

# Evaluation of the Knowledge, Opinion, and Approaches of Pharmacists, Physicians, Dieticians, and the Public on Herbal Products Used for Weight Control and Slimming in Northern Cyprus

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## ABSTRACT

**Background:** This study explores the perspectives of Northern Cyprus (NC) pharmacists, physicians, dieticians, and the public regarding Herbal Products (HP) for Weight Control (WC) and slimming, contributing valuable insights to healthcare practices and public awareness.

**Aims:** The objective is to comprehensively assess the knowledge, attitudes, and practices of community pharmacists, physicians/dieticians, and the general public in NC concerning WC and slimming. Additionally, the study aims to investigate their essential roles in dispensing HP for weight management, to enhance the safe and efficient use of herbal medicinal products and raise awareness about their effectiveness. **Materials and Methods:** The study involved 303 participants from the public, 24 pharmacists, and 21 physicians/dieticians who voluntarily participated through a combination of face-to-face and online distribution. Administering three questionnaires, the collected responses underwent statistical analysis using SPSS software. Results: Among public respondents, 71.95% reported not using HP for WC. For users, Senna was the preferred choice for 57.32%, followed by green tea at 51.22%. Pharmacists recommended Senna (58.33%) and green tea (50.00%) to their patients. Physicians/dieticians exhibited equal preferences, with 52.38% recommending green tea and Senna. **Conclusion:** Pharmacists play an essential role in raising awareness and educating patients on the safe utilization of HP for WC. However, a notable gap in their education regarding safe use, interactions, and side effects hinders optimal counseling and care. This study underscores the urgency for enhanced education and resources to address this knowledge deficit among pharmacists, healthcare professionals, and the public in NC.

**Keywords:** Obesity, Weight, Herbal Products, Northern Cyprus, Pharmacist.

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## INTRODUCTION

Obesity, which can be seen in all age groups all over the world and is becoming increasingly widespread, is also accepted as a significant public health problem by the World Health Organization.<sup>1</sup> All scientific authorities accept that being overweight with a Body Mass Index (BMI) of 25-29 and obese with a BMI of 30 or higher makes the body vulnerable to serious diseases, especially cardiovascular diseases. In addition to traditional local HP used for WC and slimming in every country,

there are also common HP used worldwide. Many studies on common HP are used worldwide for their effects and clinical applications.<sup>2-8</sup> By evaluating local information about medicinal plants used traditionally every day, products in the form of drugs (capsules, tablets) that are simple to dose and use are developed with today's pharmaceutical technology opportunities. It has been reported that some synthetic molecules, such as sibutramine, are added to their formulations to provide rapid weight loss, and these may, at times, lead to heart attacks and even fatality.<sup>9,10</sup>

Phytotherapeutics used in WC and slimming: Strained slimming tea bags, within some liquid dilutions and in the form of capsules and tablets, are available in pharmacies and under the "Health" sections of supermarket chains in some countries. WC and slimming HP are offered for sale as "self-medication," and OTC (Over-The-Counter) can be considered very dangerous for the



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consumer if they are not obtained from the right plants with the proper methods. All other phytotherapeutics if they are not consumed under the correct dosage and by examining any of the drug interactions. It has been determined that slimming drugs containing Chinese-origin Ephedra species extract cause death due to the risks of a heart attack and hypertension, and the Food and Drug Administration (FDA) has banned the use of Ephedra extract.<sup>11</sup> Similarly, in a study conducted by the *Istituto Superiore di Sanita*, the Italian National Institute of Health, it was reported that severe cardiovascular system side effects were observed in a population of 85.00% of women using HP for weight loss.<sup>12</sup> Studies show that excessive use of caffeine-containing HP, such as Green tea and Guarana, which are also consumed for weight loss with a thermogenesis effect, may have hepatotoxic effects.<sup>13</sup> The knowledge, experience, and approaches of health professionals (physicians, pharmacists, and dietitians) responsible for protecting and improving public health are primarily directly concerned with and affect public health. On the other hand, there are also publications indicating that pharmacists are less interested in drug-free public health interventions and that there is relatively little evidence to support community pharmacy weight loss programs.<sup>14</sup>

There is no research on HP used in WC and slimming in Cyprus. No data is available on the knowledge, opinions, and approaches of pharmacists, physicians, dietitians, and the general public on this subject. With this study, the approaches, knowledge, and views of pharmacists, physicians, dietitians, and the public about the HP used in WC and slimming in NC will be evaluated for the first time, and suggestions will be developed in light of the data obtained.

## MATERIALS AND METHODS

This cross-sectional study evaluated the pharmacists, physicians/dietitians, and the public's knowledge, opinions, and approaches in Northern Cyprus regarding utilizing herbal products used for weight control and slimming between April and August of 2022.

### Design of Study and Sample

The questionnaire was conducted in three distinct phases using a cross-sectional design to collect data. In the first stage, all participants in this questionnaire joined voluntarily, and their personal information was kept confidential. Out of 303 consenting patients, 82 provided complete responses, and the study proceeded with these participants. Demographic information (age, gender), use of herbal products, and sources of information about herbal products were inquired.

In the second stage, a list of 327 licensed pharmacies was obtained from the Turkish Cypriot Pharmacists Association. Participation criteria included pharmacists operating their pharmacies for over a year. If a pharmacy had two or more active pharmacists, only the pharmacy owner was allowed to participate in the survey. Those

without their pharmacies or with less than a year of experience were excluded. In total, only 24 out of 327 pharmacies participated in the survey. All eligible pharmacists were contacted, provided detailed information about the study, and voluntarily participated by completing the surveys in their pharmacies after giving verbal consent. Demographic information of participating pharmacists (age, gender, education, years in the profession) was recorded.

