Shared Decision-Making and its Impact on Medication Adherence among Hypertensive Patients in Northern Saudi Arabia

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Abstract

Aim: To determine hypertensive patients' and primary healthcare physicians' attitudes toward shared decision-making, and to assess medication adherence among hypertensive patients.

Methods: Following an analytical cross-sectional design, the study included 66 primary healthcare physicians and 209 hypertensive patients attending chronic disease clinics in primary healthcare centers and hospitals in Al-Jouf Region, Saudi Arabia during the period from October 2020 to April 2021.

Results: Out of 209 patients, 145 (69.4%) were males, with mean age 58.0±12.1 years. Out of 66 physicians, 48 (72.7%) were residents or general practitioners and 18 (27.3%) were specialists or consultants. The mean score of medication adherence was 28.8±5.0, indicating good adherence. The mean shared decision-making (SDM) score was 25.3±8.8 for patients indicating medium level of perceived SDM, and for physicians 34.7±7.5, indicating good level of perceived SDM among physicians and a significantly less SDM among hypertensive patients. There was no significant correlation between SDM and adherence scores of sampled patients. SDM was significantly affected by age and educational level of patients (p=0.037 and p=0.012, respectively), and correlated significantly with patients' frequency of daily medication intake (p=0.009). Physicians' SDM is significantly lower among specialists and consultants (P=0.036).

Conclusions: Grade of medication adherence among hypertensive patients in Al-Jouf is good. However, the extent of their SDM is significantly less than that of physicians. Physicians' SDM is significantly lower among specialists and consultants, while SDM is significantly affected by age and educational level of hypertensive patients, in addition to the frequency of daily medication intake. Therefore, SDM should be increasingly encouraged among patients for all their healthcare choices.

Key words: Shared decision-making (SDM), Medication adherence, Hypertension, Saudi Arabia.

Introduction

Shared decision-making (SDM) is defined as the process developed to promote attitude toward therapeutic choices and achieving good adherence/compliance to the treatment plan (1). Patients' choice and satisfaction level can be assessed in multiple methods. Currently, there is an observed growing interest in SDM, where it represents a transfer from paternalism (depending on the physician in all sessions) to a more collaborative pattern of health care (more equal physician-patient relationship) (2). SDM builds on three principles, i.e., having information interchange between the patient and theirhis physician, choosing diagnostic and therapeutic choices, and achieving an agreement (3-7).

It has been found that the main reason for patients' dissatisfaction is being not sufficiently informed about their health problems and treatment options. A survey done in eight European countries revealed that the majority of the patients wanted to have more information about their health situation to assist them in their participation in the decision-making process, even with the diversity of their assumptions regarding their involvement in the process. However, participant patients preferred the paternalism pattern more in Spain and Poland than in Switzerland and Germany. Moreover, younger patients were more likely to prefer patient-based communications and decision-making than older patientones. However, SDM remains a big challenge facing physicians, with little evidence on its influence, even with the huge efforts done to encourage its use. (8).

The Saudi Commission for Health Specialties in its curriculum for Family Medicine training program encourages SDM in several positions, including communication skills and calls for the adoption of this doctrine in models of health care. However, since there is no national study regarding the utilization of SDM and its impact on medication compliance, we conducted this study aiming to determine hypertensive patients' and primary healthcare physicians' attitudes toward shared decision-making, and to assess medication adherence among hypertensive patients.

Materials and Methods

The present study followed an analytical cross-sectional design. The study populations comprised healthcare physicians working within Al-Jouf Health Directorate and hypertensive patients attending 16 chronic disease clinics at primary healthcare centers and hospitals in Al-Jouf Region, Saudi Arabia. The study was conducted during the period from October 2020 until April 2021.

The sample size was calculated according to Dahiru et al. (9); assuming that 50% of patients prefer SDM, 95% confidence level, and 7% margin of error, the estimated minimum sample size was 196 patients. Based on a one-to-four ratio of physicians-to-patients yielded a sample size of 66 for treating physicians. A simple random sampling technique was followed to fulfill the necessary sample size.

