Original article

Psychometric properties of the Vietnamese SDM-Q-9 for measuring patient-perceived shared decision-making in primary care

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Abstract

Background: Shared decision-making (SDM) is a core component of patient-centred chronic disease care, yet little is known about how to measure patient-perceived SDM in Vietnamese primary care. This study evaluated the psychometric properties of the Vietnamese version of the 9-item Shared Decision-Making Questionnaire (SDM-Q-9) among adults with chronic diseases.

Methods: A cross-sectional survey was conducted among patients receiving ongoing care for chronic conditions at the Family Medicine Centre, Hue University of Medicine and Pharmacy, in 2025. The SDM-Q-9 was translated and culturally adapted using forward-backwards translation and cognitive debriefing. Internal consistency was assessed using Cronbach's alpha and corrected item-total correlations. Structural validity was examined using confirmatory factor analysis (CFA). Construct validity was evaluated through known-group analyses based on clinical characteristics and patient-reported experiences of consultation.

Results: The Vietnamese SDM-Q-9 showed good internal consistency (Cronbach's alpha = 0.81); corrected item–total correlations ranged from 0.30 to 0.68, and removing any item did not improve alpha. Early-stage SDM items showed lower factor loadings (0.32) and floor effects, whereas later-stage items demonstrated higher loadings (≥ 0.63) and ceiling effects. The CFA showed a poor fit for the original one-factor model (χ^2/df = 10.67, RMSEA = 0.22, CFI = 0.63), and alternative models showed partial improvement (with the highest CFI of 0.73), but did not meet the conventional criteria. SDM-Q-9 scores differed by consultation-related experiences (all $p < 0.01$) but not by disease duration, disease control, or medication adherence (all $p > 0.05$).

Conclusions: The Vietnamese SDM-Q-9 demonstrates acceptable reliability and construct validity for assessing patient-perceived SDM in chronic disease management in primary care. The findings support retaining all nine items to preserve conceptual completeness and international comparability. Further validation in larger and more diverse samples is warranted to strengthen evidence for its broader application in research, education, and quality improvement.

Keywords: *Shared decision-making; SDM-Q-9; psychometric validation; primary care; chronic disease management.*

1. INTRODUCTION

Shared decision-making (SDM) has emerged as a fundamental pillar of patient-centred care and is increasingly recognised as a quality standard in healthcare systems worldwide [1]. It represents a collaborative process in which patients and clinicians jointly explore treatment options, discuss patients' goals and preferences, and reach mutually agreed decisions about care plans. The practical implementation of SDM has been associated with improved patient self-efficacy, greater treatment adherence, higher satisfaction with care, and ultimately, better long-term health outcomes [2].

Primary care represents an ideal setting for SDM due to its characteristics of ongoing relationships between patients and providers, as well as frequent decisions about preventive care, medication adjustments, and self-management strategies [2-4]. Despite increasing global attention, most SDM research comes from high-income countries, and its real-world implementation remains limited [5]. Common barriers include short examination time, differences in understanding and status between doctors and patients, lack of communication and SDM skills in medical staff, as well as socio-cultural factors that make patients tend to "entrust" decisions to doctors [4, 5].

In Vietnam, the rapid epidemiological transition

toward non-communicable chronic diseases, such as hypertension and diabetes, has placed increasing demands on primary care systems to deliver patient-centred chronic care. However, a recent multi-site cross-sectional study of patients with chronic conditions in primary care settings reported low scores for goal-setting and follow-up coordination, which are domains conceptually linked with shared decision-making, suggesting critical gaps in the implementation of patient-centred chronic illness care [6].

Numerous instruments have been developed to quantify the extent to which SDM occurs during clinical encounters. Among these, the 9-item Shared Decision-Making Questionnaire (SDM-Q-9) is a brief patient-reported measure designed to assess patients' perceptions of the SDM process in medical consultations. The SDM-Q-9 was initially developed and psychometrically tested in a German primary care setting, demonstrating high internal consistency and a unidimensional factor structure [7]. However, its validity and reliability have not yet been established in Vietnamese primary care populations.

To address this gap, the present study aimed to evaluate the psychometric properties of the Vietnamese version of the SDM-Q-9 in patients with chronic diseases attending primary care services. Specifically, we assessed its internal consistency, factorial structure, and construct validity to determine whether it is a reliable and valid measure of patient-perceived SDM in chronic disease management in the Vietnamese primary care context.