In the third stage of the study, a survey was conducted for registered healthcare professionals with the Turkish Cypriot Medical Association and the Turkish Cypriot Dietitians Association. 21 active physicians and dietitians in Nicosia were individually visited at their private clinics or hospitals to complete the survey. Those do not present at the clinic or hospital had the option to fill out the survey online. The demographic information of participating physicians and dietitians, including gender, age, years of education, educational background, and years in the profession, was recorded.

### Questionnaire Design (Data Collecting Form)

The surveys used in the study were developed through a comprehensive review of the relevant literature, taking into consideration the local context, with references to Eldalo *et al.*,<sup>15</sup> Akça *et al.*,<sup>16</sup> and Örs.<sup>17</sup> The structural and content validity of the three prepared surveys were evaluated by an expert panel consisting of two independent pharmacy owners/pharmacists, three academicians (1 specializing in Phytotherapy, 1 in Public Health, and 1 dietitian), and two individuals from the general public, along with two independent dietitians, all working in Northern Cyprus. After discussions with the expert panel, some changes were made to the questions prepared for the survey.

The prepared three different surveys consist of four main sections. The first section of the survey includes demographic information such as age, gender, education level, and professional experience.

In the second section of the survey, participants were asked to respond to questions related to their approach to herbal products, preferences, and the sources from which they obtain such products.

The third section employed a 5-point Likert scale-(1) Always, (2) Often, (3) Sometimes, (4) Very rarely, and (5) Never determine the attitudes of the public, physicians, and pharmacists towards herbal products.

The fourth section evaluated the knowledge of the public, pharmacists, physicians, and dietitians regarding the most commonly used herbal products for weight control and slimming, including information on indications, contraindications, side effects, and interactions of these herbs.

All questions in the survey were in Turkish and were closed-ended, allowing completion within 15-20 min. The survey was tested on a pilot group consisting of 25 independent

pharmacists, 2 physicians, 2 dietitians, and 15 individuals from the general public to assess clarity, reliability, acceptance, and completion time. Data from the pilot group, including physicians, dietitians, and pharmacists, were not included in the final data analysis of the survey study.

### Statistical Analysis

The data was collected via the Survey Monkey website, and Microsoft Excel was used to generate additional graphical representations.

The data collected from the surveys were coded, and the data analysis was performed using the Social Sciences Statistical Program (SPSS), version 21, from IBM, USA. Descriptive statistics such as percentages and frequency distribution were calculated for variable analysis. Responses on the Likert scale, specifically “strongly agree” and “agree,” were considered positive, while “strongly disagree” and “disagree” were considered negative. The chi-square test was employed to find the correlation between categorical variables at a significance level of five percent. A *p*-value less than 0.05 was considered statistically significant.

## RESULTS

### Participants Data

Table 1 provides a comprehensive illustration of the demographic information of Pharmacists, Physicians/Dietitians, and the Public who participated in the study. Sociodemographic analysis data of 24 pharmacists revealed a gender distribution of 45.83% females and 54.17% males. The majority of pharmacists (33.33%) fell within the 35-44 age range, with 58.33% holding undergraduate degrees. Participants had varying years of experience, with 37.50% practicing for 0-5 years.

Among the 21 physicians and dietitians who responded to the survey, 61.90% were female, and 38.10% were male. The majority (33.33%) were in the 35-44 age range, with 52.38% being married. Educational backgrounds included 42.86% as specialist graduates and 23.81% as undergraduate graduates.

The questionnaire was completed by 303 members of the public, with 62.05% females and 37.95% males. The age distribution showed 27.72% in the 25-34 range and 26.73% in the 45-54 range. Marital status varied, with 47.85% married and 31.35% single. Education levels included 41.25% high school graduates and 36.30% undergraduate graduates. The majority of the public (41.91%) worked in the private sector, and 31.68% reported 11-20 years of professional activity. Income levels were predominantly medium (64.03%), followed by low (32.67%) and high (3.30%). This comprehensive overview captures the diverse sociodemographic profiles of pharmacists, physicians/dietitians, and general participants in the study.

### Participants Awareness of HPs Knowledge and Attitude

In the context of the survey, it is essential to consider the nature of multi-select questions. These questions lead to a situation where the number of responses surpasses the total number of participants. Consequently, this scenario can result in response percentages that exceed 100%.

### Pharmacists Results

The familiarity with herbal products among pharmacists, physicians, and dietitians is summarised in Table 2. The findings indicated that pharmacists knew the composition at a rate of 29.17%, pathology at 33.33%, indication at 29.17%, side effects at 29.17%, usage alerts at 29.17%, and contraindication at 25.00%. For physicians and dietitians, familiarity with the composition was at a rate of 35.00%, pathology at 28.57%, indication at 33.33%, side effects at 33.33%, usage alerts at 19.05%, and contraindication at 33.33%.

Table 3 presents the HP that are most commonly sold in pharmacies where pharmacists participated. Notably, herbal teas (79.17%), food supplements (54.17%), aromatherapeutic products (33.33%), and medical oils (33.33%) emerge as the predominant categories of herbal products frequently dispensed through community pharmacies.

It was found that only 12.50% of pharmacists regularly used HP, while 66.67% rarely used it, and 20.83% didn't use it at all. Additionally, 83.33% of pharmacists recommended herbal health products to their patients.

The Pharmacist's consultancy to patients with HP: 4.17% of pharmacists answered 'none' which was a low rate; the most common response, 66.67%, is 'sometimes,' with 16.67% 'very rarely' is the second most frequently given response, with 12.50% 'very often' the third most frequently given response.

Regarding the frequency of patients that ask consultancy about HP are as follows: Only 4.17% answered 'often' and 'never,' the most given answer was 'sometimes' with 62.50%, and the second most given answer was 'very rarely' with 29.17%.

