# Sociodemographic correlates of warfarin knowledge in warfarin patients

**Running title: Correlates of warfarin knowledge in warfarin patients**


## ABSTRACT

**OBJECTIVE:** This study aimed to determine sociodemographic correlates of warfarin knowledge in warfarin patients.

**METHODS:** A cross-sectional study using a newly developed and validated research tool was conducted in warfarin patients. Data was collected by convenience sampling method. Descriptive, comparative, and inferential statistics were used by Statistical Package for the Social Sciences (SPSS) ver. 24 to determine the sociodemographic correlates of warfarin knowledge in warfarin patients.

**RESULTS:** From total 295 participants, the majority of the studied warfarin patients were females than males (n=184, 62.4%, and n=111, 37.6% respectively). In univariate analysis, statistically non-significant differences ($p$ >0.05) were observed in gender, age, marital status and work. In multivariate analysis, significant differences ($p$ <0.05) were observed in education, comorbidities, warfarin usage, and warfarin therapy duration.

**CONCLUSION:** These results confirmed that education and warfarin therapy duration were the sociodemographic correlates of warfarin knowledge in the warfarin patients.



***Keywords:*** Warfarin, knowledge, sociodemographic, correlates, multivariate

## INTRODUCTION

Warfarin always requires frequent and careful laboratory monitoring to minimize or avoid bleeding complications and to obtain optimum therapy due to its narrow therapeutic window. outcomes [1-5]. It also has high inter- and intrapatient variability, and is only effective if its therapeutic range is maintained and if its blood levels are above or below its therapeutic window, it exhibits greater risks of bleeding and thrombosis respectively [3-6]. Warfarin is amongst the most frequently used oral anticoagulant, that is often prescribed to control and prevent various thromboembolic diseases like venous thromboembolism, stroke, atrial fibrillation, and valvular heart disease [4-6]. In addition, warfarin usually causes adverse drug reactions (ADRs) that sometimes require hospital admission and if the length of hospitalization is increased it may lead to morbidity and mortality among patients on warfarin [7-9].

Inappropriate warfarin knowledge affects patients' daily activities and could mount unnecessary sources of worries that eventually affect their treatment satisfaction and overall Quality of Life (QoL) [10-11]. QoL is an individuals' perceived quality-of-life and self-satisfaction that is likely to be affected because of their general health status. The QoL concept describes various factors other than illnesses that affect patients' overall health states [10-12]. These days, QoL is not only measured in patients but also in healthy individuals to estimate the overall health status of a society which ultimately helps in designing and implementing healthcare policies to improve the overall health status of a society [11-13].

In literature, poor warfarin knowledge was deeply associated with bleeding complications and compromised QoL [12-13]. Poor understandings of precise dose, adverse effects and drug-food interactions' awareness, advancing age, limited health-literacy rate, warfarin's strict anticoagulation control and its high hemorrhagic episodes were reported to be directly linked with poor warfarin knowledge and poor QoL. On the other hand, appropriate warfarin knowledge, positive perceptions, and better disease sate understandings usually improve compliance, treatment satisfaction and overall QoL [12-15]. This study aimed to determine sociodemographic correlates like gender, age, marital status, education, work, comorbidities, warfarin therapy usage, and duration and their impact on warfarin knowledge in warfarin patients.

## Materials and methods

This was a cross-sectional study done and a self-administered questionnaire was employed. The study subjects were screened for inclusion and exclusion criteria. At first, information sheet was handed to patients and informed consent was taken. The questionnaire was delivered personally to the patients by the researcher who also collected them back after they completed the study. The sampling method employed was convenient sampling. Content validity of the questionnaire was checked before start of the study. Reliability of the questionnaire was assessed using Cronbach's alpha which is the most common tool to be used to measure internal consistency.