2. MATERIALS AND METHODS

2.1. Study design and setting

A cross-sectional study was conducted at the Family Medicine Clinic of Hue University of Medicine and Pharmacy, Vietnam. Data were collected between July and December 2025.

2.2. Study population

Eligible participants were adult patients (≥18 years) attending outpatient consultations who had been diagnosed with hypertension and/or type 2 diabetes mellitus (T2DM) and were receiving ongoing pharmacological treatment. All participants were clinically stable and able to complete the questionnaire independently.

Patients were excluded if they had severe or unstable comorbid conditions, cognitive or communication impairments, incomplete SDM-Q-9 responses, were not required to adhere to medication treatment, or declined participation.

The minimum sample size was calculated using a standard formula for estimating a mean, assuming a 95% confidence level, an estimated standard deviation of 68.38 based on previous research [3], and an absolute precision of 3. The required sample size was 205 consultations.

2.3. Instrument and procedures

The 9-item Shared Decision-Making Questionnaire (SDM-Q-9) measures patients' perceived participation in clinical decision-making during a medical encounter. Each of its nine items is rated on a 6-point Likert scale (0 = completely disagree to 5 = completely agree), yielding a total raw score ranging from 0 to 45. For comparability with previous studies, raw SDM-Q-9 total scores were transformed to a 0-100 scale using the standard scoring procedure (raw score / 45) × 100, with higher scores representing higher levels of perceived shared decision-making [7].

The questionnaire was translated into Vietnamese using a forward-backwards translation process. A panel of family medicine experts reviewed discrepancies to ensure conceptual equivalence and contextual appropriateness. The final Vietnamese version was pilot-tested in a small group of patients before being used for data collection.

2.4. Statistical analysis

Descriptive statistics were used to summarise item distributions and total scores. Internal consistency was evaluated using Cronbach's alpha (acceptable ≥0.70) and corrected item–total correlations (≥0.30). Structural validity was examined using confirmatory factor analysis (CFA). Following previous studies [8-12], four a priori-specified competing one-factor models were tested: the original 9-item model, models excluding Item 1 or Item 9, and a model excluding both Items 1 and 9. Consistent with prior research, the original 9-item model was retained, as Items 1 and 9 represent theoretically essential components of the shared decision-making process. Model fit was evaluated using CFI > 0.9 and RMSEA < 0.08. Construct validity was assessed using known-group validity analyses by comparing transformed SDM-Q-9 total scores across predefined patient subgroups based on disease duration, disease control status, medication adherence (MARS-5), and patient-reported satisfaction with the consultation (time, physician understanding, physician communication and care). Statistical analyses were performed using SPSS and AMOS.

2.5. Ethical statement

All sections of the study were conducted in accordance with the guidelines outlined in the Declaration of Helsinki. The Ethical Committee in Biomedical Research of Hue University of Medicine and Pharmacy, Hue University, Vietnam, approved all

procedures (Grant No. H2025/577, issued on June 20, 2025). All participants provided written informed consent before participation.

3. RESULTS

Among the 205 participants, the majority were aged 60 years or older (65.4%) and female (60.5%) (Table 1). Half of the sample had both hypertension and diabetes (50.2%). Disease duration was ≤5 years in 55.6% of patients, and most had poorly-controlled disease (77.6%). Good medication adherence was observed in 65.9% of participants.

Table 1. Patients' characteristics (n = 205)

Characteristics		n	%
Age (years)	< 60	71	34.6
	≥ 60	134	65.4
Gender	Male	81	39.5
	Female	124	60.5
Chronic condition	Hypertension only	68	33.2
	Diabetes only	34	16.6
	Both hypertension and diabetes	103	50.2
Duration of disease (years)	≤ 5	114	55.6
	> 5	91	44.4
Disease control status	Poorly controlled	159	77.6
	Well controlled	46	22.4
Medication adherence (MARS-5)	Poor adherence (<24)	70	34.1
	Good adherence (≥24)	135	65.9

The SDM-Q-9 demonstrated good internal consistency, with a Cronbach's alpha of 0.81. Item-level analysis showed acceptable corrected item-total correlations, ranging from 0.30 to 0.68 (Table 2). Notable floor effects (> 20%) were observed for Items 1, 3, and 4, whereas ceiling effects were evident for Items 5 and 9. Deletion of any individual item did not result in a meaningful improvement in Cronbach's alpha.