The 33.33% of pharmacists that recommend HP responded that “synthetic drugs are insufficient in the treatment by themselves,” 33.33% answered, “as the only educated health practitioner in the field of herbal goods, I am well-versed in the specifics,” 29.17% responded “I think that HP does not have side effects or have too little side effects,” also 25.00% pharmacists responded “I think HP is too favored by patients” and 25.00% responded “I can suggest it as a preventative measure for those with a history of health risks.”

Concerns of pharmacists from recommending HP: 45.83% of pharmacists responded, “I don't recommend thinking that patients won't be able to afford them because they're too expensive,” 25.00% “I am afraid that HP can cause harm,” 25.00%

**Table 1: Pharmacist, Physician/Dietician, and Public Demographic Information.**

Sociodemographic Information			
	Pharmacists (n=24)	Physicians/Dieticians (n=21)	Public (n=303)
<b>Gender</b>	n (%)	n (%)	n (%)
Female	11 (45.83%)	13 (61.90%)	188 (62.05%)
Male	13 (54.17%)	8 (38.10%)	115 (37.95%)
<b>Age</b>			
Under 18			1 (0.33%)
18-24	2 (8.33%)	1 (4.76%)	15 (4.95%)
25-34	7 (29.17%)	3 (14.29%)	84 (27.72%)
35-44	8 (33.33%)	7 (33.33%)	45 (14.85%)
45-54	6 (25.00%)	6 (28.57%)	81 (26.73%)
55-64	1 (4.17%)	1 (4.76%)	66 (21.78%)
65 and older		3 (14.29%)	11 (3.63%)
<b>Marital Status</b>			
Married	9 (37.50%)	11 (52.38%)	145 (47.85%)
Single	12 (50.00%)	7 (33.33%)	95 (31.35%)
Divorced	3 (12.50%)	3 (14.29%)	50 (16.50%)
Widow			13 (4.29%)
<b>Education Level</b>			
No education			1 (0.33%)
Primary School			10 (3.30%)
High School			125 (41.25%)
Associate degree			20 (6.60%)
Undergraduate	14 (58.33%)	5 (23.81%)	110 (36.30%)
Master's	8 (33.33%)		28 (9.24%)
PhD	2 (8.33%)	2 (9.52%)	9 (2.97%)
Over PhD		5 (23.81%)	
Specialist		9 (42.86%)	

“I think that there is not enough information about HP” and only 4.17% answered, “I think HP is not effective.”

Regarding handling interactive products, 37.50% of pharmacists responded, “I care very much, and I certainly do not give the interactive product.” 37.50% “I warn the patient, but I’ll give it if he/she insists,” 16.67% responded, “I would rarely skip the interaction of drugs used.” The least answered is “I do not pay much attention because I think there is not enough substance to interact in the herbal drug,” with 8.33%.

It has been summarised in Table 4, and the pharmacists were allowed to mark more than one option. Regarding where pharmacists obtained information about herbal health products, the majority (79.17%) received it through undergraduate education. Additionally, 58.33% found information on the Internet, and 33.33% identified in-occupational training as a source.

The most frequently recommended HP were medical tea (87.50%), Medical oils (54.17%), Food supplements (50.00%), and Dry herbal drugs (25.00%). Pharmacists were allowed to select more than one option (Table 5).

In Table 6, HP, which pharmacists recommend for WC and slimming, is summarised.

Most pharmacists recommended *Cassia acutifolia*, followed by *Thea sinensis*, *Cinnamomum cassia*, *Coffea arabica*, and CLA-Safflower oil.

### Physicians and Dietician's Results

The HP that physicians and dieticians considered for WC and slimming are medical tea (61.90%), Medical oils (47.62%), Food supplements (38.10%) and Phytopharmaceuticals (23.81%). These stand out as the most frequently recommended HP.

**Table 2: Knowledge of Pharmacists, Physicians, and Dieticians.**

	I have knowledge	I have little knowledge	I have no knowledge	p
	n (%)	n (%)	n (%)	
<b>About the composition of the herbal product.</b>				0.387
Pharmacist.	7(29.17%)	15(62.50%)	2(8.33%)	
Physician and dietician.	7(35.00%)	9(45.00%)	4(20.00%)	
<b>Regarding the pathology of the herbal product and its application.</b>				0.039
Pharmacist.	8(33.33%)	15(62.50%)	1(4.17%)	
Physician and dietician.	6(28.57%)	9(42.86%)	6(28.57%)	
<b>About the indication of the herbal product.</b>				0.038
Pharmacist.	7(29.17%)	16(66.67%)	1(4.17%)	
Physician and dietician.	7(33.33%)	9(42.86%)	5(23.81%)	
<b>About the side effects of the herbal product.</b>				0.0443
Pharmacist.	7(29.17%)	14(58.33%)	3(12.50%)	
Physician and dietician.	7(33.33%)	9(42.86%)	5(23.81%)	
<b>About the usage alerts of the herbal product.</b>				0.083
Pharmacist.	7(29.17%)	16(66.67%)	1(4.17%)	
Physician and dietician	7(19.05%)	9(57.14%)	5(23.81%)	
<b>About the contraindications of the herbal product.</b>				0.121
Pharmacist.	6(25.00%)	16(66.67%)	1(8.33%)	
Physician and dietician.	7(33.33%)	8(38.10%)	6(28.57%)	

**Table 3: The Most Commonly Sold HP in Pharmacies.**

Product	%
Herbal tea	79.17%
Food Supplement	54.17%
Aromatherapeutic	33.33%
Phytotherapeutics	12.50%
Phytopharmaceutical	16.67%
Nutracy	4.17%
Phytothermocosmetics	16.67%
Medical oils	33.33%
Dry herbal drugs	20.83%
Functional food	20.83%

HP that physicians and dieticians recommend for WC and slimming are summarised as the majority of physicians and dieticians stated as follows: *Cassia acutifolia* (52.38%) and *Thea sinensis* (52.38%). Following these, *Zingiber officinale* (38.10%), I do not recommend any herbal product (28.57%), and *Foeniculum vulgare* (23.81%).

