

**ASSESSMENT TO AWARENESS OF COMMUNITY PHARMACISTS  
REGARDING ADVERSE EFFECTS COUNSELING**

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**ABSTRACT**

The anticoagulant effect of warfarin is influenced by various factors, and fluctuations in the intensity of the anticoagulant effect of warfarin can increase the risk of both hemorrhagic complications and recurrent thromboembolism. Pharmacists and other providers can improve adherence to the medication schedule, as well as ensure the safety and efficacy of warfarin therapy, by providing appropriate education to

patients treated with this agent. The aim of this study to assess awareness of community pharmacists regarding warfarin –adverse effects counseling. Descriptive prospective community pharmacy-based study, carried out among 86 community pharmacies at Khartoum State, self –administered structured questionnaire was used to collect sociodemographic data, experience and knowledge of pharmacists towards adverse effects of warfarin effects counseling. Data was analyzed by using Statistical Package for Social science and results presented in tables and graphs. Out of 86 pharmacists, the majority 72 (83.7%) were in the age of 23 – 32 years, female to male ratio was 2.3: 1, 68 (79.1%) had experience for 1-7 years. The study resulted that 26 (30.2%) participants had knowledge about adverse effects of Warfarin, while 29 (33.7%) participants had knowledge about signs and symptoms of over coagulation. the study concluded the studied community pharmacists showed good knowledge in towards adverse effects of warfarin, but poor knowledge towards signs and symptoms of over coagulation.

**KEYWORD:** warfarin, over coagulation, community pharmacist.

## INTRODUCTION

Successful warfarin therapy depends on the active participation of knowledgeable patients.<sup>[1]</sup> The anticoagulant effect of warfarin is influenced by various factors and fluctuations in the intensity of the anticoagulant effect of warfarin can increase the risk of both hemorrhagic complications and recurrent thromboembolism.<sup>[2]</sup> Pharmacists and other providers can improve adherence to the medication schedule, as well as ensure the safety and efficacy of warfarin therapy, by providing appropriate education to patients treated with this agent.

Bleeding is the most common adverse effect associated with Warfarin. The bleeding most commonly occurs in the nose, oral pharynx and soft tissues, followed by the GI and urinary tracts. Although it is uncommon, intracranial bleeding resulting in hemorrhagic stroke represents the most common cause of fatal bleeding associated with warfarin therapy. The frequency of bleeding is higher in the first 3 months of therapy than during subsequent months.

Various diseases and drugs potentiate warfarin, increasing the risk of hemorrhage, Include a history of GI bleeding, serious co morbid disease (including malignancy) and concomitant therapy with aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs).<sup>[3, 4]</sup> The influence of age on bleeding risk is controversial. Management of over anticoagulation depends on the clinical presentation of the patient. In the case of an elevated INR without bleeding complications, interruption of warfarin therapy by holding one or two doses until the INR returns to the therapeutic range is usually sufficient. In either case, the patient should be questioned to determine a possible cause for over anticoagulation, including intake of extra doses of warfarin, changes in diet or alcohol intake, changes in underlying medical conditions, or the use of other medications. In some cases, no apparent explanation is identified.

### Skin Necrosis

Warfarin-induced skin necrosis is a rare, but serious adverse effect of oral anticoagulation, occurring in approximately 0.01% to 0.1% of patients treated with warfarin. It's appears to be the result of extensive micro vascular thrombosis within subcutaneous fat and has been associated with hypercoagulable conditions, including protein C or protein S deficiency. Adequate heparinization during initiation of warfarin can prevent the development of early hypercoagulability. Warfarin therapy should be discontinued in patients who develop skin necrosis. However, subsequent warfarin therapy is not necessarily contraindicated if it is

required for treatment or prevention of thromboembolic disease.<sup>[5]</sup> In patients with protein C or protein S deficiency and a history of skin necrosis, warfarin therapy can be restarted at low dosages as long as therapeutic heparinization has been achieved.