Table 2. Item-level descriptive statistics and distributional properties of the SDM-Q-9

SDM-Q-9 Items	Mean (SD)	Median	Floor effect n (%)	Ceiling effect n (%)	Corrected item-total correlation	Cronbach's alpha if item deleted
SDM_1. My doctor made clear that a decision needs to be made	1.92 (1.7)	2.0	61 (29.8)	16 (7.8)	0.3	0.81
SDM_2. My doctor wanted to know exactly how I want to be involved	2.79 (1.6)	3.0	20 (9.8)	31 (15.1)	0.52	0.78
SDM_3. My doctor told me that there are different options for treating my condition	1.7 (1.7)	1.0	77 (37.6)	14 (6.8)	0.35	0.81
SDM_4. My doctor precisely explained the advantages and disadvantages of the treatment options	1.8 (1.7)	1.0	66 (32.2)	18 (8.8)	0.49	0.79
SDM_5. My doctor helped me understand all the information	3.6 (1.5)	4.0	6 (2.9)	75 (36.6)	0.47	0.79
SDM_6. My doctor asked me which treatment I prefer	2.75 (1.6)	3.0	24 (11.7)	28 (13.7)	0.64	0.77
SDM_7. My doctor and I weighed the different options thoroughly	2.62 (1.6)	3.0	28 (13.7)	25 (12.2)	0.68	0.76

SDM_8. My doctor and I selected a treatment option together	3.11 (1.6)	3.0	17 (8.3)	46 (22.4)	0.59	0.77
SDM_9. My doctor and I reached an agreement on how to proceed	3.75 (1.4)	4.0	6 (2.9)	81 (39.5)	0.47	0.79

Note: Item-level raw scores are reported.

The confirmatory factor analysis (CFA) results are presented in Table 3 and illustrated in Figure 1. The original one-factor model, including all nine items, demonstrated poor model fit (χ^2/df = 10.67, RMSEA = 0.22, CFI = 0.63, TLI = 0.50, PCLOSE < 0.001). Excluding Item 1 (SDM_1) alone did not result in any meaningful improvement in model fit.

In contrast, excluding Item 9 (SDM_9) resulted in the most notable improvement in overall model fit, with lower χ^2/df (8.52) and RMSEA (0.19), and higher CFI (0.71) and TLI (0.59) compared with the original model. The model excluding both Items 1 and 9 showed slightly higher incremental fit indices (CFI = 0.73, TLI = 0.60), although improvements in χ^2/df and RMSEA were less pronounced than those observed when excluding Item 9 alone.

Table 3. Confirmatory factor analysis results for the one-factor SDM-Q-9 model

Model	Specification	χ^2/df	RMSEA	CFI	TLI	PCLOSE
Model 1	All 9 items	10.67	0.22	0.63	0.5	< 0.001
Model 2	Excluding Item 1	12.28	0.23	0.65	0.51	< 0.001
Model 3	Excluding Item 9	8.52	0.19	0.71	0.59	< 0.001
Model 4	Excluding Items 1 & 9	9.91	0.21	0.73	0.6	< 0.001

Standardised factor loadings from the original nine-item model ranged from 0.32 to 0.78 (Figure 1). Items reflecting later stages of shared decision-making, such as weighing treatment options (SDM_7) and reaching a decision (SDM_9), showed higher loadings, whereas Items 1 and 3 demonstrated comparatively weaker loadings.