## Publics Results

The survey revealed that a significant majority of participants acknowledged weight problems within their families, with 64.69% answering 'yes,' while 35.31% responded with 'no.'

Regarding the effectiveness of Herbal Products (HP) for Weight Control (WC), participant responses were as follows: 45.12% reported 'It worked, I lost weight,' 24.39% indicated 'Didn't quite work,' 21.95% expressed 'I couldn't use it regularly.' Only 8.54% stated, 'It messed up my stomach and intestines, so I quit.'

The participants consulted a specialist for weight loss. The majority of them stated that (45.12%) dietitians, (20.73%) didn't consult any specialists, (17.07%) physicians, and (17.07%) pharmacists.

The participant's sources of information about the products used for WC, 'Pharmacist' took first place with 52.44%, followed by 'Dietitian' with 48.78%, 'Physician' with 37.80%, and 'Internet' with 37.80%.

From where participants purchased the HP for WC, slimming was found as follows: the vast majority (64.63%) stated it as 'Pharmacy.' Following that, 18.29% stated 'Herbalist,' 10.98% 'Internet,' and 6.10% 'Market.'

Form of HP that the participants usually take was found to be 39.02% as 'Tea form or dry drug,' 30.49% as 'Capsule form,' 24.39%

**Table 4: Sources from Which Pharmacists Get Information About Herbal Health Products.**

Sources	%
Undergraduate education	79.17%
Postgraduate education	16.67%
In-occupational training	33.33%
From product representatives	8.33%
From the box or prospectus	20.83%
Related magazines, books	12.50%
Media (Radio/TV/Newspaper)	4.17%
Internet	58.33%
Other	0.00%

**Table 5: Pharmacists Perspectives on The Herbal Products Used in Weight Control and Slimming.**

Product	%
Herbal tea	87.50%
Medical oils	54.17%
Dry herbal drugs	25.00%
Nutracy	8.33%
Phytothermocosmetics	4.17%
Aromatherapeutic	4.17%
Phytopharmaceutical	4.17%
Food Supplement	50.00%

as 'Tablet or dragee form,' and 6.10% as 'Tincture/drop form.' No one answered 'in the form of lozenges or chewable tablets.'

The time period that participants used WC products: 47.78% '2-6 months,' 20.73% '7-12 months,' 19.51% 'less than 1 month,' 6.10% '1 year' and 4.88% '2 years and more.'

Of the HP and/or supplements that the participants used for WC and slimming, the most chosen product was *Cassia acutifolia*, followed by *Thea sinensis*, *Musa paradisiaca*, *Zingiber officinale*, and *Coffea arabica*.

Side effects related to the products were found as the vast majority (68.29%) said No, and the remaining respondents (31.71%) said Yes.

It was found that side effects disappeared when participants stopped using the products; only 1 person answered no that the side effects didn't disappear. The remaining 25 participants who continued the survey said yes.

## DISCUSSION

This is the first study of its kind to study the role and approach of physicians, dietitians, and pharmacists in the use of HP for obesity and WC amongst the general public of NC. In addition,

this study aims to evaluate the public's perspective and use of HP for obesity and WC.

When the public respondents were asked about the use of HP in obesity and WC, 28.05% stated that they used these types of products: the study evidenced similar findings to other studies in this respect.<sup>15-18</sup>

15.84% of the public respondents stated that they never consumed alcohol. These results from the study were similarly supported by those from a similar study.<sup>19,20</sup> However, these findings were not identical in a comparable study.<sup>17</sup>

The study's results show that 45.54% of the participants smoked cigarettes, and 54.46% did not smoke cigarettes. However, it's essential to indicate that smoking is not a recommended strategy for weight control due to its severe health implications. The findings aligned with similar studies.<sup>19-21</sup> Promoting healthier lifestyle choices, focusing on proper nutrition and regular exercise, is crucial to promote sustainable WC.

Existing weight problems within the public respondent's families were found as 64.69%. These findings in this study are similar to those of a similar study.<sup>22</sup> However, it is not similar to other studies.<sup>18,19</sup>

28.05% of the public respondents used HP for WC: the findings in a similar study were consistent with these results.<sup>16,18,23</sup> In the study of Ahmad and his friends,<sup>24</sup> the majority of the respondents (53.52%) stated that they use HP to lose weight. According to Eldalo and friend's research, a large majority (98.10%) of Saudi Arabian participants answered "yes" to the same question.<sup>15</sup> Based on the findings of the studies mentioned, it might be useful for healthcare providers to consider the popularity of HP for WC among the public in NC. They could conduct further research to investigate the efficacy and safety of such alternative treatments and provide more guidance to the public. Additionally, it may be beneficial to raise awareness and educate the public about the potential risks and benefits of using these treatments.

The majority of public participants consulted a specialist for weight loss: 45.12% dietitian, 17.07% doctor, 17.07% pharmacist, and 20.74% did not consult any specialist; in a similar study, consultancy was made by friends and relatives (35.20%), internet (27.70%), TV-radio platforms (18.20%), physicians (11.90%), pharmacists (4.70%), newspaper-magazine (1.90%) and brochure (0.40%).<sup>16</sup> The study found that people who want to lose weight often seek advice from different types of specialists. A considerable number of them seek help from dietitians. The study also highlights the potential contribution of pharmacists in weight loss consultations. This shows that pharmacists can provide vital advice and support to people who want to pursue a healthy lifestyle.