Purple Toe Syndrome: is a rarely reported adverse effect. Patients initially present with painful discoloration of the toes that blanches with pressure and fades with elevation. Warfarin therapy should be discontinued in patients who develop purple toe syndrome.<sup>[6]</sup>

### Literature review

*In 2012 Verret ET. Al. carried out a study to evaluate the impact of a pharmacist-led warfarin patient self-management program on quality of life and anticoagulation control compared with management in a physician-led specialized anticoagulation clinic. A total of 114 patients aged 18-75 years who were followed at a specialized anticoagulation clinic. All patients attended an educational session on anticoagulation provided by a pharmacist. Patients randomized to the self-management group (58 patients) also received practical training.<sup>[7]</sup> After 4 months of follow-up, a significant improvement in the self-management group was observed compared with the control group in four of the five quality-of-life topics ( $p < 0.05$ ). Improvements in knowledge were observed in both groups after the training session and persisted after 4 months ( $p < 0.05$  for all). At self-management warfarin program led by pharmacists resulted in significant improvement in the quality of life of patients receiving warfarin therapy as well as a reduction in the time required for anticoagulation monitoring, while maintaining a level of anticoagulation control similar to a high-quality specialized anticoagulation clinic.*

*Another study done in 2008 by Petchboon Province at Wichianburi Hospital to assess the effects of pharmacist counseling in warfarinized patients this study is a retrospective study from outpatients receiving warfarin.*

*A tool that use in study is equipment for drug counseling, such as warfarin booklet, warfarin card, flip chart, calendar, handbook of drug interaction and note history patient book. Patients' knowledge between pre- and post-counseling service were compared, choose patients were received warfarin in study period and can chat communicate understand. The result ensures the Pharmacist counseling could improve patients' knowledge of warfarin therapy and may enable the patients to identify complications related to the therapy.<sup>[8]</sup>*

### Justification

*Anticoagulants are very useful medications but can also lead to hemorrhagic as well as thromboembolic complications when not used correctly or without proper medical attention. Pharmacists can improve adherence to the medication schedule, as well as ensure the safety and efficacy of warfarin therapy, by providing appropriate education to patients treated with this agent.*

### OBJECTIVES

To assess the awareness of community pharmacists regarding adverse effects of warfarin counseling.

### METHODOLOGY

The study was Descriptive prospective community pharmacy-based study. It carried out in community pharmacies at Khartoum State. Self –administered structured questionnaire was distributed to all pharmacists work in community pharmacies in Soba and Alshohada Locality. Data was collected through pre-designed questionnaire, fulfilled by direct interview, analyzed by using statistical package for social science (SPSS-version 17). Frequency analysis and chi-squares tests were done. Results tabulated and displayed as figures using SPSS and Microsoft Excel.

