



Health-related quality of life in patients receiving oral anti-coagulants: A cross-sectional study  
Kannan Sridharan<sup>1</sup>, Rashed Al Banny<sup>2</sup>, Ali Mohamed Qader<sup>3</sup>, Aysha Ahmed<sup>2</sup>, Kawther Mohamed Qader<sup>4</sup>

<sup>1</sup>Departments of <sup>1</sup>Pharmacology & Therapeutics, College of Medicine and Medical Sciences, Arabian Gulf University, Manama, Kingdom of Bahrain.  
Departments of <sup>2</sup>Cardiology, Salmaniya medical complex, Ministry of Health; <sup>3</sup>College of Medicine and Medical Sciences, Arabian Gulf University and  
<sup>4</sup>Salmaniya medical complex, Ministry of Health, Manama, Kingdom of Bahrain.

**Background:**

- Oral anti-coagulants form the mainstay of long-term treatment for patients with thrombo-embolic disorders, of which vitamin k antagonists (VKAs) such as warfarin is the most used drug worldwide.
- A few studies have assessed the health-related quality of life (HrQoL) in patients receiving oral anticoagulants of which only one has employed the oral anticoagulant specific questionnaire [Perception of anticoagulant treatment (PACT)].
- No studies from the region assessing the quality of life amongst those receiving oral anticoagulants.

**Objective:** To evaluate the HrQoL in patients receiving either warfarin or dabigatran from the largest tertiary care hospital in the Kingdom of Bahrain.

**Methods:**

- IEC approval, written consent from study participants, and permission to translate and validate Arabic version of PACT questionnaire were obtained.
- Patients of either gender receiving either warfarin or dabigatran for any cardiac indications in the anticoagulation clinic of a tertiary care hospital for at least three months were recruited.
- Arabic version of PACT-2 questionnaire was administered to each study participant. Adherence to the oral anticoagulants was assessed using 8-item Morisky medication adherence scale.

Table 1. Demographic characteristics of the study participants (N=150).

Parameters		Warfarin (n=143)	Dabigatran (n=7)
Age (years) <sup>\$</sup>		64.1 (13.3)	69.3 (11.2)
Male: Female <sup>α</sup>		78:65	3:4
Indications for oral anti-coagulant therapy	Atrial fibrillation	141	7
	Pulmonary embolism	1	Nil
	Factor V deficiency	1	Nil
	Valvular heart disease	7	Nil
Concomitant diseases	IHD	31	Nil
	DM	66	2
	Hypertension	80	1
	Hypothyroidism/ Hyperthyroidism	8	Nil
Mean (SD) doses <sup>\$, @</sup>		33.9 (16.8)	232.9 (52.5)
PT-INR (n=130)	Mean (SD)	2.6 (0.8)	NA
	2-3	72 (55.4)	
	>3	30 (23.1)	
	<2	28 (21.5)	

\$-Represented in mean (SD); α-Represented in numbers (%); @-Weekly doses for warfarin and daily doses for dabigatran; NA-Not applicable; IHD-Ischemic heart disease; DM-Diabetes mellitus; IBD-Inherited blood disorders; CKD-Chronic kidney disease.