### Statistical analyses

Percentages and frequencies were used for the categorical variables, while means and standard deviations were calculated for the continuous variables. Chi square, Spearman's correlation

coefficient and multiple logistic regression were used to evaluate correlations and impact of various demographic variables on overall warfarin knowledge of the studied warfarin patients. Data from the research questionnaire were analyzed using Statistical Package for the Social Sciences (SPSS) version 24.0.

## RESULTS and DISCUSSION

Figure 1 represents the demographic data of the study participants. According to the results obtained, there was a total of 295 participants with more females than males (n=184, 62.4%, and n=111, 37.6% respectively). One hundred and eighteen (40.0 %) were less than 30-years whereas one hundred and seventy-seven (60.0%) were above 30-years. Ten (3.4%) had a primary level of education and 285 (96.6 %) had a higher level of education. One hundred and three (34.9 %) had comorbidities other than CVDs and one hundred and ninety-two had no comorbidity. Figure 1 describes the detailed demographic parameters used in this study.

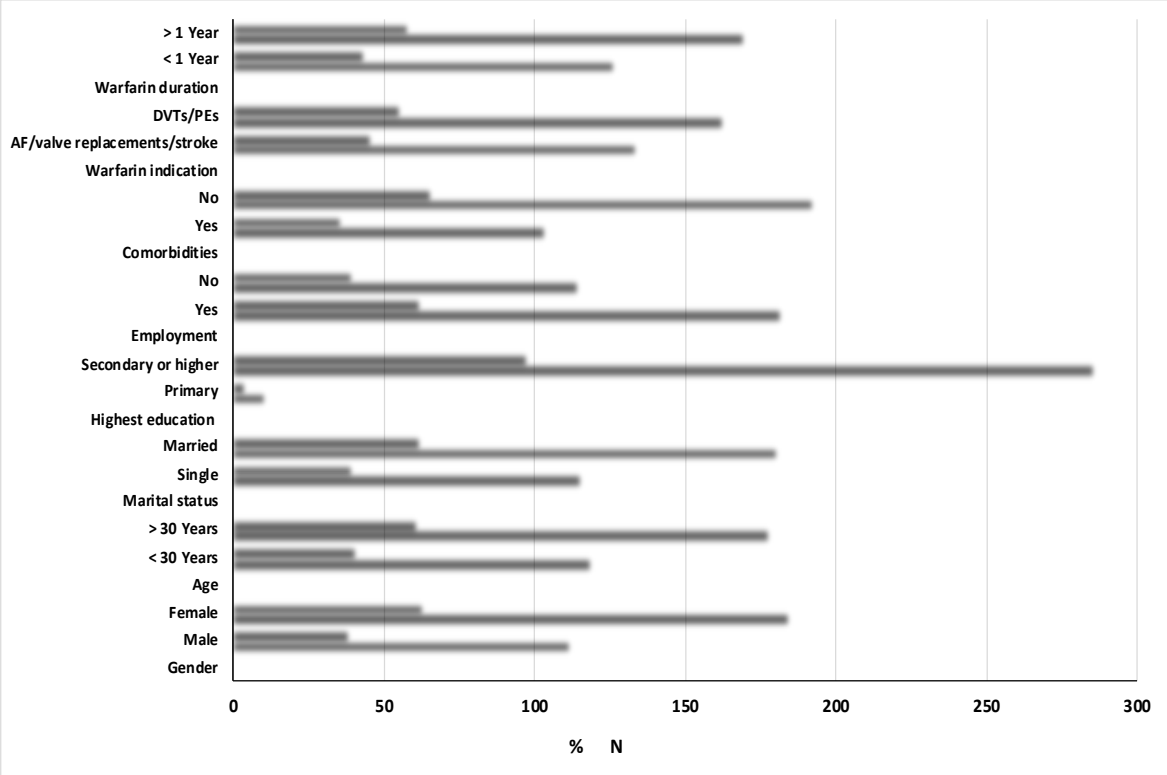


**Figure 1: Demographic details of the warfarin patients**

Figure 2 presents the key responses of warfarin patients about warfarin knowledge. A total of 185 (62.3%) patients were aware about their drug indications that why were they taking warfarin while 110 (37.7%) did not know exactly that why they were taking warfarin. Around 222 (75.3%) of the patients knew about their daily dose while 205 (69.5%) of the patients knew about the time when they should take their medication. A total of 170 (57.6%) of the patients had their INR within the range while 159 (53.9%) of the patients know what to do if they face any emergency while they are taking warfarin. Figure 2 denotes the detailed demographic parameters used in this study.

