

# Exploring Cypriot Pharmacists' Perceptions about their Role in Cardiovascular Disease Prevention: A Descriptive Qualitative Study

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## INTRODUCTION

Cardiovascular disease (CVD) remains the major cause of death and disability globally. The age-standardized prevalence of CVDs among the Cypriot population in 2017 was estimated to be 5,552 per 100,000. Therefore, the CVD prevention in Cyprus is of paramount importance.<sup>[1]</sup> The burden of CVD has been driven by primarily major modifiable risk factors: tobacco use, excessive alcohol consumption, unhealthy diets, physical inactivity, high blood pressure (BP), dyslipidemia, and type 2 diabetes.<sup>[2]</sup>

Multiple pharmacy-based primary health interventions are being developed to help people adopt a healthier lifestyle.<sup>[3-6]</sup> The implementation of pharmacy-based

**ABSTRACT** **Objective:** The age-standardized prevalence of cardiovascular diseases (CVDs) among the Cypriot population in 2017 was estimated to be 5552 per 100,000. Therefore, the CVD prevention in Cyprus is of paramount importance. Pharmacists are one of the most accessible health-care professionals (HCPs) and the first port of call for the public. In Cyprus, there are 55.59 pharmacies per 100,000 inhabitants. Therefore, the role of Cypriot pharmacists (CPs) in primary CVD prevention is essential. This study aimed to explore both the existing and potential future roles of CPs in CVD prevention. **Methods:** A descriptive qualitative study employing structured interviews (SIs) was conducted. Initially, the CPs were identified through a list provided by the Cypriot Pharmaceutical Services. The researcher(s) then contacted CPs by telephone. Face-to-face interviews were scheduled based on the CP's availability. In total, 21 SIs were transcribed verbatim, coded, and analyzed thematically. SIs continued until data saturation was achieved. **Findings:** The findings are reported under the themes of pharmacists' knowledge and role, resources/tools available and training, communication and relations, and barriers. CPs expressed the need for training, and they are ready to have a more proactive role within the primary health care. The main barrier identified was the lack of responsiveness of the public and the lack of CP's time. **Conclusion:** CPs have the potential to actively participate in CVD prevention in Cyprus. CPs want to start offering primary CVD health services, with the smoking cessation being the first intervention.

**KEYWORDS:** Cardiovascular disease prevention, Cypriot pharmacists, health promotion, pharmacy-led preventive services

lifestyle interventions is important in the prevention of CVD risk factors. Several intervention studies demonstrated that pharmacy-delivered interventions lead to reduce especially the risk of hypertension,<sup>[7]</sup> tobacco use,<sup>[8]</sup> and weight management (WM) and waist circumference.<sup>[9]</sup> The effectiveness of pharmacy-based lifestyle support services can lead to better awareness among individuals and populations with CVD risk. The Luetsch's study demonstrated that pharmacists reduced

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their dispensing time in their daily practice from 55% to 49%, and that they increased their counseling time from 16% to 21% between 2009 and 2014.<sup>[10]</sup> Hence, the general public consider pharmacists to be highly accessible health-care professionals (HCPs), who can offer efficient clinical services in order to prevent CVD risk factors.

Herein, our study conducted in Cyprus since the government planned and designed the new universal coverage General Healthcare System (GHS), which is mainly focused on a patient-centered approach. According to the Pharmaceutical Group of the EU, Cyprus was the chosen country to explore the role of pharmacists, given that in Cyprus, there are 55.59 pharmacies per 100,000 inhabitants.<sup>[11]</sup> The afore-mentioned classifies Cyprus as holding second place in the EU for the number of pharmacies per head of the population. However, Cypriot pharmacists (CPs) can play a catalyzing role in CVD prevention and hence in the new era of health services. The study aimed to assess the existing and possible future role of CPs in modifying CVD risk factors. The secondary outcome was to uncover any barriers that CPs may have, as well as to detect their needs for their future role and their preferences in delivering public health services.

## METHODS

The homogeneity of our study is performed according to the CONSolidated Criteria for REporting Qualitative Research (COREQ) checklist.<sup>[12,13]</sup>

This study was based on an exploratory, descriptive qualitative research using structured interviews (SIs) to investigate CPs' perceptions about their role in CVD prevention. A qualitative research approach was used, as it allows in-depth knowledge of perceptions, beliefs, attitudes, and barriers with regard to the role of CPs in the primary prevention of CVD risk factors, which is not included in quantitative research. This methodology is supported by Alfred Schutz's phenomenology,<sup>[14]</sup> which allows the interviewees' conscience to be a reference point in the study in order to render a comprehensive picture of how a plethora of experiences may constitute the structures composing today's reality.