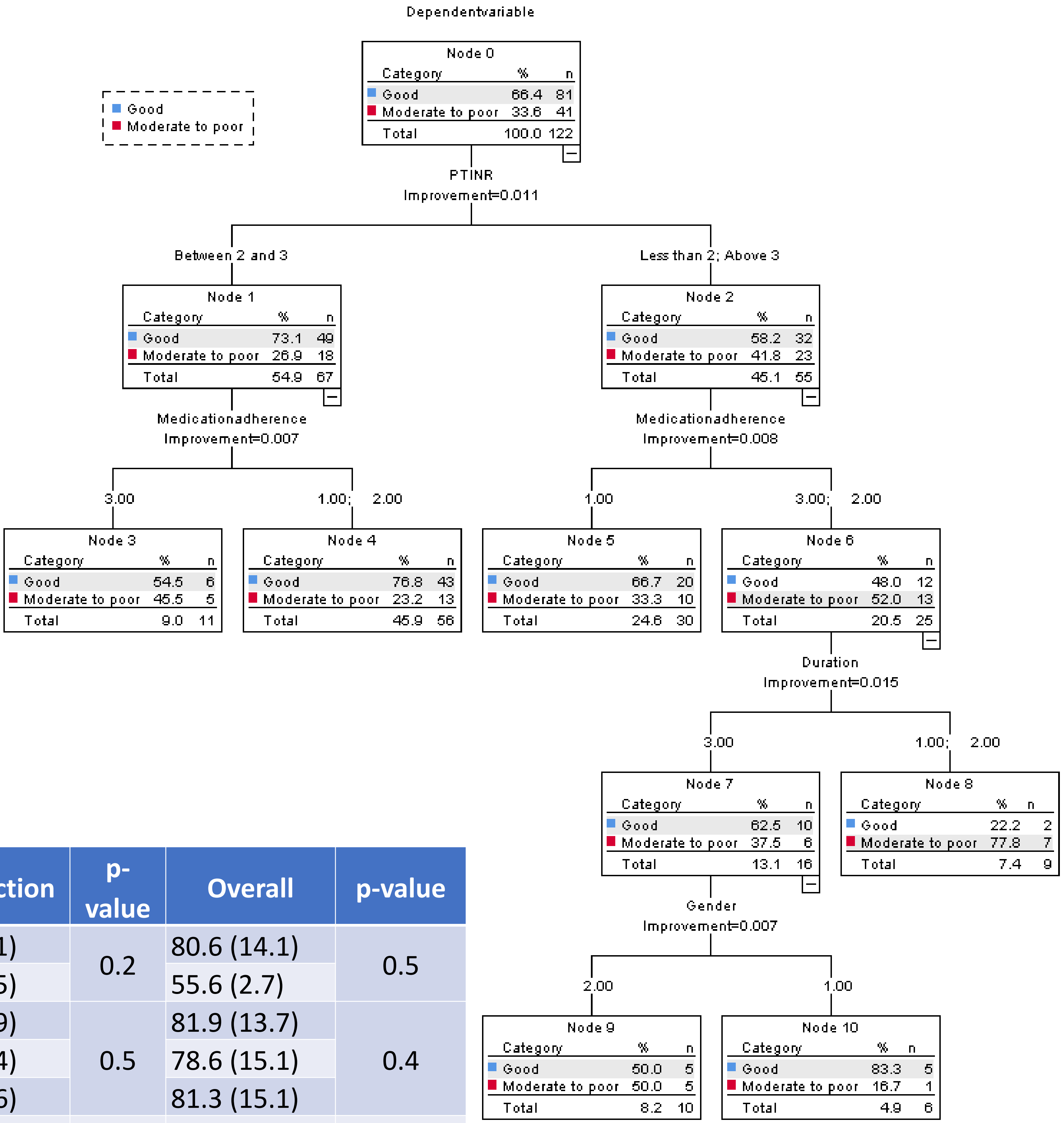
Groups (n)		Convenience	p-value	Burden of disease	p-value	Satisfaction	p-value	Overall	p-value
Indication	AF (141)	47.4 (7.6)	0.03*	8.7 (1.8)	NA	28.4 (4.1)	0.2	80.6 (14.1)	0.5
	Non-AF (2)	33.5 (0.7)		6.5 (0.7)		24.5 (3.5)		55.6 (2.7)	
Weekly dose (mg)	<35 (67)	47.9	0.4	8.8 (1.8)	0.8	28.8 (3.9)	0.5	81.9 (13.7)	0.4
	35-70 (62)	46.4 (8)		8.7 (1.7)		27.8 (4.4)		78.6 (15.1)	
	>70 (4)	48.3 (9.1)		8.5 (1.9)		28.3 (3.6)		81.3 (15.1)	
Duration of therapy (months)	6 (17)	46.4 (10)	0.5	8.9 (1.8)	0.7	27.8 (4.6)	0.7	78.8 (19.4)	0.7
	6-12 (17)	45.9 (7.2)		8.6 (1.6)		28.9 (4.4)		79.2 (12.4)	
	>12 (103)	47.7 (7.1)		8.6 (1.8)		28.4 (4)		80.9 (13.4)	
PT-INR categories	<2 (28)	46.5 (8.1)	0.7	8.8 (1.9)	0.7	28.7 (3.4)	0.6	80 (14.1)	0.7
	2-3 (72)	47.9 (7.2)		8.9 (1.7)		28.7 (4.2)		81.8 (13.9)	
	>3 (30)	46.6 (8.9)		8.6 (1.7)		27.5 (4.5)		78.3 (16.1)	
Medication adherence	High (72)	49.2 (5.6)	0.03*	8.9 (1.9)	0.004*	29.4 (3.5)	0.2	84.4 (11.1)	0.004*
	Moderate (43)	46.4 (8.7)		8.6 (1.7)		27.4 (4.6)		78 (16.4)	
	Low (22)	43.6 (9.3)		8.1 (1.5)		27.5 (4)		74 (14.3)	
Concomitant diseases	Yes (107)	47.6 (7.6)	0.7	8.8 (1.8)	0.09	28.5 (4.2)	0.8	81 (14.4)	0.2
	No (36)	46.1 (8)		8.3 (1.8)		27.9 (4)		78 (13.7)	
Gender	Male (78)	47.4 (7.7)	0.7	8.7 (1.9)	0.6	28 (4)	0.6	79.9 (13.7)	0.7
	Female (65)	47.1 (7.7)		8.7 (1.7)		28.8 (4.3)		80.6 (15)	
Age (years)	<40 (9)	42.4 (9.7)	0.1	8.4 (1.5)	0.6	25.1 (4.7)	0.08	70 (16.5)	0.05*
	40-65 (62)	46.8 (7.9)		8.5 (1.9)		28.5 (4)		79.6 (14.5)	
	>65 (72)	48.2 (7)		8.9 (1.7)		28.6 (4.1)		82.1 (13.3)	

Table 2. Scores for the overall and individual domains of PACT-2 questionnaire in patients receiving warfarin.

**Conclusion:**

- Overall good quality of life was observed as indicated by the average score of 80.3 in the warfarin group and moderate in the dabigatran as observed by the average score of 68.
- Highly adherent and elderly patients receiving warfarin were significantly more likely to have good quality of life compared to other groups.
- Similarly, PT-INR in the range between 2 and 3,and high medication adherence were the primary domains that were significantly associated with good quality of life amongst patients with warfarin.
- Patients receiving warfarin were observed with better quality of life scores than those with dabigatran.

Figure 1. Decision tree model for various categories of QoL as assessed using PACT-2 in patients receiving warfarin.



**Funding:** College of Medicine and Medical Sciences, Arabian Gulf University (Number G-E021-PI-11/18).

**Conflict of interest:** None.

**Acknowledgements:** We wholeheartedly thank the patients who provided consent for participating in this study and Ms. Fatima, Ms. Fadheela and other staff nurses in the anti-coagulation clinic for their support during the conduct of this research study. We also thank Research Technical Support Team for their Ethics approval for carrying out this study and Mapi Research Trust for providing permission to translate the PACT questionnaire.