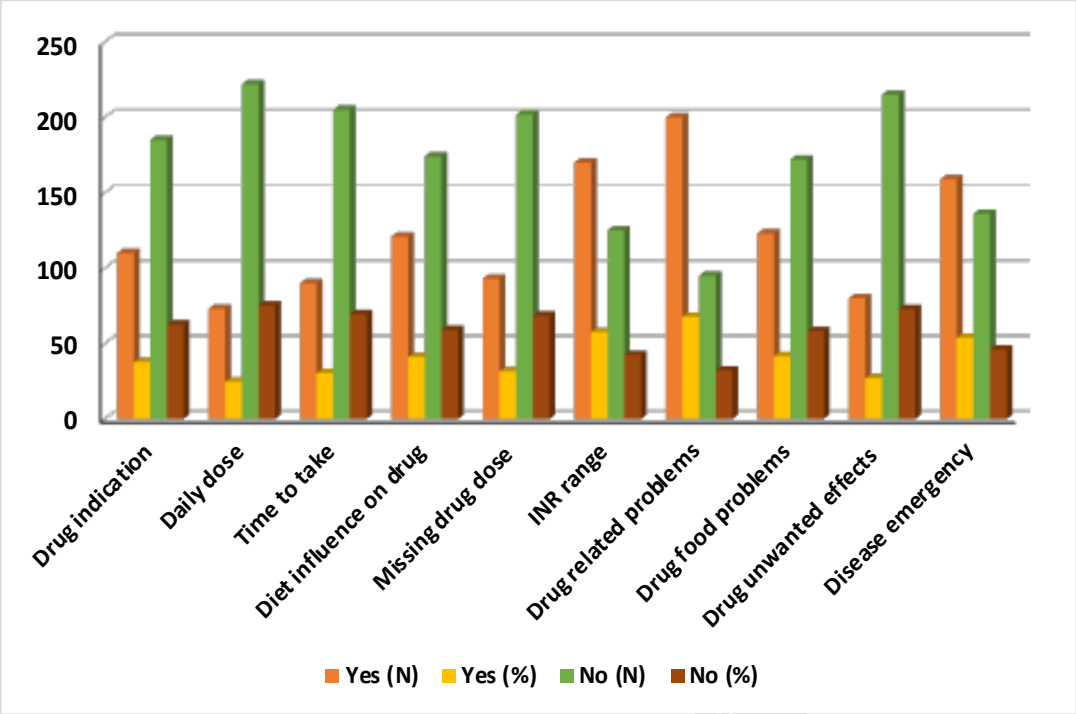


**Figure 2: Warfarin knowledge in warfarin patients**

The patients' warfarin knowledge is vital in optimizing its therapy outcomes, minimizing drug interactions and reducing adverse drug reactions [12-14]. The current study determined the sociodemographic correlates of warfarin knowledge among warfarin patients. Several factors were explored and their relationships towards overall warfarin knowledge was determined using a newly developed and validated warfarin knowledge research tool in warfarin patients. Our study results showed statistically significant differences ($p$<0.05) in various sociodemographic attributes of the research tool regarding warfarin knowledge in warfarin patients. Hence, our study confirmed that sociodemographic correlates could affect warfarin patients' overall drug and disease knowledge. In univariate analysis, our study did not observe any statistically significant differences ($p$ >0.05) in gender, age and work with overall warfarin knowledge in warfarin patients.