The study was conducted between December 2017 and April 2019. The interview schedule was designed based on the Peletidi *et al.* study which explored the role of pharmacists in CVD prevention in both Greece and the UK.<sup>[15]</sup>

Before data collection, all documentation was ethically approved by the Kingston University Ethics Committee (ID: 1415/032).

The study was conducted with pharmacists working in Nicosia, Limassol, Paphos, and Larnaca. Participants were selected from a list of community pharmacies provided by the Cypriot Pharmaceutical Services. The first participant was selected randomly, and subsequent pharmacists were selected using the "table of random numbers:" the 4<sup>th</sup> pharmacist was selected as the first, then the "plus 5" rule was utilized; thus, the next pharmacy to be selected was the 9<sup>th</sup>, while when a candidate pharmacist did not wish to participate in the study, the next number was the 14<sup>th</sup>. There was an initial telephone communication with the candidate pharmacists by the first author (P.C.), to inform them about the study and ask them to state whether or not they wished to participate. P.C. got in touch personally with the pharmacists wishing to participate in the study, to provide more information on the research, and arrange the interview appointment. The sample size was not predetermined. In qualitative research methods, there is no conventional guideline to determine a precise sample size for interviews. However, interviews were conducted until data saturation was achieved in each of the participating cities in Cyprus.

The interview schedule contained 26 open-ended questions divided into 3 parts. The first part of the questionnaire contained questions concerning CVD primary prevention and the general role of CPs. The second part consisted of questions regarding the role of CPs in the screening and monitoring of patients with CVD risk factors. The third part included the demographic information. A pilot study was conducted with three pharmacists from Nicosia for content and face validation. There were no major changes in the questionnaire. The pharmacists who participated in the pilot study were excluded from the study, so as to avoid any type of bias.

SIs were performed face-to-face, in the interviewees' community pharmacies, by P.C., who is a male. P.C. is a pharmacy graduate from the University of Nicosia, and he is currently a research master student at the Erasmus University Medical Center. The study supervised by A.P., who is a female, registered pharmacist in the United Kingdom (UK), Greece, and Cyprus. A.P. has a Ph.D. in Clinical Pharmacy Practice and Public Health and she has a specialization of conducting qualitative studies. None of the researchers had had any relationship whatsoever with the interviewees. A signed form of consent was obtained before the interview process was initiated.

In total, 34 individuals responded positively to our invitation. Finally, from those who responded positively, only 21 CPs participated in this preliminary study: 7 CPs from Limassol, 6 from Larnaca, 4 from Nicosia,

and 4 from Paphos [Figure 1]. The main reason for nonparticipation was reported the lack of pharmacists' time and workload.

The interviews continued until thematic saturation was achieved, while three additional interviews were conducted for verification purposes. Each interview lasted approximately 20 min, and all interviews were digitally recorded. Before data analysis, P.C. listened carefully to the recorded interviews, then transcribing verbatim on paper. Subsequently, all data were translated into English and analyzed anonymously. The translation from Greek to English was checked by an authorized translator.

The transcribed interviews were analyzed using thematic analysis.<sup>[16,17]</sup> The analysis was performed inductively and deductively, and themes were derived from the data obtained. In addition, the copy of the transcripts was not returned to participants for comments. P.C. read all transcripts independently, listened carefully to the recorded data, and verified their validity. Then, all interviews were read, one by one, and at the same time, notes were taken on the actual interview copies for familiarization purposes. A researcher from a nonpharmacy background participated in the analysis to minimize any bias. In addition, a representative code was assigned to each text unit, which provided a brief interpretation of the context of each answer. At the next stage, the codes were collated and combined, in order to locate theme units. When a set of candidate themes had been identified, they were reviewed by A.P. Then, it was confirmed that no new information requiring additional data analysis had emerged from the analysis of the research material. P.C. used NVivo 11 software (QSR International Pty Ltd) to document the themes arose. Finally, the final one-digit number of themes was determined, and the theme names were defined; the aim was that the name of each theme should be concise and directly provide readers with an overall picture of the theme. Strict measures of data confidentiality and safe storage were adopted. The resulting themes are presented with explanatory extracts of the participants' answers, which are assigned a code (e.g., CP: CyP001, etc.).

