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Exploration for analysis of medicinal foods used to manage dyslipidaemia in Sri Lankan traditional medicine

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ABSTRACT

The medicinal foods used to manage non-communicable diseases in Sri Lankan traditional medicine are slowly but steadily disappearing from the country due to many reasons. This study is the first stage of the research project aimed to explore and analyze the medicinal foods used to manage dyslipidaemia in traditional medical practices of Sri Lanka. A qualitative study covering the whole island was conducted cross-sectionally, supplemented by a document review including ancient textbooks and talipot palm (*Corypha umbraculifera*) leaf manuscripts. The study included all the registered traditional medical practitioners of the country, more than 55 years of age. Practitioners with poor memory and feeble health and those who were not in current practice were excluded. The first participant was selected purposively and the rest by using the snowball sampling technique. The investigator administered, validated, open-ended, semistructured questionnaire was the tool used, and the interviews were conducted face to face or using either telephone, zoom, or WhatsApp technology. The saturation was achieved by the 25th participant and data were analysed using the framework analysis technique. Nine medicinal foods including three herbal congees, one herbal beverage, one green leaf salad, and four curry preparations with antidylipeidaemic effects were explored. Sri Lankan native medicine possesses many medicinal foods with antidylipeidaemic effects and they should be explored, scientifically studied, and used as evidence-based management for the smooth control of diabetes mellitus.

KEYWORDS: Traditional medicine, Non-communicable diseases, Medicinal foods, Antidylipeidaemic effects

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INTRODUCTION

As in many parts of the world, Sri Lanka is experiencing an epidemiological transition, which alters the disease pattern of the country from communicable diseases to non-communicable diseases (Ediriweera *et al.*, 2018). It is now widely described the multifactorial aetiology of most of these NCDs, including dyslipidaemia, and the approach to combat such diseases and their adverse health effects is most successful when medical therapy is coupled with nutritional management (Eussen *et al.*, 2011). Nutritional management includes specific dietary prescriptions with medicinal/functional foods and dietary supplements.

Medicinal foods which are placed between the pharmaceuticals and the traditional foods - the “Pharma-nutrition interface”- may be defined as ‘foods that receive recognition as therapeutic either in traditional medicine, ethnomedicine, or biomedicine (Eussen *et al.*, 2011; Ramalingum & Mahomoodally, 2014). An essential criterion of medicinal or functional food is that

it should remain as a food, and the functional or therapeutic activity should be demonstrated in the amounts and the form generally consumed in a diet by an average person (Min, 2022).

The medicinal effect of food is a fundamental theory of most of the medical practices in the world including Allopathy, Ayurveda, Yunani, Siddha, traditional Chinese medicine, and traditional Sri Lankan medicine. Ayurveda and the traditional Sri Lankan medicine (Dheshiya Chikithsa medical practice) are practiced on the plant, and herbal preparations as medicine and nutrition, and dietary management play a major role in both medical practices (Weragoda, 1980; Ravishankar & Shukla, 2007). For each prescription, specific dietary management is included and for certain disease conditions, the whole treatment is barely a dietary management (Nishteswar, 2016). For thousands of years, the traditional medical practice of Sri Lanka has used this dietary management for many non-communicable diseases including dyslipidaemia. Applying the scientifically confirmed knowledge of medicinal foods used for centuries in the traditional medicine of Sri Lanka as supplementation to allopathic management will

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contribute to a smooth control of dyslipidaemia with minimal usage of pharmaceuticals. Westernisation of the food culture, industrialisation of agriculture, improvement of the living standard, and gradual abandoning of traditional medicine by the Sri Lankans have resulted in the disappearance of this medicinal food knowledge from the country. Exploration and preservation of this knowledge for future scientific studies are very important for combating the NCD epidemic including dyslipidaemia among the world population.

MATERIALS AND METHODS

Cross sectionally conducted qualitative study capturing the whole country was performed, supplemented by a document review including ancient books and talipot palm (*C. umbraculifera*) leaf manuscripts. The study population was registered traditional medical practitioners of Sri Lanka over 55 years of age belonging to Ayurveda and Deshiya Chikithsa medical practices. Practitioners with poor memory and feeble health and those who were not in current practice were excluded. The Snowball sampling technique of the non-probability sampling strategy was used as the sampling technique. The first participant was selected purposively and the rest chain of the participants was identified through snowballing. A planned and convenient time for the participant was arranged and the interview was conducted face to face or using either telephone, zoom, or WhatsApp technology. A validated open-ended semi-structured questionnaire that consisted of questions on types of antidyslipidaemic medicinal foods, their preparation methods, the frequency of using them, any specific time of the day that the food should be consumed and the amount and duration of the food needed to be consumed, was used as the data collecting instrument. Interviewing of the medical practitioners was continued until saturation which was achieved by the 25th participant. The data were analysed using the framework analysis technique.