Inclusion Criterion:
The study included healthcare physicians working at primary health care centers or secondary care hospitals in Al-Jouf Region for at least one year. The study also included patients with the diagnosis of hypertension since at least one year and receiving their pharmacotherapy from the Chronic Diseases Clinics in primary health care centers or secondary hospitals in the Al-Jouf Region.

Data collection tool and procedure:
The study protocol was approved by the local Ethical Review Committee of Qurayat Region (Reg No: H-13-S-071). We started data collection after obtaining the ethical clearance and the approval from the Directorate of Health Affairs in Al-Jouf. The study was completely self-funded by the researchers, and there was no conflict of interests.

The data collection tools included the following questionnaires:
1. The 9-item Shared Decision-Making Questionnaire (SDM-Q-9, physician and patient versions) (10): This questionnaire consists of 9 statements, which are rated on a 6-point scale from "completely disagree" (0) to "completely agree" (5). Summing up all items leads to a raw total score between 0 and 45. The SDM-Q-9 is a reliable, brief and well accepted instrument. Facing the increasing interest in patient involvement in clinical decision making, the instrument may be used as a quality indicator in quality assurance programs and health services research. All items showed an acceptance above 80%, and corrected item-total correlations between 0.685 and 0.826. Internal consistency yielded a Cronbach's α of 0.938.
2. The Arabic version of General Medication Adherence Scale (11): The Arabic version achieved all required statistical parameters and was validated in Saudi patients with chronic diseases. It is an 11-item self-reporting adherence measure. Each item has 4 outcomes and awards an adherence score. The total score that could be achieved is 33. Sum of all items yields a final score that is interpreted in various levels of adherence; high (30–33), good (27–29), partial (17–26), low (11–16), and poor (<10). It has 78.16% sensitivity, 76.85% specificity and the accuracy of the tool is 77.66% (12).

Before distributing the questionnaires sheets at the study settings, participants fulfilling the inclusion criteria were greeted by the research team and were clearly informed about the objectives of the study. Then, they were assured that, in case they accept to participate in the study, their responses would be completely anonymous, their participation is optional, they can discontinue their participation whenever they want, and they can refuse to respond to any question without resulting in a breach of their right or loss of any benefit provided through the health facility. Moreover, the research team ensured that collected data would be treated confidentially and will not be used for any other purposes other than achieving the objectives of this research.

Data Analysis:
Collected data were entered and analyzed using the Statistical Package for Social Sciences (IBM, SPSS version 25). Descriptive statistics were presented as frequencies and percentages for qualitative data, or as means and standard deviations for quantitative variables. The appropriate tests of significance were applied (i.e., independent samples t-test, Pearson's correlation, and Regression analysis). P-values less than 0.05 were considered as statistically significant.

Results

Table (1) shows that, out of 209 hypertensive patients, 145 (69.4%) were males. Patients' mean age was 58.0±12.1 years. Most patients (87.6%) were Saudi. The mean duration since diagnosis of hypertension was 8.4±6.4 years. Most patients (89%) were married, 44% were school educated, while 28.7% were university educated. About one-quarter of patients (25.8%) were employed, and 20.1% were not employed, while 22% were smokers. About three-quarters of patients (74.6%) had associated comorbidities, other than hypertension. The mean duration since diagnosis of hypertension was 8.4±6.4 years. More than half of patients (57.9%) take on daily anti-hypertension medication, 37.3% take two medications, while 4.8% take three medications or more. The dose of anti-hypertension daily medications is once among 68.9% of patients, while 30.1% take their medications twice, and only 1% take their medications three times or more.

Figure (1) shows that most patients (56%) had high medication adherence, 11.5% had good medication adherence, 29.7% had partial medication adherence, while 2.9% had low medication adherence.

Table (2) shows that the overall mean score of medication adherence was 28.8±5.0, with 15.4±3.1 attributed their behavior as related to non-adherence, 7.7±1.7 attributed it to additional disease and pill burden, and 5.6±0.9 attributed to cost related non-adherence.