The sources that respondents get information about the products for WC were 'Pharmacists,' which took the first place at 52.44%,

**Table 6: The HP Pharmacists Suggest to Their Patients in Weight Control and Slimming.**

Herbal Product	%
<i>Curcuma longa</i>	20.83%
<i>Thea sinensis</i>	50.00%
<i>Cinnamomum cassia</i>	33.33%
<i>Musa paradisiaca</i>	20.83%
<i>Cassia acutifolia</i>	58.33%
<i>Capsicum annuum</i>	20.83%
<i>Zingiber officinale</i>	8.33%
<i>Trigonella foenum-graecum</i>	0.00%
<i>Foeniculum vulgare</i>	12.50%
<i>Rhamnus purshiana</i>	8.33%
<i>Rhamnus frangula</i>	0.00%
<i>Rheum palmatum</i>	0.00%
<i>Plantago psyllium</i>	16.67%
<i>Fucus vesiculosus</i>	4.17%
<i>Gymnema sylvestre</i>	0.00%
<i>Paullinia cupana</i>	8.33%
<i>Garcinia cambogia</i>	0.00%
<i>Hoodia gordonii</i>	0.00%
<i>Gelidium amansii</i>	8.33%
<i>Astragalus gummifer</i>	4.17%
<i>Ilex paraguariensis</i>	4.17%
<i>Tamarindus indica</i>	4.17%
CLA- Safflower oil	25.00%
<i>Coffea arabica</i>	29.17%
<i>Ananas comosus</i>	8.33%
<i>Euterpe oleracea</i>	8.33%

followed by 'Dietitians' at 48.78%, 'Physicians' at 37.80% and 'Internet' at 37.80%. In the study of Akour and his friends,<sup>18</sup> the majority of the participants (72.50%) did not consult an expert in WC, in the study of Akça and his friends.<sup>16</sup> 'Family-relative' took the first place (35.20%) respectively, followed by 'Internet' at 27.70%, 'TV-radio' at 18.20%, 'Physicians' with 11.90%, 'Pharmacist' at 4.70%, 'Newspaper-magazine' with 1.90% and 'Brochure' with 0.40%. In the study of Ahmad and his friends,<sup>24</sup> the results were respectively as follows (39.40%) 'Friends,' (21.00%) 'Physicians,' (17.80%) 'Herbalists,' (16.80%) 'Obese patients' and (4.70%) 'Pharmacist.' The most important factor from this study was that the participants consulted the pharmacist. However, in the studies of Akour and his friends,<sup>18</sup> Akça and his friends, and Ahmad and his friends,<sup>24</sup> it was determined that the participants consulted the specialist at a low rate. There was no similarity with this study.

The vast majority of public participants obtained HP (64.63%) from Pharmacy. Followed by 18.29% Herbalist, 10.98% 'Internet'

and 6.10% 'Market,' in the study of Akça and his friends,<sup>16</sup> the answers given to the same question were 'Herbalist' with 54.60%, 'Market' with 13.40%, 'Pharmacy' with 10.30%, and 'Internet' with 7.10%. No concordance was found with this study, and different results were concluded. The results of Dalgıç and his friend's study were respectively 21.50% 'Herbalist,' 18.00% 'I prepared it myself,' 12.50% 'Internet Order' and 6.50% stated 'as from the health institution,' the remaining 41.50% did not answer.<sup>22</sup> Similarities were found in this study. The data in the study of Akour and his friend's study were 'Home' (34.85%), 'Herbalist' (31.60%), 'Specialized Centres' (25.97%), 'Pharmacy' (5.63%) and 'Other' (2.16%). It has been determined that there are differences between these studies.<sup>18</sup>

Generally, which form the HP they used were as follows: 39.02% 'Tea form or dry drug,' 30.49% 'Capsule form,' 24.39% 'Tablet or dragee form' and 6.10% 'Tincture/drop form.' No one answered 'in the form of lozenges or chewable tablets.' These findings are consistent with a similar study.<sup>16,24</sup>

The duration of public participants that used HP for WC and slimming was found to be 48.78% '2-6 months,' 20.73% '7-12 months,' 19.51% 'less than 1 month,' 6.10% '1 year' and %4.88 as '2 years and more.' These findings were similar in other similar studies.<sup>18,22,25</sup> This finding underscores the dynamic nature of an individual's engagement with HP for weight management, reflecting personal preferences and goals.

Participants of the public who use HP and/or supplements for WC and slimming responded that the most popular answer was (57.32%) *Cassia acutifolia*. Followed by (51.22%) *Thea sinensis*, but there was not much difference between them. The critical factor that stands out is that, as demonstrated in many similar studies, most participants reported benefiting from the products.<sup>15,16,18,22,24,25</sup> In the study of Garcia-Alvarez and his friends,<sup>20</sup> some differences were noticed with this study: the Senna plant was less selected in Europe, and Pineapple was in the foreground, followed by Green tea. The variation in the choice of herbal products for WC and slimming between studies conducted in Asia, like this study, and the study in Europe by Garcia-Alvarez and friends could be attributed to several factors. Regional preferences, cultural differences, and availability of specific herbal products in each location play a significant role in shaping consumer choices.

The results indicated that 68.29% of participants did not experience any side effects from the HP they used, while the remaining 31.71% reported experiencing side effects. This study overlaps with similar studies.<sup>15,16,24</sup> This suggests a positive trend in perceived safety among users, emphasising the need for continued research and monitoring of potential side effects associated with these products.

Considering the sources from which the public participants obtained information about herbal health products, 52.44%

of the participants stated as 'Pharmacist,' this is an important development for this study and for NC because the pharmacists are the professional group that knows the HP best, and thus the misuse of the patients can be kept at the lowest level, the answers given after that (48.78%) dietitian and (37.80%) physician. When asked the same question to Pharmacists, Physicians, and Dietitians, Pharmacists (79.19%) stated 'Undergraduate education' and Physicians/dietitians stated (47.62%) 'Product representatives.'

