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Herbal Remedy Use in Obesity Management: Prevalence, Beliefs, Safety Concerns, and Disclosure Practices Among Adults

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ABSTRACT

Obesity is a health issue that has become widespread and has caused severe morbidity across the world. In addition to traditional medicines, most people resort to the use of herbal medicines for weight loss, which is often driven by the culture, availability, and safety perceptions. The present paper examined the use of herbal remedies in the management of obesity, the demographic and belief aspects of its application, safety,

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and disclosure. Four hundred and fifty-two adults who were overweight and obese were recruited in a cross-sectional survey in weight management clinics, fitness facilities, and online support groups. Demographic variables were gathered, including patterns of herbal use, beliefs on safety and effectiveness, adverse events, and disclosure to healthcare providers. The use of herbal remedies was found to be 50.4 percent, with green tea, turmeric, fenugreek, and garcinia cambogia being the most commonly used. The prevalence of use was much higher in women and people who are highly educated, and the positive beliefs were a strong predictor of use. The adverse events reported by about a third of users mainly were gastrointestinal disturbances, and only 38.2% of users reported that they had used herbs to healthcare professionals. This evidence shows that herbal treatments are highly used in the treatment of obesity and are coupled with safety issues and low reporting rates. Evidence-based care requires safe and targeted education and enhanced communication.

Keywords: Obesity; Herbal remedies; Beliefs; Safety; Disclosure; Health Belief Model; Cross-sectional survey

Introduction

The problem of obesity has been escalating all over the world. Its incidence has increased approximately three-fold in the last forty years, which has added to the socioeconomic costs in terms of high healthcare expenditures and productivity losses (Lee et al., 2024). Although lifestyle changes and pharmacotherapy are key in the algorithm of treatment, the problem of adherence and side effects prompts many people to consider the alternative medication or the supplementary treatment, the use of herbs.

In fact, natural and traditional medicines are becoming popular for weight loss. Another recent analysis of Korean adults (2010-2019, n=22000) found that herbal users were more often women, younger, better off, more stressed, and with lower body image—that reflects specific psychosocial drivers of their use (Lee et al., 2024).

But the data on efficacy are conflicting. Although other systematic reviews and meta-analyses (including Park et al., 2021) reported moderate weight and BMI loss with traditional Chinese herbal patterns, other extensive reviews have found that current evidence is of low quality and that no herbal medicine can be recommended to lose weight (Maunder et al., 2020; Hayat et al., 2018; Payab et al., 2020).

At the mechanistic level, several bioactive plant compounds include quercetin, anthocyanins, or ellagic acid, which are suggested to have anti-obesity effects via metabolic and anti-inflammatory processes (Kumar et al., 2022; Fazal et al., 2023; Hayat et al., 2022; Rafaqat et al., 2023). Furthermore, there are preclinical studies indicating promising anti-obesity effects and mechanisms of action of berberine, but outcomes are fraught by low bioavailability (Kong et al., 2025).

Safety issues are of equal importance especially in regard to liver damage. Liver injury (HILI) due to herbal and dietary supplements has increased manifold, and weight-loss and bodybuilding supplements are the main triggers (Marginean, 2025; Shoaib et al., 2022). Ashwagandha, turmeric, kratom, green tea extract, and Garcinia cambogia are botanicals involved in reviews in hepatotoxicity (Patel-Rodrigues et al.,

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2024; Hayat et al., 2020; Gudushauri, 2024). Besides, at the population level, the consumption of traditional herbal weight-loss agents is associated with increased liver enzymes, especially in men (Kim et al., 2023). Moreover, there are also clinical reports of acute liver injury caused by high-dose turmeric supplements that cause near liver failure (NYU Langone case, 2025; Hayat et al., 2022).

A set of three crucial gaps is highlighted by these findings:

Increasing popularity of herbal treatments of obesity.

Contravening or low-efficacy evidence, combined with risk of serious hepatotoxicity.

Inadequate knowledge of user beliefs, perceptions, and disclosure behaviors that are vital in developing culturally compatible and safe weight-management intervention.

In order to fill these gaps, the current research will quantitatively estimate the prevalence and trends of herbal remedy use in obesity, investigate beliefs concerning the effectiveness and safety, and assess issues that determine disclosure to health care professionals. The knowledge of these dimensions will aid in designing integrative and evidence-based weight management alternatives.

Methodology

Study Design

The study will be based on a cross-sectional survey to examine how common, believed, and practiced the use of herbal remedies is among the adults with overweight and obesity. The design was selected due to the fact that it enables the gathering of quantitative data on behaviors and attitudes at one point in time. The use of such surveys has become a common method in the study of complementary and alternative medicine by analyzing patterns of use and related psychosocial variables (Park et al., 2021; Lee et al., 2024).

Setting and Population of the Study.