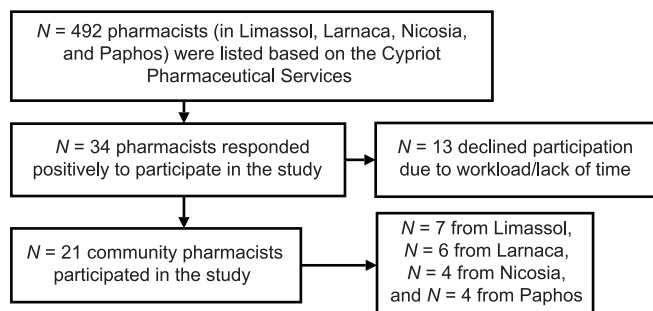


Figure 1: Flowchart of study participants

## RESULTS

The participants' demographics are shown in Table 1.

When analyzing the theme contents, four themes were identified, the first theme: "Pharmacists' Knowledge and Role," with the subtheme "The Future of the Pharmacy," the second: "Resources/Tools available and Training," the third: "Communication and Relations," with two subthemes, namely "Pharmacists – Public" and "Pharmacists – other Healthcare Professionals." The fourth and last theme is "Barriers." The themes and subthemes are shown in Table 2.

The majority of the interviewees know what CVD primary prevention means and describe it in general terms. A common reference point is that prevention is more important than cure, and it aims at raising public awareness of CVD risk factors. All pharmacists have the knowledge and can recognize CVD risk factors, which they associate with monitoring and guidance, given that they offer advice to the public and suggest changes in lifestyle [Table 3; 3.1a]. It is noteworthy that several pharmacists seek structured guidelines on CVD prevention in Cyprus, as they believe that this will

Table 1: Demographic information of interviewees (n=21)

	Frequency (%)
Gender	
Females	13 (62)
Males	8 (38)
Age (years)	
≤27	4 (19)
28-37	8 (38)
38-47	5 (24)
48-57	4 (19)
Years of experience	
1-10	12 (57)
11-20	4 (19)
>20	5 (24)
Districts/Location	
Limassol	7 (33)
Larnaca	6 (29)
Nicosia	4 (19)
Paphos	4 (19)

Table 2: Themes for discussion

Pharmacists' knowledge and role
The future of the pharmacy
Resources/tools available and training
Communication and relations
Pharmacists - Public
Pharmacists - other health-care professionals
Barriers

reduce the strain on the health system and medication costs [Table 3; 3.1b].

Some of the pharmacists believe that they play a limited or, more accurately, a secondary role in CVD prevention issues [Table 3; 3.1c]. CPs realize that there is a dividing line between their profession and other HCPs, describing it as a standard hierarchy. The pharmacists' role is supportive, while doctors have a superior role [Table 3; 3.1d]. Some participants are aware of their contribution in CVD prevention. Most of the CPs pointed out that their interventions in the context of their services to the public are of an advisory nature. The frequency of providing advice seems to vary but increases where nutrition and exercise issues are concerned [Table 3; 3.1e]. Nine pharmacists advise the public to visit their family doctors [Table 3; 3.1e]; the reason is that CPs are aware of the dividing line between the two health professions.

CPs maintain that the Pharmaceutical Services of the Ministry of Health (MoH) has not as yet taken any steps toward adopting public health structured services through each community's pharmacies. Considering that Cyprus is undergoing a radical reform of the implementation of the GHS, interviewees maintain that the provision of health services by CPs will be an innovative and pioneering development [Table 3; 3.1f].

CPs placed special emphasis on the organization and implementation of public health structured services targeting the prevention of CVD risk factors. Thus, they believe that they will help the public to change their lifestyle. However, by providing pharmacy-delivered health services, CPs will have a proactive role right at the epicenter of primary health care. Eight interviewees suggested that the first service to be implemented through Cypriot pharmacies should be targeted at promoting smoking cessation, since smoking rates in Cyprus are very high, and this has an impact on an increasing number of citizens for developing CVD [Table 3; 3.1g]. On the other hand, six participants stated that the first primary service to be implemented in Cyprus should be dedicated to hypertension screening since the rates of hypertensive patients are high, maintaining that hypertension is among the major risk factors for CVDs [Table 3; 3.1h]. Three participants suggested that the implementation of diabetes management service is equally important and essential [Table 3; 3.1i]. Finally, three pharmacists maintained that the first health-care service to be developed in Cyprus should be targeted at WM [Table 3; 3.1j]. Most CPs prefer that the provision of the aforesaid health services should be personalized in the interests of personal privacy on health issues [Table 3; 3.1k].