### RESULT

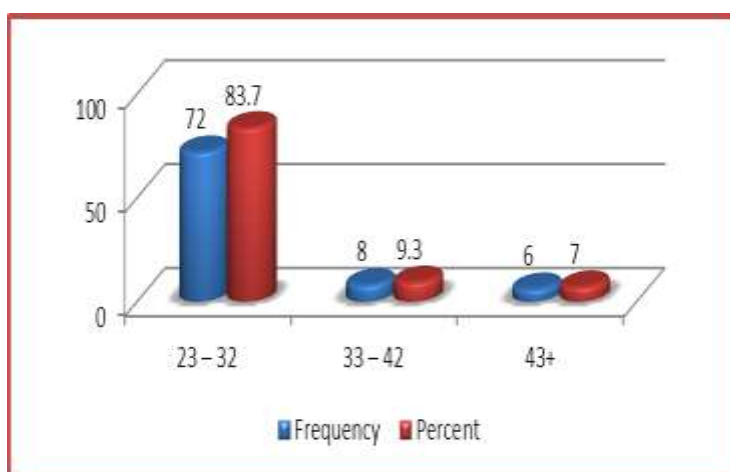
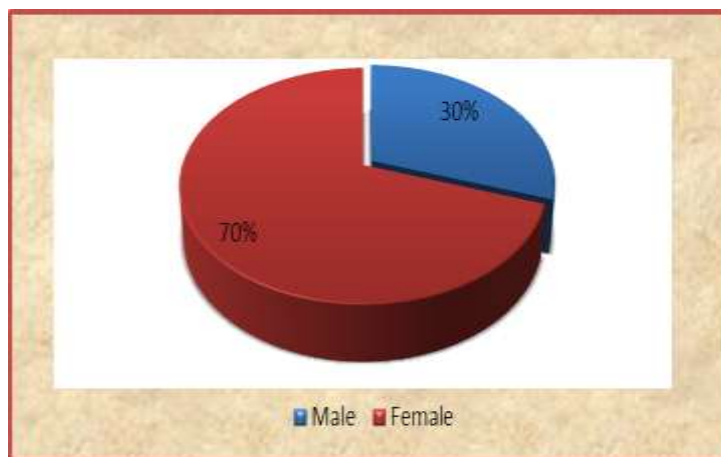
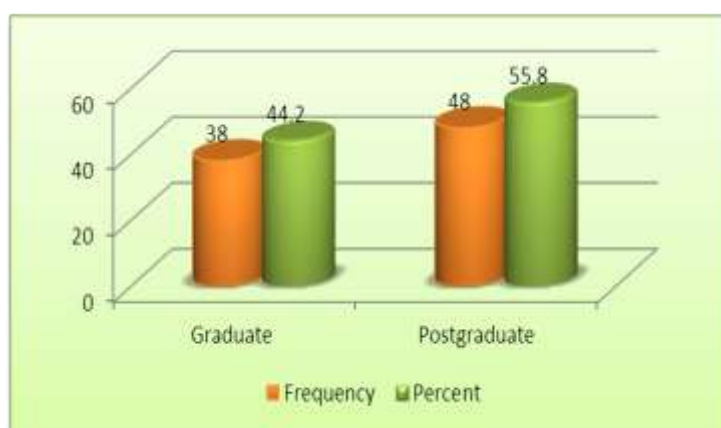


Figure (1) showed the distribution of the study population according to age, the majority 72 (83.7%) in age group 23 – 32 years, 8 (9.3%) participants in age group 33-42 years, while 6 (7.0%) participants in age 43 years and above. Age distribution of the 86 community pharmacists showed predomination of the age group 23-32 years (83.7%), followed by 9.3% who had age of 33-42 years and 7% who had age of 43 years or more.



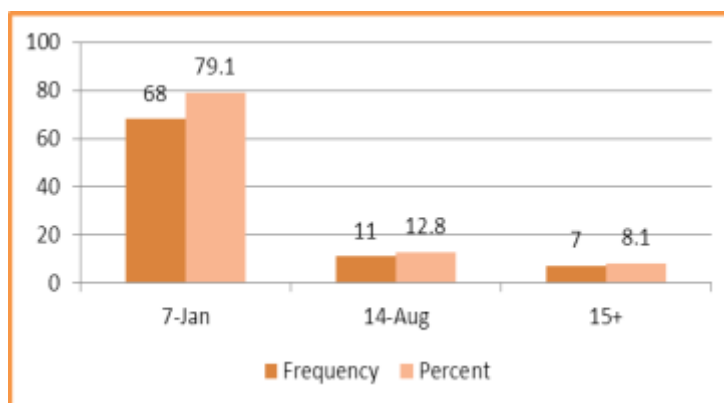
**Figure (2) Gender distribution of the study population.**

This figure showed the distribution of the study population according to gender, 60 (69.8%) participants were females and 26 (30.0%) participants were males.