The study population will include adult individuals 18 years of age and above who define themselves as overweight or obese with a body mass index (BMI) of 25 kg/m^2 and above. The recruitment will occur in a variety of environments so that there is both diversity and representativeness. The participants will be contacted in the outpatient weight management clinics and separate fitness centers, as they both target the attention of people interested in the strategies of losing weight. Further, as an extension, online obesity-support groups and social media groups regarding fitness will be utilized as a means of recruitment. Participants will be eliminated when they are enrolled in active anti-obesity pharmacotherapy clinical trials, when they have a severe psychiatric disease that could not give informed consent, and when they cannot answer the questionnaire in the research language.

Sample Size Calculation

The single proportion formula was used to determine the sample size on the assumption that herbal use was prevalent at 50, the confidence interval was 95, and the margin of error was 5. This estimation generated a minimum of 384 subjects. The final target is about 460 participants in order to compensate for the unforeseen non-response and missing data. This is deemed to be adequate to facilitate subgroup comparisons and multivariate regression analyses.

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Survey Instrument

The structured questionnaire will be used to collect data based on the existing literature review and specifying items on the validated survey questionnaires regarding the use of complementary and alternative medicine (Harris et al., 2019; Imad et al., 2020; Kumar et al., 2022). The questionnaire will include the sections on sociodemographic factors, the health history of obesity, herbal use practices, beliefs and attitudes toward herbal remedies, and experiences of safety and disclosure. Demographic data will be composed of age, sex, education, income, occupation, and residence. Self-reported weight and height, comorbidities, and obesity history will be included as health-related questions. Herbal use questions will require the participants to respond according to the type of herbs used, length and frequency of use, and where they were purchased or where they obtained the information about the usage. The evaluation of beliefs and attitudes will be conducted through a five-point Likert scale with the categories of strongly disagree and strongly agree, with the main aim being the perceptions of the efficacy, safety, affordability, accessibility, and place of healthcare providers in the recommendation of herbs. Lastly, participants will be questioned concerning the experience of adverse effects and whether they reported the use of herbs to the healthcare professionals. To make sure that the instrument is clear and culturally appropriate, it will be pretested on a limited sample of 20 people. The scale will determine the reliability of the belief and attitude scale by evaluating the alpha of Cronbach, with any value of 0.70 or above being acceptable.

Data Collection Procedure

The data collection process will take a duration of two to eight weeks. In the clinical and fitness center, trained research assistants will target the competent individuals by approaching them and informing them about the purpose of the study and inviting them to participate. The online respondents will be recruited by making a specific posting in pertinent forums and support groups and by conducting the survey on a secure online form. All participants will be required to complete the survey by the written or electronic informed consent before the survey is finished. The process will be monitored by research staff to make sure that there is voluntary participation and that there are fewer missing data.

Ethical Considerations

The host institution of the study will provide ethical approval of the study through the Institutional Review Board (IRB). Every participant will be told that his or her participation is voluntary and that he or she may pull out at any time with no repercussions. There will be no identification information because it will be considered as a way of protecting privacy. All answers will receive anonymity and will be stored using secure passwords and stored in password-protected machines accessible only by the research team.

Data analysis and management

The information is going to be stored in an encrypted database and analyzed in SPSS 29.0 or R software. Characteristics of the participants, prevalence of herbal use, and

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belief patterns will be summarized with the help of descriptive statistics. Chi-square tests will be used to test the associations between herbal use and demographic or clinical variables, whereas chi-square tests will be used to analyze them with t-tests or ANOVA. Logistic regression will be used to determine the independent predictors of herbal use, such as age, sex, education, income, BMI, comorbidities, and belief scores. Reported odds ratios will include confidence intervals of 95% confidence. Further exploratory studies will determine trends in disclosure to health care givers and frequency of self-reported adverse events. The p-value of below 0.05 will be taken as significant.

Results

Participant Characteristics

A total of 452 participants completed the survey. The mean age was 34.6 years (SD = 9.2). The majority were female (61.7%) and urban residents (63.5%). Over half (54.7%) had attained education beyond matric level. Clinically, most participants were obese (72.3%), with the remainder overweight (27.7%). The sample was largely young to middle-aged, urban, and obese, providing a suitable context for evaluating herbal use in obesity management.

Table 1. Demographic and Clinical Characteristics of Participants (N = 452)

Variable	Category	n	%
Age group (years)	18–25	102	22.6
	26–35	189	41.8
	≥36	161	35.6
Gender	Male	173	38.3
	Female	279	61.7
Education	No formal education	82	18.1
	Up to matric	123	27.2
	Above matric	247	54.7
Residence	Urban	287	63.5
	Rural	165	36.5
BMI category	Overweight (25–29.9)	125	27.7
	Obese (≥30)	327	72.3

Prevalence of Herbal Use and Demographic Associations

Among the participants, 228 (50.4%) reported using herbal remedies for weight loss. Herbal use was more common among women (56.3%) than men (41.0%) and among participants with education above matric (57.1%). Prevalence was highest in the 26–35 year group (54.5%).