Concluding this theme unit, the vision of the pharmacists of CVD prevention is related to the change in attitude

and perception of the public toward CPs. The majority of CPs wish to have a more proactive role with more responsibilities, while several participants wish to have more discussion time with the public in private consultation rooms in the actual pharmacies, so that CPs become the first port of call in primary health care for the general public [Table 3; 3.1l].

Pharmacists have the resources/tools needed in order to provide advice to the public on the screening and prevention of CVD. All participants have a BP monitor; 18 of them have scales, 8 of them have a blood glucose meter, and 2 have a height measuring system [Table 3; 3.2a]. Two participants use only a BP monitor in order to provide advice on CVD prevention [Table 3; 3.2b].

This theme includes information on the "Training" of CPs with regard to CVD prevention. It is of particular interest that only two of the participants know how to assess cardiovascular risk on a CVD risk calculator [Table 3; 3.2c], while all other participants did not know that there were calculators for assessing CVD risk [Table 3; 3.2d]. As a first step, CPs wish to have structured guidelines from the competent health authorities as to how such a CVD prevention service shall function. As a second step, they wish to receive training to qualify for motivational interviewing [Table 3; 3.2e].

CPs described their relations with the public and other HCPs. The results are presented in two subthemes: "Pharmacists – Public" and "Pharmacists – Health Professionals."

Most of the CPs would try to screen and approach patients with a high risk of developing CVD through face-to-face conversations. A special approach is needed both when providing information and when offering advice, as some people may feel offended [Table 3; 3.3a]. Some participants mentioned that they approach patients with a high CVD risk through observation, also when handling a patient's prescription or when they see patients' blood test results [Table 3; 3.3b].

All pharmacists prefer to offer advice orally because they consider this approach more direct and effective. More specifically, it was pointed out that people pay more attention to oral communication as opposed to written which is a more stressful manner of communication [Table 3; 3.3c]. Moreover, CPs monitor their patients personally [Table 3; 3.3d] because they feel comfortable and confident with them.

Seven pharmacists described their relations with other CVD-related health professionals as "very good," whereas six and three CPs described them as "good" and "fairly good," respectively [Table 3; 3.3e].