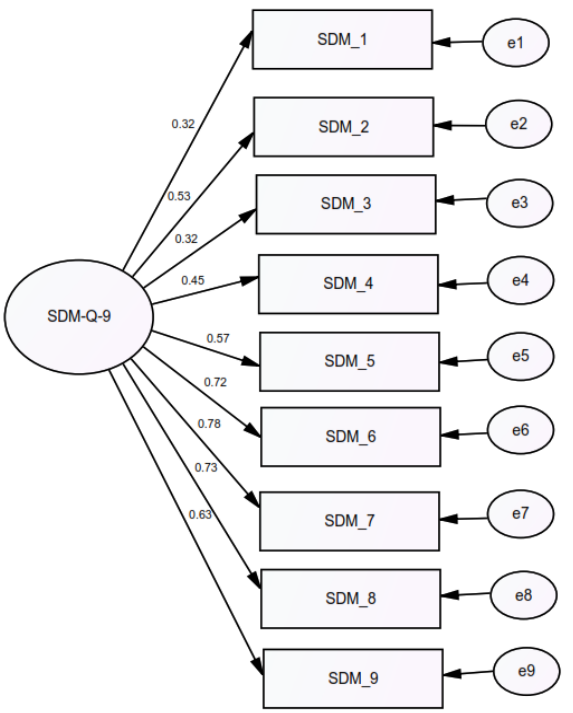

Figure 1. Confirmatory factor analysis (CFA) model of the SDM-Q-9

Table 4 indicates that SDM-Q-9 scores varied meaningfully according to patient-reported consultation experiences, but not according to clinical characteristics. Participants reporting higher consultation time adequacy had significantly higher SDM-Q-9 scores than those reporting low

adequacy (54.81 ± 20.2 vs 43.55 ± 14.5; t = 2.69, p = 0.008). Similarly, patients with a higher perceived understanding of their physician's context and needs reported substantially higher SDM-Q-9 scores compared with those with a lower perceived understanding (55.85 ± 19.5 vs 43.19 ± 18.5; t = 3.68, p < 0.001). Higher satisfaction with physician communication and care was also associated with significantly higher SDM-Q-9 scores (54.50 ± 19.9 vs 40.58 ± 14.5; t = 2.63, p = 0.009).

Table 4. Construct validity (known-group validity) of the SDM-Q-9

Subgroup comparison	n	SDM-Q-9 total score Mean (SD)	t-value	p-value
Disease duration				
≤ 5	114	53.26 (20.2)	0.15	0.88
> 5	91	53.67 (19.67)		
Disease control				
Poorly controlled	159	53.46 (20.0)	0.023	0.98
Well controlled	46	53.38 (19.8)		
Medication adherence				
Poor adherence	70	55.49 (19.69)	1.06	0.29
Good adherence	135	52.38 (20.0)		
Consultation time adequacy				
Low satisfaction	25	43.55 (14.5)	2.69	0.008
High satisfaction	180	54.81 (20.2)		
Physician understanding of patient context and needs				
Low satisfaction	39	43.19 (18.5)	3.68	<0.001
High satisfaction	166	55.85 (19.5)		
Satisfaction with physician communication and care				
Low satisfaction	15	40.58 (14.5)	2.63	0.009
High satisfaction	190	54.5 (19.9)		

Note: SDM-Q-9 total scores are presented on a 0-100 scale.

4. DISCUSSION

Reliability and overall performance of the Vietnamese SDM-Q-9

This study provides preliminary evidence that the Vietnamese SDM-Q-9 is a reliable and conceptually coherent instrument for assessing patient-perceived shared decision-making in chronic disease management at the primary care level. The total scale demonstrated good internal consistency (Cronbach's alpha = 0.81), with corrected item-total correlations ranging from 0.30 to 0.68. Removing any single item did not improve the alpha, supporting the retention of all nine items in the Vietnamese context. These findings are broadly consistent with previous studies reporting acceptable reliability of the SDM-Q-9 across different languages and clinical settings, including European and Asian contexts, where Cronbach's alpha values typically ranged from 0.83 to 0.93 [8, 9, 11-13]. Together, this body of evidence suggests that the SDM-Q-9 is a robust patient-reported measure that maintains internal coherence across diverse healthcare systems and cultural settings.

Item-level patterns and the sequential nature of shared decision-making

A key finding of this study is the systematic difference in psychometric performance between early and late SDM items. Items reflecting early stages of shared decision-making, such as clarifying that a decision needs to be made, showed lower item-total correlations, lower factor loadings, and pronounced floor effects. In contrast, items related to deliberation, weighing options, and reaching a decision together demonstrated higher factor loadings and ceiling effects. This pattern closely aligns with previous validation studies. In Spanish and other European psychometric analyses [9, 12, 13], early SDM items, particularly those capturing the initiation of the decision-making process, have repeatedly shown weaker integration into a one-

factor model, whereas later items tend to perform more strongly. Rather than indicating poor item quality, this recurring pattern across settings suggests that early SDM behaviours may be less explicit or less salient to patients, especially in primary care consultations where agenda-setting is often implicit and time-constrained.

