider*. International Journal of Clinical Pharmacy. 2014; 36: 55-69.
4. Matsumura K, Arima H, Tominaga M, Ohtsubo T, Sasaguri T, Fujii K, et al. *Impact of antihypertensive medication adherence on blood pressure control in hypertension: the COMFORT study*. QJM. 2013; 106 :909-14.
5. Giroto E, de Andrade SM, Cabrera MA, Matsuo T. *Adherence to pharmacological and non pharmacological treatment for arterial hypertension and associated factors in primary care*. Cien Saude Colet. 2013; 18(6):1763-72.
6. Marshall I, Wolfe CD, McKeivitt C. *Lay perspectives on hypertension and drug adherence: systematic review of qualitative research*. BMJ. 2012; 345: e3953.
7. Wetzels GE, Nelemans P, Schouten JS, Prins MH. *Facts and fiction of poor compliance as a cause of inadequate blood pressure control: a systematic review*. J Hypertens. 2004; 22(10):1849-55.
8. Nelson MR, Reid CM, Ryan P, Willson K, Yelland L. *Self-reported adherence with medication and cardiovascular disease outcomes in the Second Australian National Blood Pressure Study (ANBP2)*. Med J Aust. 2006;185(9):487-9.
9. Kessler CS, Joudeh Y. *Evaluation and Treatment of Severe Asymptomatic Hypertension*. Am Fam Physician. 2010; 15;81:470-6.
10. Kaplan S, Greenfield S, Ware JE, Jr. *Assessing the effects of physician-patient interactions on the outcomes of chronic disease*. Med Care. 1989; 27: S110-S127.
11. Egniew TR. *The Art of Medicine: Seven Skills That Promote Mastery*. Fam Pract Manag. 2014; 21(4):25-30.
12. Bales RF. *Interaction Process Analysis: A Method for the Study of Small Groups*. Cambridge, MA: Addison-Wesley, 1951.
13. The Task Force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *2013 ESH/ESC Guidelines for the management of arterial hypertension*. European Heart Journal. 2013; 34: 2159-219.
14. Rubenstein LM, Voelker MD, Chrischilles EA, Glenn DC, Wallace RB, Rodnitzky RL. *The usefulness of the Functional Status Questionnaire and Medical Outcomes Study Short Form in Parkinson's disease research*. Qual Life Res. 1998; 7(4): 279-90.
15. Račić M, Kusmuk S, Kozomara LJ. *The impact of the doctor-patient relationship on the outcomes of diabetes mellitus type 2 treatment in primary health care*. Biomedicinska istraživanja. 2011; 2:47-55.
16. Manary MP, Boulding W, Staelin R, Glickman SW. *The Patient Experience and Health Outcomes*. N Engl J Med. 2013; 368:201-3.
17. Orth JE, Stiles WB, Scherwitz L, Hennrikus D, Vallbona C. *Patient exposition and provider explanation in routine interviews and hypertensive patients' blood pressure control*. Health Psychol. 1987; 6 : 29-42.
18. DiMatteo MR, Zolnier KB, Martin LR. *Improving patient adherence: a three-factor model to guide practice*. Health Psychology Review. 2012; 6:74-91.
19. Stiles WB, Putam S. *Verbal exchanges in medical interviews: Concepts and measurement*. Soc Sci Med. 1992; 35; 347-55.
20. Zolnier KB, DiMatteo M. *Physician Communication and Patient Adherence to Treatment: A Meta-analysis*. Med Care. 2009; 47:826-34.
21. Cousin G, Mast Schmid M, Roter DL, Hall JA. *Concordance between physician communication style and patient attitudes predicts patient satisfaction*. Patient Educ Couns. 2012; 87(2): 193-197.
22. Zyoud SH, Al-Jabi SW, Sweileh WM, Morisky DE. *Relationship of treatment satisfaction to medication adherence: findings from a cross-sectional survey among hypertensive patients in Palestine*. Health Qual Life Outcomes. 2013;11:191.
23. Bharmal M, Payne K, Atkinson MJ, Desrosiers MP, Morisky DE, Gemmen E. *Validation of an abbreviated Treatment Satisfaction Questionnaire for Medication (TSQM-9) among patients on antihypertensive medications*. Health Qual Life Outcomes. 2009;7:36.
24. Barbosa CD, Balp MM, Kulich K, Germain N, Rofail D. *A literature review to explore the link between treatment satisfaction and adherence, compliance, and persistence*. Patient Prefer Adherence. 2012;6:39-48.
25. Street LR. *How clinician-patient communication contributes to health improvement: Modeling pathways from talk to outcome*. Patient Educ Couns. 2013; 92(3): 286-91.

Primljen • Received: 04.01.2017.

Ispravljen • Corrected: 20.02.2017.

Prihvaćen • Accepted: 02.03.2017.