**Table 3: Quotations from Cypriot pharmacists' views**

- 3.1a *"Primary prevention is clearly associated with raising public awareness of risk factors [...]"* CyP011  
*"[...] For proper prevention, patients must have determination. Prevention may be combined with monitoring [...]"* CyP007  
*"[primary prevention relates to] how well we, as pharmacists, can raise public awareness to help people prevent CVD. Such public awareness involves advice on the factors that can prevent a cardiovascular disease [...]"* CyP018
- 3.1b *"[...] There are margins for improvement, and I insist that structured measures must be taken [...] proper prevention will reduce strain on the system and may also reduce CVD medication costs [...]"* CyP001
- 3.1c *"[...] few people come for advice, as they visit their doctors first. [...] On rare occasions someone may come to our pharmacy to seek specific advice on matters related to alcohol or exercise or weight issues."* CyP002  
*"[...] people must realise our value."* CyP012
- 3.1d *"[...] I am well aware of the boundaries of my role as a pharmacist [...] pharmacists should not overstep their role and take the place of a doctor [...] there should be a dividing line between the pharmacist's position and that of the doctor [...]"* CyP005  
*"[...] I am not able, nor am I entitled, to become involved in everything, there are boundaries, and, in theory, there is a dividing line between the role of the pharmacists and the doctors' role"* CyP017
- 3.1e *"I give advice on matters related to nutrition and exercise almost on a daily basis [...]"* CyP008  
*"My interventions are mainly of an advisory nature. Always through monitoring. This is where our role ends, I believe"* CyP007
- 3.1f *"If this is implemented in Cyprus, it will be something very good, new, pioneering [...]"* CyP0017  
*"[...] the MoH should give pharmacists a more proactive role, encouraging people to receive primary health care from pharmacies [...]"* CyP006
- 3.1g *"I would like to help people .... give up smoking. That is to say, a service aimed at helping people give up smoking, because, as far as I know, and it is also my belief, in Cyprus smoker rates are considerably high"* CyP021  
*"I would rather see a service specially designed for helping people give up smoking. I believe that smoking is a leading CVD factor [...]"* CyP007
- 3.1h *"Hypertension. I think that this could be initiated as a service. I believe that it is the number one risk factor for cardiovascular diseases and, also, cause of death"* CyP009
- 3.1i *"[...] diabetes may start as a simple disease and eventually result in death. Therefore, I believe that [diabetes] prevention is highly important and entails many parameters, such as the right kind of nutrition and exercise, [...] I would like to see the implementation of a pharmacy-delivered service in Cyprus for the prevention of diabetes."* CyP013
- 3.1j *"[...] a service should be implemented for obesity. To help people control their weight. I believe that everything starts from obesity and, for this reason, the public should be made aware of this fact and adopt a healthy lifestyle [...]"* CyP014
- 3.1k *"Personalized. To me, it is very important that a patient receives personalized service. I am here to devote to each individual patient as much time as necessary."* CyP002
- 3.1l *"The pharmacists' role in Cyprus should be upgraded [...], society must embrace pharmacists. Society should realise that the pharmacist is a health worker with advanced knowledge [...]"* CyP006  
*"Pharmacy-delivered services should be strengthened, and the public should stop thinking of us as merchants. Our services should be enhanced, we should not stagnate."* CyP011  
*"[...] pharmacists should stop being described as shopkeepers [...], in future, I would like to see the pharmacies develop and become a primary healthcare service point."* CyP021
- 3.2a *"[In the pharmacy we have] a blood pressure monitor, a blood glucose metre, scales and a height measuring tape, because we happened to need to measure (a patient's) height once."* CyP004
- 3.2b *"[In the pharmacy I have] a blood pressure monitor, [...], I do not have scales or a blood glucose metre [...]"* CyP009  
*"[In the pharmacy I have] only a blood pressure monitor"* CyP019
- 3.2c *"I know [how CVD is assessed], there is online information on the website escardio.org [...]"* CyP019
- 3.2d *"[...] I didn't know that there are CVD risk calculators"* CyP005
- 3.2e *"[...] if you need to do something for the first time, you need training [...]"* CyP005  
*"[...] we will definitely need to learn new things and receive training as to how we should provide this service to the public, as this is no simple matter."* CyP019
- 3.3a *"[...] through our conversations I will try to learn more, if the patient allows me to, and afterwards I will provide information, advice and, why not, assistance through monitoring [...]"* CyP012
- 3.3b *"[...] through observation you can understand [if a patient] is prone to developing CVD risk. We often have conversations, if the people feel comfortable with us [...]"* CyP004
- 3.3c *"Oral communication is more effective. If you give [the public] something written, they get stressed [...]"* CyP002  
*"Oral communication [is more effective]. You can see how people react, and understand whether or not they are interested. To me, these things are of major importance [...]"* CyP012

Contd...

Table 3: Contd...

3.3d	<i>“Personally (I monitor patients) [...] this is a pharmacist-patient direct relation”</i> CyP009 <i>“Personally (I monitor patients) [...]. Quite a few people are not willing to listen or in several instances think that the doctor is a more competent person for their monitoring than the pharmacist.”</i> CyP018
3.3e	<i>“(pharmacists-health professionals’ relations) are very good [...]”</i> CyP001 <i>“Fairly good. We endeavour to have good relations with doctors because we need to cooperate. Therefore, there needs to exist a good climate in our relations.”</i> CyP007
3.4a	<i>“non-acceptance and lack of responsiveness on the part of the public to listen and understand that what the pharmacist is trying to explain is for their own good [...]”</i> CyP003 <i>“[...] people have complete ignorance; they believe that the pharmacist is not a health professional but a medicine salesperson. A wrong image. In my personal opinion, this is the most significant barrier in the course of my everyday interactions [...]”</i> CyP006
3.4b	<i>“I consider lack of time as the only barrier [...]”</i> CyP008

The most significant barrier that prevents pharmacists from having a proactive role in both screening and monitoring patients with CVD risk factors was nonacceptance and lack of responsiveness on the part of the public. Eight participants maintained that people have a different perception of the pharmacist’s profession. Pharmacists feel that people see them as shopkeepers and not as medicine experts and advisers on various health issues [Table 3; 3.4a]. On the other hand, some CPs stated the lack of time due to excessive workload [Table 3; 3.4b] as a barrier.