According to the answers given by the pharmacists, the health products they have in their pharmacies were determined to be the most prominent as 'Herbal teas' (79.17%). This means that it is the most preferred form of consumption by patients and the one with the most positive results. In addition, 'Food supplements' followed it with 54.17%.

Interesting results were obtained for pharmacists, physicians, and dietitians if they personally use HP themselves; in both studies, health professionals said, 'I rarely use' (Pharmacists 66.67%-Physicians/Dietitians 61.90%), and when asked do they recommend HP to their patients they said 'yes' (Pharmacists 83.33%-Physicians/Dietitians 61.90%). Statistically, there is no difference in the use of HP by pharmacists and physicians/dietitians ( $p=0.484$ ). There is no difference between pharmacists and physicians/dietitians recommending HP as well ( $p=0.105$ ). According to the results, health professionals, especially pharmacists, tend to use HP less often for themselves but are more likely to recommend them to their patients. This difference in behaviour raises important questions about the factors that impact their professional advice versus personal preferences.

Pharmacists (62.50%) and physicians/dietitians (76.19%) reported that patients only consult about HP sometimes, with no statistical difference ( $p=0.482$ ).

The reasons pharmacists recommend HP were almost equal in all options; the answers were given as follows: (33.33%) 'I think Synthetic drugs are insufficient in the treatment by themselves,' (33.33%) 'As the only educated health practitioner in the field of herbal goods, I have a thorough understanding of the details,' (29.17%) 'I think that HP does not have side effects or have too little side effects,' (25.00%) 'I think patients highly prefer herbal products.' (25.00%) 'I can suggest it as a preventative measure for those with a history of health risks I know.' Considering these findings, it is observed that HP are safe and beneficial in all aspects. When asked why you do not recommend herbal products to pharmacists, the highest response, with 45.83%, was 'I do not recommend, thinking that patients won't be able to afford them because they're too expensive.' It can be beneficial to engage in consultations with manufacturing companies without compromising the quality of herbal products in the market, and prices can be reduced. Two different answers were found at the same rate, with 25.00% each. 'I am afraid that HP can cause harm.'

and 'I think that there is not enough information about HP. The same question was asked to physicians/dietitians, and reasons for recommendation stated as follows: 42.86% 'I can suggest it as a preventative measure for those with a history of health risks I know' and considering the reasons for not recommending 66.67% stated 'I think that there is not enough information about HP,' followed by 33.33% stated 'I think HP are not safe.' The main reason for these findings is that there is not enough research on HP, and health professionals may be afraid that they may cause harm. Thus, more research must be done on HP, and further congress and training should be provided to pharmacists, physicians/dietitians.

When asked whether pharmacists consider drug-herbal interactions related to recommended herbal products, two options were found at the same rate with 37.50%. These findings are interesting because on the one hand, the pharmacists who stated, "I care very much, and I would never give any interacting product" the pharmacist adopts and protects his patient in every aspect but on the other hand, "I warn the patient, but if he insists, I will give" and provides the product without protecting the patient, with a low rate of 8.33%, the pharmacists stated "I don't pay much attention, because I think there is not enough substance in the HP to interact," this is a finding that should be taken seriously, pharmacists should be warned about this because even though this answer is chosen at a low rate, life-threatening situations can occur, plants may seem innocent, but if not used in a controlled and careful way, harmful results can occur. When the physicians/dietitians were directed to the same question, similarities with pharmacy were observed in the answers given. Again, the same rate for the same question they stated (42.86%) "I care very much, and I would never prescribe any interacting product" and "I warn the patient, but I don't know if he/she is getting it from somewhere else," In order to prevent such behaviours, public awareness campaigns can be conducted to inform patients, so this way patients will trust and not insist on pharmacists, physicians/dietitians. The other option was "I will refer to the pharmacist about this," which was stated with 14.29%: this is a positive result for pharmacists, but increasing this rate will be even better for pharmacists.

When inquired about HP deemed suitable for WC and slimming, both groups comprising pharmacists, physicians, and dietitians responded Medicinal teas (Pharmacists 87.50%-Physicians/Dietitians 61.90%) came first, followed by Medicinal oils (Pharmacists 54.17%-Physicians/Dietitians 47.62%) and Food supplements (Pharmacists 50.00%-Physicians/Dietitians 38.10%).

Table 6 shows HP products that pharmacists recommend to patients. The Majority of pharmacists responded to *Cassia acutifolia*, followed by *Thea sinensis*, *Cinnamomum cassia*, *Coffea arabica*, and CLA Safflower oil. In the study of Hijazi and his friends,<sup>26</sup> *Thea sinensis* was determined to be the most sold



product in the Lebanese market for WC. This study determined that physicians/dietitians recommended *Thea sinensis* and *Cassia acutifolia* with a rate of 52.38% for WC; a similarity was found between the two groups. According to these findings, with the most favourable results obtained, Medicinal teas are the favourite for WC and slimming abroad and in NC.

The statistical analysis presented in Table 2 reveals several noteworthy findings. The study indicates that the pharmacists', physicians' and dieticians' levels of knowledge concerning the composition of the HP did not exhibit a statistically significant correlation ( $p=0.387$ ). However, significant correlations were observed in relation to the pathology of the HP and its application ( $p=0.039$ ). Conversely, no statistically significant correlations were identified for the indication of the herbal product ( $p=0.083$ ), its side effects ( $p=0.443$ ), warnings for use ( $p=0.083$ ), and contraindications ( $p=0.121$ ). The study's findings offer valuable insights into the various perspectives and levels of awareness among healthcare professionals, emphasising the need for targeted education and training in specific aspects of herbal product knowledge.