RESULTS

Nine medicinal food preparations that have been used to manage dyslipidaemia in Sri Lankan traditional medicine were explored by the qualitative survey.

1. The Garlic (*Allium sativum*) curry – consume three tablespoons as a curry at least three times per week.
2. Fenugreek (*Trigonella frenum*) curry- – consume three tablespoons as a curry at least three times per week.
3. Lotus (*Nelumbo nucifera*) rhizome curry – consume five tablespoons as a curry at least three times per week.
4. Curry leaves (*Murraya koenigii*) congee – consume one glass (200 mL) daily
5. Congee of wild asparagus (*Asparagus racemosus*) - consume one glass (200 mL) daily
6. Congee of Little Ironweed leaves (*Blumea chinensis*) - consume one glass (200 mL) daily
7. A drink prepared from blue Clitoria flower– blue pea- (*Clitoria ternatea*) - drink 200 mL daily.
8. Turkey berry (*Solanum torvum*) curry - consume five tablespoons as a curry at least three times per week.

9. Salad of Bitter gourd (*Momordica charantia*) leaves - consume five tablespoons as a green leaf salad with rice at least three times per week

DISCUSSION

As the study objectives covered only certain specific areas of medicinal foods, the investigator-guided structured interviews with the traditional medical practitioners were successful in quality and valid data gathering. With the implemented snowball technique, a good recommendation, introduction, and coordination were given by the introducing participant to the introduced participant which made the building up of the rapport convenient and feasible for the interviewer.

Snowball or chain referral sampling is often beneficial in identifying limited or relatively unexposed participants (Sharma, 2017). This technique opened the way for identifying the most experienced and knowledgeable traditional medical practitioners with precious knowledge on medicinal foods used to manage NCDs, living all over the country. As the qualitative interviewing was supplemented by referring to ancient books and talipot palm (*C. umbraculifera*) leaf manuscripts for data collection, a relatively early saturation was achieved.

The Covid 19 infection with strict social distancing and the political and fuel crisis inside the country were three major challenges raised during data collection. In qualitative research, one accepted fact is that distance or telephone interviews are inferior to direct or face-to-face interviews (Watson, 2022). The lack of rapport, lack of suitability for discussing sensitive topics, a high possibility for misunderstandings, limitations in data gathering resulting in insufficient detailing, and exclusions due to lack of telephone facilities make the qualitative interviewing inferior when done distantly or over the phone. But, in this qualitative study, observing, interpreting, and analysing the feelings, behaviors, and thoughts of the participants were not relevant and the topics discussed were not considered sensitive topics. As the interviewing was semi-structured and focused on specific detailing of targeted aspects, interviewing the participants using a distant communication system was appropriate and adequately detailed for this study, especially considering the prevailed situation in the country. Even though telephone interviewing or distance interviewing is thought to create a lack of rapport, in some studies it is found that it has given better and more valid data than direct interviewing (Watson, 2022). Some respondents stated that they were more relaxed and in a more comfortable setting when they were having telephone interviews than with direct interviews (Watson, 2022).

Eight out of nine explored medicinal foods are food preparations that need to be cooked with some added condiments or coconut milk. Almost all condiments used in Sri Lankan food culture and coconut milk have been scientifically studied by many researchers in the world and shown to be medicinally effective in many communicable and non-communicable diseases including diabetes mellitus. In Sri Lankan food culture, most of these

explored food preparations can be used as curries for main meals and some preparations such as curry leaves (*M. koenigii*) congee can be used as main meal replacements. One out of nine explored food preparations is a beverage that can replace tea and coffee. These make the patients more convenient to use these medicinal foods as they can be included in their routine diet saving their time and money unnecessarily spent on the preparation of specific medicinal products.

CONCLUSION

The Sri Lankan traditional medical practice has been using many medicinal foods for the management of dyslipidaemia for thousands of years in Sri Lankan history. Due to many social, cultural, and environmental factors, most of this knowledge is now slowly but steadily disappearing from society. Exploration of this knowledge for further scientific studies is a timely need and will be beneficial for the management of the burden of the NCD epidemic the country has now faced with. A cross-sectionally conducted qualitative study was performed on a sample of traditional medical practitioners of more than 55 years of age living in Sri Lanka. The sample was selected using the snowball sampling technique and the investigator administered, validated, semi-structured questionnaire was used for data collection. Saturation was achieved by the 25th participant. Qualitative data were analysed using the framework analysis technique and nine medicinal foods including, traditional curry varieties prepared using Sri Lankan condiments and coconut milk, some congee varieties prepared with herbal plants, and one drink that can be used as a beverage were explored by the study. As these foods are usual components of the Sri

Lankan food culture, they can be included in the routine diet of dyslipidaemic patients obtaining the dual benefit of nutritional and medicinal properties. Further scientific studies on these explored medicinal foods will have to be conducted for confirmation of their clinical effect.

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