**Table 1: Sociodemographic correlates of warfarin knowledge**

| Correlates | Univariate analysis | | Multivariate analysis | |
|---|---|---|---|---|
| | COR (95% CI) | *p*-value | AOR (95% CI) | *p*-value |
| **Gender** | | | | |
| Male | R | | | |
| Female | 2.673 (2.98–1.94) | 0.871 | | |
| **Age (Years)** | | | | |
| < 30 | R | | | |
| ≥ 30 | 1.872 (2.56-1.32) | 0.483 | | |
| **Marital Status** | | | | |
| Single/Separated | R | | | |
| Married | 1.639 (2.38–1.37) | 0.489 | | |
| **Education** | | | | |
| Primary | R | | | |
| Secondary or higher | 0.423 (1.03–0.19) | 0.015* | 2.789 (3.23–1.34) | 0.046* |
| **Work** | | | | |
| Job/Business | R | | | |
| Not working | 0.969 (1.38–0.36) | 0.147 | | |
| **Comorbidities** | | | | |
| Yes | R | | | |
| No | 2.895 (3.79–2.89) | 0.042* | 2.383 (3.16–1.79) | 0.368 |
| **Warfarin Use** | | | | |
| AF/Valve replacements | R | | | |
| DVTs/PEs | 0.573 (1.49–0.11) | 0.017* | 0.470 (1.16-0.12) | 0.897 |
| **Duration** | | | | |
| < 1 Year | R | | | |
| ≥ 1 Year | 1.789 (2.39–1.21) | 0.003* | 2.479 (2.98–1.45) | 0.041* |

R=Referent; SD=Standard Deviation; UOD=Unadjusted Odds Ratio; AOD=Adjusted Odds Ratio; CI=Confidence Interval; * Statistically Significance (< 0.05)



In terms of marital status attribute, a statistically non-significant difference (p=0.489) was observed showing no significant difference exists regarding warfarin knowledge among the studied patients. Likewise, better treatment understandings can lead to greater compliance with warfarin treatment that might result in good anticoagulation control [12-15]. Education often advances self-learning and self-improvement in general health states among patients. These

could often enhance self-satisfaction and result in improved warfarin knowledge especially among chronic diseases patients like patients on warfarin. As a matter of fact, highly educated patients have better understanding of their disease states, drug doses, treatment regimens, and their disease understandings in general [16-19]. Moreover, to have optimum pharmacotherapy, highly educated patients are more likely to acclimatize their routine lifestyle and adopt preventive measures, resulting in improved therapy outcomes [20-23].

In our study, in univariate analysis, the higher educated patients had improved warfarin knowledge ($p$ <0.05) than the rest with less education. These results were further analyzed in multivariate analysis, when confounders were removed, and the association was positive and statistically significant difference ($p$=0.046) was observed. The apparent reason could be that an increase in drug or disease-related knowledge may make patients more aware of their drug usage pattern, medication adherence, dietary controls, and life-style modifications which in return might increase their overall health states.

In comorbidities attribute, in univariate analysis, statistically a significant difference ($p$=0.042) was observed but on the other hand, in multiple logistic regression analysis, statistically a non-significance ($p$ >0.05) was observed when the confounders were adjusted. Likewise, in univariate analysis, warfarin usage and warfarin therapy duration had statistically significant differences ($p$ <0.05) with overall warfarin knowledge among warfarin patients. And in multiple logistic regression analysis, warfarin usage showed statistically non-significant difference ($p$ >0.05) regarding warfarin knowledge in warfarin patients. On the other hand,

warfarin therapy duration showed statistically a significant difference ($p$ <0.05) regarding warfarin knowledge in warfarin patients in the studied cohort of the patients.

## CONCLUSION

In conclusion, our study highlights that education and warfarin therapy duration were the sociodemographic correlates of warfarin knowledge in warfarin patients.

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