### Limitations of this Study

Although the results of the current study were obtained using a simple but effective online survey and in-person interviews, this study has some limitations that may be addressed in future studies. First, an online survey platform was utilised to reach as many participants as possible in a short time. However, this may bias recruitment to younger individuals. Second, compared to data obtained in an interview-based setting, a self-administered questionnaire may have led to bias in some of the data, as the respondents may have increased or decreased their use of HPs. Third, the use of electronic questionnaires may not have sampled the population evenly. Individuals who were illiterate or did not have access to the Internet and social networks were underrepresented in these methods, making it difficult to generalise the results. Therefore, the study may need to be repeated to include communities with different educational levels and access to the media. Finally, this study did not explore the efficacy and safety of HPs for WC.

### CONCLUSION

This study provides a comprehensive examination of the public's use of HP for WC and slimming, shedding light on the knowledge, opinions, and approaches of pharmacists, physicians and dietitians in NC. The prevalence of HP use for WC among the public aligns with findings from similar studies. Healthcare providers need to acknowledge and investigate the growing trend of alternative treatments. The study underscores the significance of promoting healthier lifestyle choices, emphasising proper nutrition and regular exercise over strategies like smoking, which are discouraged due to severe health implications. Consultations

with specialists for weight loss reveal a notable reliance on dietitians, highlighting the potential contribution of pharmacists in weight loss consultations. The role of pharmacists in providing advice and support is crucial, considering their importance as a trusted source of information on herbal health products. The study further reveals the dominant role of pharmacists in providing information about these products, showing their role in minimising potential misuse among patients. Noteworthy variations in sources, forms, and durations of HP use among the public suggest diverse preferences and engagement patterns. The majority of obtaining HP from pharmacies highlights the importance of pharmacists in guiding patients. While the study indicates positive trends in perceived safety, the presence of side effects emphasises the necessity for continued research and monitoring.

The healthcare professional's perspectives reveal a need for targeted education, particularly in enhancing knowledge about herbal product composition, pathology, and application. The study focuses on the delicate balance between personal usage and professional recommendations among healthcare providers, emphasising the importance of further research and training to bridge gaps in understanding and ensure the safe integration of herbal products into healthcare practices in NC.

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### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

### ABBREVIATIONS

NC: Northern Cyprus; HP: Herbal Products; WC: Weight Control; BMI: Body Mass Index; OTC: Over the Counter; FDA: Food and Drug Administration.

### CONTRIBUTION OF AUTHORS

The authors declare that this work was done by the authors named in this research article and all liabilities pertaining to claims relating to the content of this article will be borne by them.

Author Contributions: Methodology, software, formal analysis, B.Ş., data curation, B.Ş.; writing-original draft preparation, B.Ş., H.U.Y., and D.Ö.Y.; writing-review and editing, D.Ö.Y. and H.U.Y.; supervision, D.Ö.Y. All authors have read and agreed to the published version of the manuscript.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The Near East University Ethics Committee gave its consent (YDU/2021/88-1286) for the collection of participant data. Additionally, all interviews were conducted only after obtaining the participant's verbal and written consent.

## SUMMARY

The study in Northern Cyprus investigated the knowledge and practices of pharmacists, physicians, dietitians, and the public regarding HP for weight control. Questionnaires were distributed, revealing that while the majority of the public didn't use HP for weight control, Senna and Green tea were popular choices. Pharmacists often recommended Senna and Green tea, mirroring physician's suggestions. Pharmacists played a crucial role in counselling patients on safe HP use despite gaps in their herbal product education. Interestingly, most participants consulted pharmacists for information on HP, emphasising their influential role. Concerns about affordability and lack of information on HP safety surfaced among professionals, highlighting the need for more research and training in herbal product interactions and safety. Overall, the study underscored the critical role of pharmacists and the necessity for enhanced education and information dissemination for optimal herbal product use in weight management.

## REFERENCES

- World Health Organization (WHO), World Health Organization. The challenge of obesity in the WHO European region and the strategies for response [Internet]; 2007 [cited Jul 9 2023]. Available from: <http://www.euro.who.int/obesity>.
- Vasques CA, Rossetto S, Halmenschlager G, Linden R, Heckler E, Fernandez MS, et al. Evaluation of the pharmacotherapeutic efficacy of *Garcinia cambogia* plus *Amorphophallus konjac* for the treatment of obesity. *Phytother Res* [Internet]. 2008;22(9):1135-40. doi: 10.1002/ptr.2323, PMID 18729243.
- Baladia E, Basulto J, Manera M, Martinez R, Calbet D. Effect of green tea or green tea extract consumption on body weight and body composition; systematic review and meta-analysis. *Nutr Hosp*. 2014;29(3):479-90. doi: 10.3305/nh.2014.29.3.7118, PMID 24558988.
- Oben J, Kuate D, Agbor G, Momo C, Talla X. The use of a *Cissus quadrangularis* formulation in the management of weight loss and metabolic syndrome. *Lipids Health Dis* [Internet]. 2006;5:24. doi: 10.1186/1476-511X-5-24, PMID 16948861.
- Hursel R, Viechtbauer W, Westerterp-Plantenga MS. The effects of green tea on weight loss and weight maintenance: a meta-analysis. *Int J Obes (Lond)* [Internet]. 2009;33(9):956-61. doi: 10.1038/ijo.2009.135, PMID 19597519.
- Celleno L, Tolaini MV, D'Amore A, Perricone NV, Preuss HG. A dietary supplement containing standardized *Phaseolus vulgaris* extract influences body composition of overweight men and women. *Int J Med Sci* [Internet]. 2007;4(1):45-52. doi: 10.7150/ijms.4.45, PMID 17299581.