Table (3) shows that 72.7% of physicians were residents or general practitioners, while 27.3% were specialists or consultants. The specialty of most physicians was Family Medicine (77.3%), 13.6% were general practitioners, while other specialties constituted 9.1%. Place of work of 43.9% was Al-Jouf City, while 31.8% of physicians worked in Sakaka City, and 24.2% worked in Dawmat Al-Jandal City.

Table (4) shows that patients' shared decision-making mean score was significantly lower than that of primary care physicians (25.3±8.8 vs. 34.7±7.5, respectively, p<0.001).

Table (5) shows that physicians' shared decision-making mean scores were significantly higher among residents/ general practitioners than specialist/consultants (35.9±5.1 vs. 31.6±11.3, respectively, p=0.036). However, their shared decision-making scores did not differ significantly according to their specialty or place of work.

Table (6) shows a significant correlation between shared decision-making scores and frequency of daily medication intake (p=0.009), while the correlation with medication adherence scores, number of received medications, and time since diagnosis of hypertension were not statistically significant.

Table (7) shows that patients' shared decision-making is significantly affected by their age (p=0.037) and their educational status (p=0.012).

Table 1: Personal characteristics of participant hypertensive patients (n=209)

Personal characteristics	No.	%
Gender		
• Male	145	69.4
• Female	64	30.6
Age (Mean±SD)	58.0±12.1 years	
Nationality		
• Saudi	183	87.6
• Non-Saudi	26	12.4
Marital status		
• Single	2	1.0
• Married	186	89.0
• Divorced/widow	21	10.0
Educational status		
• Illiterate	57	27.3
• School level	92	44.0
• University graduate	60	28.7
Employment status		
• Unemployed/housewife	42	20.1
• Employed	54	25.8
• Retired	76	36.4
• Others	37	17.7
Current smoking status		
• Non-smoker	163	78.0
• Smoker	46	22.0
Associated comorbidity	156	74.6
Duration since diagnosis of hypertension (Mean±SD)	8.4±6.4 years	
No. of daily received anti-hypertension medications		
• 1	121	57.9
• 2	78	37.3
• 3+	10	4.8
Daily dose of anti-hypertension medications		
• Once	144	68.9
• Twice	63	30.1
• Three times or more	2	1.0