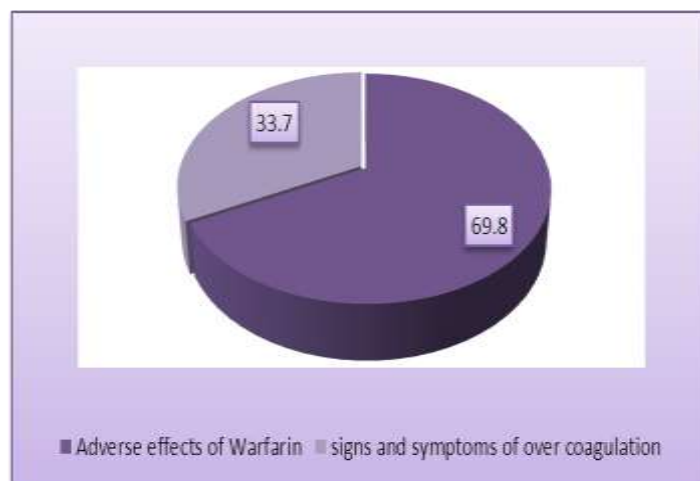
**Figure (3) Distribution of the study population according to educational level.**

In this study, 38 (44.2%) participants graduate, while 48 (55.8%) participants had postgraduate education.



**Figure (4): Experience years among the study population**

In this study there are 68 (79.1%) of population their years of experience less than 7 years, 11 (12.8%) between (7-14) years and 7 (8.1%) more than (15) year as shown in figure 4.



**Figure (5): Knowledge of study populations about adverse effects of Warfarin and signs and symptoms of over coagulation.**

**Table 10: Knowledge of study populations about adverse effects of Warfarin and signs and symptoms of over coagulation**

Knowledge	Adverse effects of Warfarin		signs and symptoms of over coagulation	
	Frequency	Percent	Frequency	Percent
No	26	30.2	57	66.3
Yes	60	69.8	29	33.7

## DISCUSSION

Warfarin had been frequently identified as causing preventable harm and admission to hospital. A risk assessment of anticoagulant therapy carried out by the National Patient Safety Agency (NPSA) found that in the UK from 1990 to 2002 there were 600 reported incidents of patient- or near- harm and 120 deaths, 77% of which were caused by warfarin. The report identified a number of high risks that can lead to harm, this includes inadequate training and work competencies of staff and insufficient support and monitoring of warfarin therapy.

The current study conducted among 86 community pharmacists to assess their awareness towards warfarin counseling. Female participants were more than males represented by 69.8% and 30.2% respectively, with ratio of 2.3: 1.

There was higher presence of postgraduates in the study group when compared to graduates; they represented 55.8% versus 44.2% respectively. Qualification of pharmacists expected to affect degree of knowledge.

Most pharmacists found to have experience of 7 years or less (79.1%), followed by 8-14 years (12.8%), while those who have 15 years experience or more represented 8.1%. Exposure to various prescribed medication will motivate the pharmacist to gain more information acquired directly from scientific sources or by asking seniors or colleagues.

The community pharmacists showed good knowledge towards adverse effect of warfarin (69.8%), but poor knowledge towards signs and symptoms of over coagulation, in spite of, most pharmacists' knowledge focusing on bleeding as adverse effect of warfarin.

## CONCLUSION

The studied community pharmacists showed good knowledge in towards adverse effects of warfarin, but poor knowledge towards signs and symptoms of over coagulation.

## RECOMMENDATIONS

The research has highlighted a need for adequate training in all grades of pharmacists to ensure safe practice and provide patients with counseling; this could be achieved through mandatory tutorial sessions.

Tools for drug Warfarin counseling, such as Warfarin booklet, Warfarin card, flip chart, calendar, handbook of drug interaction should be available for pharmacist.

Moore workshops about knowledge towards signs and symptoms of over coagulation, must be held for community pharmacist. To increase their knowledge in this area.

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