- Poddar K, Kolge S, Bezman L, Mullin GE, Cheskin LJ. Nutraceutical supplements for weight loss: a systematic review. *Nutr Clin Pract* [Internet]. 2011;26(5):539-52. doi: 10.1177/0884533611419859, PMID 21947637.
- Maharlouei N, Tabrizi R, Lankarani KB, Rezaianzadeh A, Akbari M, Kolahehdooz F, et al. The effects of ginger intake on weight loss and metabolic profiles among overweight and obese subjects: A systematic review and meta-analysis of randomised controlled trials. *Crit Rev Food Sci Nutr* [Internet]. 2018;59(11):1753-66. doi: 10.1080/10408398.2018.1427044.
- Ancuceanu R, Arama CC. Weight loss food supplements: adulteration and multiple quality issues in two products of Chinese origin. 2013;61(1):28-44. *Farmacia* [Internet]. Available from: <https://www.researchgate.net/publication/235931805>.
- Müller D, Weinmann W, Hermanns-Clausen M. Chinese slimming capsules containing sibutramine sold over the Internet: a case series. *Dtsch Arztebl Int* [Internet]. 2009;106(13):218-22. doi: 10.3238/arztebl.2009.0218, PMID 19471631.
- Dwyer JT, Allison DB, Coates PM. Dietary supplements in weight reduction. *J Am Diet Assoc* [Internet]. 2005; 105(5); Suppl 1: 80-6. doi: 10.1016%2Fj.jada.2005.02.028.
- Vitalone A, Menniti-Ippolito F, Moro PA, Firenzuoli F, Raschetti R, Mazzanti G. Suspected adverse reactions associated with herbal products used for weight loss: a case series reported to the Italian National Institute of Health. *Eur J Clin Pharmacol* [Internet]. 2011;67(3):215-24. doi: 10.1007/s00228-010-0981-4, PMID 21243344.
- Bonkovsky HL. Hepatotoxicity associated with supplements containing Chinese green tea (*Camellia sinensis*). *Ann Intern Med* [Internet]. 2006;144(1):68-71. doi: 10.7326/0003-4819-144-1-200601030-00020, PMID 16389263.
- Blenkinsopp A, Anderson C, Armstrong M. Community pharmacy's contribution to improving the public's health: the case of weight management. *Int J Pharm Pract* [Internet]. 2008;16(3):123-5. doi: 10.1211%2Fijpp.16.3.0001.
- Eldalo AS, Alotaibi MN, Alenazi TO, Alborgami HA, Mohamed KM. Use of herbal medicines in the treatment of obesity in Taif, Saudi Arabia. *Saudi J Med Med Sci* [Internet]. 2017;5(2):149-54. doi: 10.4103/1658-631X.204862, PMID 30787774.
- Akça E, Karaalp C, Kaner G. Determining the frequency use of herbal products and factors affecting the use herbal products for weight loss among women. *Turk Hij Den Biyol Derg*. 2020;77(2):167-78. doi: 10.5505/TurkHijyen.2019.24572.
- Örs, editor. 19-64 yaş arası kadınlarda Zayıflama amaçlı bitkisel destek ve besin desteği kullanımı. Ankara: Hacettepe Üniversitesi; 2016.
- Akour A, Kasabri V, Bulatova N, Al Muihaissen SA, Tarawneh Al R, Al-Anati B, et al. Patterns and perceived efficacy of herbal medicine for weight loss and maintenance: A cross-sectional survey from Jordan. *Eur J Integr Med* [Internet]. 2020;35:101086. doi: 10.1016/j.eujim.2020.101086.
- Kocaman F, Yaşam Biçimi OBS. Davranışları ve Sağlıkla İlgili Yaşam Kalitesinin Değerlendirilmesi. İstanbul: İstanbul Bilim Üniversitesi; 2014.
- Garcia-Alvarez A, Mila-Villarreal R, Ribas-Barba L, Egan B, Badea M, Maggi FM, et al. Usage of Plant Food Supplements (PFS) for weight control in six European countries: results from the Plant LIBRA PFS Consumer survey 2011-2012. *BMC Complement Altern Med* [Internet]. 2016;16:254. doi: 10.1186/s12906-016-1227-5, PMID 27465483.
- Syed NK, Syed MH, Meraya AM, Albarraq AA, Al-kasim MA, Alqahtani S, et al. The association of dietary behaviors and practices with overweight and obesity parameters among Saudi University students. *PLoS One* [Internet]. 2020;15(9):0238458. doi: 10.1371%2Fjournal.pone.0238458.
- Nur Eke R, Dalgıç N. Obezite Hastalarında Geleneksel ve Tamamlayıcı Tıp Yöntemlerinin Kullanımı. *Ank Eğitim Araştırma Hastanesi Tıp Derg*. 2020;53(2):85-91. doi: 10.20492/aeahd.733536.
- Rashrash M, Schommer JC, Brown LM. Prevalence and predictors of herbal medicine use among adults in the United States. *J Patient Exp* [Internet]. 2017;4(3):108-13. doi: 10.1177/2374373517706612, PMID 28959715.
- Ahmad W, Ahmad A, Ali MD, Amin Y, Sheikh SA, Usmani A, et al. A questionnaire-based study for weight loss by using herbal drugs in Dammam (Eastern Region), Kingdom of Saudi Arabia. *J Pharm Bioallied Sci* [Internet]. 2019;11(3):248-53. doi: 10.4103/jpbs.JPBS\_102\_19, PMID 31555031.
- Issa R. Use of herbal remedies, conventional medicine, diet and exercise for weight loss: case study of university students in Jordan. *Pak J Nutr* [Internet]. 2018;17(2):76-88. doi: 10.3923%2Fpjn.2018.76.88.
- Hijazi MA, Shatila H, El-Lakany A, Rifai Al H, Aboul-Ela M, Naja F. Role of community pharmacists in weight management: results of a national study in Lebanon. *BMC Health Serv Res* [Internet]. 2020;20(1):386. doi: 10.1186/s12913-020-05258-7, PMID 32381084.

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