Figure 1: Patients' grades of medication adherence
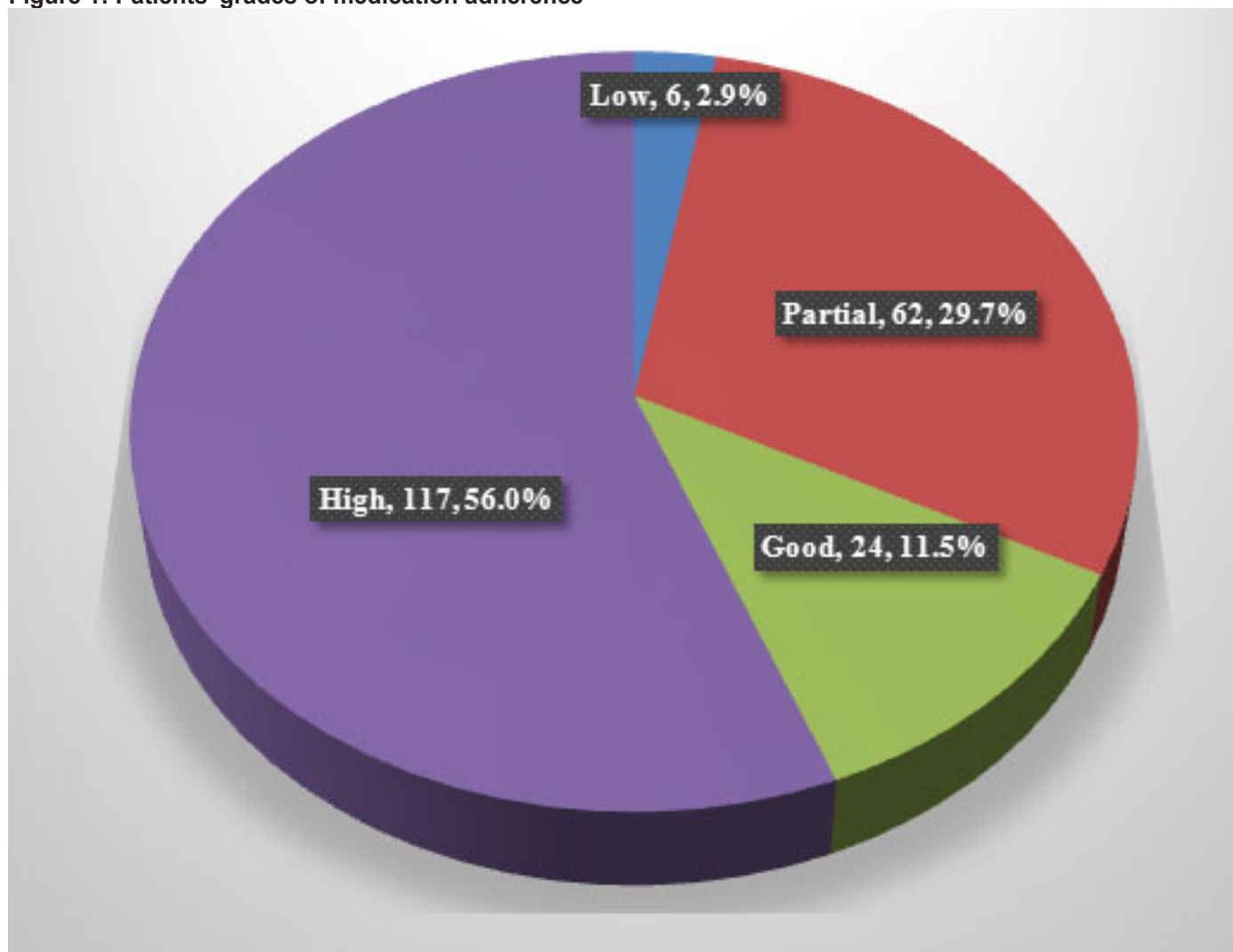
Table 2: Patients' mean scores for medication adherence (n=209)

Medication Adherence Items	Mean	SD
Patient's behavior related non-adherence	15.4	3.1
Additional disease and pill burden	7.7	1.7
Cost related non-adherence	5.6	0.9
Overall medication adherence	28.8	5.0

Table 3: Characteristics of participant physicians (n=66)

Characteristics	No.	%
Position		
• Resident/General practitioner	48	72.7
• Specialist/Consultant	18	27.3
Specialty		
• Family Medicine	51	77.3
• General practice	9	13.6
• Others	6	9.1
Place of work		
• Al-Jouf City	29	43.9
• Sakaka City	21	31.8
• Dawmat Al-Jandal City	16	24.2
Shared decision-making score (Mean±SD)	34.7±7.5	

Table 4: Comparison between hypertensive patients' and primary care physicians' shared decision-making mean scores

Participants	No.	Mean	SD
Patients' shared decision-making score	209	25.3	8.8
Physicians' shared decision-making score	66	34.7	7.5
t-value	7.82		
P-value	<0.001†		

† Statistically significant

Table 5: Physicians' shared decision-making mean scores according to their characteristics

Characteristics	No.	Mean	SD	P-value
Position				
• Resident/General practitioner	48	35.9	5.1	
• Specialist/Consultant	18	31.6	11.3	0.036†
Specialty				
• Family Medicine	51	35.0	7.5	
• General practice	9	35.3	7.2	
• Others	6	31.7	8.2	0.091
Place of work				
• Al-Jouf City	29	33.6	9.2	
• Sakaka City	21	36.0	5.1	
• Dawmat Al-Jandal City	16	35.3	6.7	0.507

† Statistically significant

Table 6: Correlations between shared-decision making and adherence scores of sampled patients (n=209)

Variables	r	p-value
Overall medication adherence score	0.089	0.202
Number of received medications	0.062	0.374
Frequency of daily medication intake	0.181	0.009*
Time since diagnosis of hypertension	-0.027	0.696

† Statistically significant

Table 7: Regression analysis for patients' shared decision making and their characteristics