From a conceptual perspective, these findings support an interpretation of SDM as a sequential and experience-based process, rather than a set of equally observable behaviours. Patients appear more able to recognise and evaluate concrete elements of decision-making, such as discussing options and agreeing on a plan, than the initial framing of the choice. This interpretation aligns with established SDM models that emphasise distinct phases of the decision-making process and highlight the vulnerability of early phases to being overlooked in routine practice [2, 14].

Factor structure and known-group validity

Consistent with previous studies, the CFA results in this study indicated a suboptimal fit for the original one-factor 9-item model, and no alternative model fully satisfied the recommended fit criteria. Although excluding Item 9 yielded the most significant numerical improvement in fit indices, similar CFA challenges have been widely reported in the SDM-Q-9 literature. For example, in the Hindi validation study [11], although most items showed adequate factor loadings (0.51-0.76), the original 9-item model demonstrated poor fit, and acceptable fit was achieved only after excluding multiple items, including Items 1 and 9. In contrast, Arabic and Spanish validation studies [9, 15] reported acceptable model fit when Item 1 was retained, whereas the Dutch study identified the best-fitting models after excluding Item 9 [16].

Despite these variations, previous studies have consistently retained the original 9-item structure of the SDM-Q-9. This decision reflects conceptual considerations rather than relying solely on statistical fit. Items that adversely affect model fit capture theoretically essential stages of the shared decision-making process. Item 1 reflects the initiation of choice awareness, whereas Item 9 represents the perception that a decision was ultimately made together. Excluding such items to optimise CFA indices would risk narrowing the conceptual scope of shared decision-making and overemphasising intermediate stages of the process.

In terms of known-group validity, SDM-Q-9 scores differed significantly according to consultation-related experiences, including perceived adequacy of consultation time, physician understanding of the patient's context, and satisfaction with communication; however, this difference was not observed in clinical characteristics such as disease duration, disease control, or medication adherence. This finding should be viewed in the context of primary care, where most patients in this study had relatively stable chronic conditions and limited clinical complexity; therefore, clinical characteristics may not vary enough to drive differences in perceived SDM, whereas the manner in which consultations are conducted becomes more influential. This pattern closely mirrors evidence from a scoping review by Keij et al. (2022) [17], which found that most patient-related demographic and clinical characteristics show weak or inconsistent associations with the occurrence of SDM. In contrast, relational and communicative factors are more strongly linked to patient-experienced shared decision-making.

Limitations and implications

Several limitations should be considered. The sample was drawn from a limited number of primary care facilities in one region and may not represent all Vietnamese primary care settings or other levels of care. The cross-sectional design and reliance on patient self-report immediately after a single consultation may introduce recall and social desirability biases, and do not allow for evaluation of predictive validity or responsiveness. Only patient perceptions were assessed; parallel use of SDM-Doc or observational measures would be valuable to examine concordance or discrepancies between patient and clinician views.

Despite these limitations, the study has several important implications. First, the Vietnamese SDM-Q-9 appears suitable for use in research and quality improvement initiatives as a process measure of patient-perceived SDM in chronic disease management, especially in primary care. Second, the observed item-level pattern indicates that interventions should prioritise strengthening the early phases of SDM, explicitly signalling that a decision exists, presenting options, and eliciting preferences, rather than focusing solely on reaching agreement at the end of the visit, echoing recommendations from goal-oriented care and SDM implementation frameworks. Third, because SDM-Q-9 scores are more strongly associated with consultation experiences than with clinical characteristics in this primary care context, strategies to enhance shared decision-making should focus on relational and organisational factors, such as communication skills training for clinicians, structured consultation

approaches, adequate consultation time, and support for understanding patients' life context. Finally, shared decision-making should be embedded across all stages of primary care training for clinicians and other healthcare workers, and reinforced through patient education and empowerment. Future research should examine the responsiveness of the Vietnamese SDM-Q-9 to SDM-focused interventions and apply methods that better capture the stepwise nature of the SDM process.

5. CONCLUSION

This study provides preliminary evidence that the Vietnamese version of the SDM-Q-9 is a reliable and contextually appropriate instrument for assessing patient-perceived shared decision-making in primary care. Although confirmatory factor analysis did not fully support a strict one-factor structure, the observed pattern is consistent with the process-oriented nature of shared decision-making and findings from other language versions. Retaining all nine items preserves conceptual coverage and international comparability. Further studies with larger and more diverse samples are needed to strengthen validation and support broader application of the Vietnamese SDM-Q-9 in research, education, and quality improvement initiatives.

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