## DISCUSSION

To the best of our knowledge, this is the first study exploring CPs’ perceptions of their role in CVD prevention and their future expectations within the ongoing GHS. We believe that this study is innovative because, up to now, no other research has focused on highlighting the role of CPs in CVD prevention. Our findings showed that CPs can play a significant and active role not only in modifying CVD risk factors but also in making the general public aware.

The overarching theme that arose from this study was the optimistic image of CPs. CPs expressed the need to move forward by offering public health services to the general public in order to positively modify the CVD risk factors. CPs also indicated that the GHS should allow them to have a more active role and to incorporate them in the primary care system with an equal role compared with that of other HCPs. Remarkably, CPs expressed their main wish to help smokers to quit, by starting to offer an intervention smoking cessation program. The Dewsbury *et al.* findings showed that smoking cessation services were the most valued by patients and can be delivered effectively and cost-effectively for public health priorities.<sup>[18]</sup>

When considering health services, the way HCP approach and communicate with the general public is of paramount importance. CPs described that a face-to-face conversation with patients is better because the direct approach can

allow HCPs to focus on what is being said and as a result to give necessary advice. The importance of interprofessional relationships and communication skills between community pharmacists and other HCPs also came to the fore. Interestingly, the majority of the participants stated that they feel isolated from other HCPs, a fact that echoed by Löffler *et al.* findings.<sup>[19]</sup> Despite that, recognizing the strengths and the worth of the two afore-mentioned roles may help to improve the communication strategy and to achieve better health outcomes.

On the one hand, pharmacists have expressed their willingness to provide smoking cessation services, but on the other, their main barrier was mentioned as the lack of knowledge and training skills. This was also described in-depth in the Chinwong and Chinwong study.<sup>[20]</sup> In-depth relationship between CPs and patients is important to enhance the role of CPs in CVD prevention. Notably, CPs believe that Cypriots do not acknowledge them as an advisor; a fact that possibly prevent CPs from having an active role in CVD prevention. CPs believed that the general public see them more as shopkeepers and not as medicine experts and advisers on various health issues. Thus, this obstacle is likely to hinder the CPs from highlighting and showing their role and their professional image to the general public. This contradicts the Kember *et al.* findings, which showed that the general public is accepting the extended clinical role of the pharmacists.<sup>[21]</sup>

Notably, CPs uncover what their pragmatic identity should be. Pharmacists from both Cyprus and Greece seem to know what their needs should be, in order to expand their role. They convinced their readiness to take an active role within the primary care settings to promote public health. CPs expressed their interest in screening programs, with a main one the hypertension screening-related intervention.<sup>[22]</sup> In addition, Greek pharmacists after structure training<sup>[20]</sup> already delivered successfully the first pharmacy-led WM program followed by an evaluation of it with both service providers and receivers.<sup>[23]</sup> However, pharmacists from

Cyprus, Greece, and the UK expressed a need for support from the MoH in order to achieve their needs.

The findings should be considered taking into account the following limitations. Even though CPs were randomly selected, the selection bias might possibly have occurred since participation is more likely to involve the more motivated CPs. Second, our findings may have limited implications for policymakers and stakeholders in Cyprus since the CPs' future needs may not be representable for the whole Cypriot pharmacy community. In addition, even though data saturation was achieved, the small sample size can affect our study findings.

This study opens up an important field of action for CPs and new challenges for the GHS. We believe that the Pharmaceutical Services of the MoH will prepare CPs by how to combine their multidisciplinary knowledge and thus to improve the future shape of public health.

## AUTHORS' CONTRIBUTION

Aliki Peletidi generated the initial idea for the study; Periklis Charalampous performed the data collection; Periklis Charalampous analyzed the data and interpreted the results with assistance from Aliki Peletidi; Periklis Charalampous drafted the manuscript; Aliki Peletidi supervised the study. All authors have read and agreed to the published version of the manuscript.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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