Patients' Characteristics	Unstandardized Coefficients		Standardized Coefficients	T Value	P Value
	B	SE	Beta		
Age	-0.126	0.060	-0.174	-2.101	0.037*
Marital status	-0.901	1.070	-0.063	-0.842	0.401
Educational status	2.152	0.851	0.184	2.527	0.012*
Employment	-0.252	0.626	-0.029	-0.403	0.687
Smoking	1.755	1.460	0.083	1.202	0.231
Duration since diagnosis	0.170	0.106	0.123	1.607	0.110
General medication adherence scale	1.041	0.623	0.115	1.671	0.096
Constant	27.585	4.236	---	6.512	0.000

† Statistically significant

Discussion

This study aimed to determine hypertensive patients' and primary healthcare physicians' attitudes toward shared decision-making, and to assess medication adherence among hypertensive patients.

Findings of the present study revealed that hypertensive patients' SDM mean score was significantly lower than that of their physicians (25.3±8.8 vs. 34.7±7.5, respectively, p<0.001). This indicates that our patients tend to prefer the paternalistic SDM, although their physicians have higher preference toward SDM. Moreover, physicians' SDM was significantly less among specialists and consultants.

Coulter et al. (3) stated that, in patient centered medical practice, one of the most important and vital components is the effective and dynamic communication between health professionals and their patients. Therefore, SDM has been developed to minimize the doubt in the medical community about the most suitable way of treatment for some cases. Globally, this was joined by the growing trend on patient-centered care, leading to the belief that patient's preferences, not physician's preferences, should determine disease management.

Johnson et al. (13) added that SDM and creating a management and treatment alliance for more harmony raise the engagement of the patients in healthcare decisions and permit a communication and open exchange between the physician and the patient. Regardless of the evolutionary varieties, the pattern characterized for reaching harmony in consultations is the same as the one that has been characterized for SDM.

Schoenthaler et al. (14) noted that healthcare professionals and patients should have equal partnership, and share their information, knowledge and experiences with each other so that comprehension and realization can be achieved, and a decision about management and treatment of the disease can be made.

It has been noted that, compared with cancer, the literature on SDM in hypertension is more inadequate. This may be due to the fact that hypertension treatment is active and regularly contains a series of decisions made over months or years (i.e., a long time), whereas some cancer-related decisions are disconnected and made within weeks or months (i.e., a short time) (15-16).

Olomu et al. (17) assessed the effect of SDM intervention on controlling blood pressure among 243 patients selected from two federally qualified health centers in Michigan, USA. They found that controlling blood pressure was greater at six months for patients in the intervention group compared with the control group.

The current study showed a significant correlation between SDM and frequency of daily medication intake, but there was non-significant correlation between patients' overall adherence scores and SDM scores. Moreover, results of the present study revealed significant impact of patients' older age and higher educational status on SDM. These findings reflect less SDM among younger and less educated hypertensive patients.

Similar results were reported by Mead et al. (15), who noted that SDM comprises two techniques to provide information (medical and personal) between the physician and the patient regarding all the available choices. Therefore, older and well-educated patients are expected to show higher SDM. Generally, less SDM was reported by these groups of patients during consultations.

The current study had some limitations, including the subjective nature of the study, and the limited geographical setting, covering only three cities in one region. In addition, the followed cross-sectional study design is only good for hypothesis generation, rather than hypothesis testing. All these points limit the generalizability of our results to the whole Saudi community.

Conclusions

Grade of medication adherence among hypertensive patients in Al-Jouf is good. However, the extent of their shared decision-making is significantly less than that of their primary healthcare physicians. Physicians' SDM is significantly lower among specialists and consultants, while SDM is significantly affected by age and educational level of hypertensive patients, in addition to the frequency of daily medication intake. Therefore, SDM should be increasingly encouraged among patients for all their healthcare choices.

Further nationwide studies, in regions other than Al-Jouf, on the assessment of the impact of SDM on medications adherence and associated factors need to be conducted. Also, the Saudi Ministry of Health should organize public awareness campaigns on SDM.

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