Chi-square analysis indicated significant associations between herbal use and gender ($\chi^2 = 6.21$, $p = 0.013$) as well as education level ($\chi^2 = 9.84$, $p = 0.007$). No significant associations were found with age group ($p = 0.121$), residence ($p = 0.174$), or BMI category ($p = 0.088$). Herbal use was significantly more frequent among women and individuals with higher education, suggesting demographic factors influence

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likelihood of use.

Table 2. Association Between Demographic Variables and Herbal Use (N = 452)

Variable	Category	Herbal Use n (%)	Non-use n (%)	χ^2 (df)	p-value
Age group	18–25 (n = 102)	48 (47.1)	54 (52.9)		
	26–35 (n = 189)	103 (54.5)	86 (45.5)	4.22(2)	0.121
	≥36 (n = 161)	77 (47.8)	84 (52.2)		
Gender	Male (n = 173)	71 (41.0)	102 (59.0)		
	Female (n = 279)	157 (56.3)	122 (43.7)	6.21(1)	0.013*
Education	No formal (n = 82)	31 (37.8)	51 (62.2)		
	Up to matric (n = 123)	56 (45.5)	67 (54.5)	9.84(2)	0.007*
	Above matric (n = 247)	141 (57.1)	106 (42.9)		
Residence	Urban (n = 287)	152 (53.0)	135 (47.0)		
	Rural (n = 165)	76 (46.1)	89 (53.9)	1.85(1)	0.174
BMI category	Overweight (n = 125)	53 (42.4)	72 (57.6)		
	Obese (n = 327)	175 (53.5)	152 (46.5)	2.91(1)	0.088

*Significant at $p < 0.05$

Patterns of Herbal Use

Among the 228 herbal users, green tea extract (32.9%), turmeric (27.6%), fenugreek (18.4%), and Garcinia cambogia (14.0%) were the most commonly consumed remedies. Herbs were mostly purchased at herbal stores (41.2%) or through the internet (34.6%). The average time period of use was 4.3 months (SD = 2.1).

The chi-square analysis indicated that green tea use was significantly higher among the women than men ($\chi^2 = 7.02$, $p = 0.008$) and the use of fenugreek was significantly higher among the rural residents than urban ones ($\chi^2 = 5.11$, $p = 0.024$). The most common herbs were green tea and turmeric, and the patterns of their use depended on gender and place of residence.

Table 3. Types and Sources of Herbal Remedies Among Users (n = 228)

Variable	Category	n	%	χ^2 (df)	p-value
Green tea extract	Yes	75	32.9	7.02(1)	0.008*
	No	153	67.1		
Turmeric	Yes	63	27.6	2.01(1)	0.156
	No	165	72.4		
Fenugreek	Yes	42	18.4	5.11(1)	0.024*
	No	186	81.6		
Garcinia cambogia	Yes	32	14.0		
	No	196	86.0		
Source of purchase	Herbal shop	94	41.2	1.27(1)	0.260
	Online vendor	79	34.6		
	Family/friends	41	18.0		

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*Significant at $p < 0.05$

Beliefs and Attitudes Toward Herbal Remedies

The scale of beliefs was based on a 5-item Likert Scale (range 5-25). The mean belief score was 17.8 (SD = 3.9). Most (64.5) of them agreed that herbs were safer than pharmaceuticals, and 59.8 of them held that they are effective in losing weight. The only 38.2% thought that physicians ought to prescribe herbs.

Chi-square analysis showed that the stronger positive beliefs (score 18 or more) were significantly related to actual use of herbs (2 = 26.47%, $p < 0.001$). The actual use of herbs was well predicted with positive beliefs and in this regard, the importance of perceptions in predicting health behaviors.

Table 4. Beliefs and Herbal Use Among Participants (N = 452)

Belief Item	Agree/Strongly Agree n (%)	Association with Herbal Use χ^2 (df)	p-value
Herbs are safer than pharmaceuticals	292 (64.5)	18.31(1)	<0.001*
Herbs are effective for weight loss	270 (59.8)	15.22(1)	<0.001*
Herbs are more affordable	311 (68.8)	12.16(1)	<0.001*
Herbs are easily accessible	334 (73.9)	8.19(1)	0.004*
Doctors should recommend herbs	173 (38.2)	5.02(1)	0.025*
Mean total belief score	17.8 ± 3.9	–	–

*Significant at $p < 0.05$

Adverse Effects and Disclosure to Healthcare Providers

Only 68 (29.8) of herbal users (including 15.8% gastrointestinal upset and 10.5% fatigue) reported any adverse effect. Six subjects (2.6) had liver related symptoms including jaundice or dark urine. The percentage that had reported their herbal use to medical staff was only 38.2 %.

Chi-square revealed that those with adverse effects were more inclined to report herbal use than those without the adverse effects (χ 2 = 12.44, $p < 0.001$). The adverse events were frequent; however, the level of disclosure was low, except in cases when the side effects were pronounced. This is an indication that underreporting can undermine patient safety.

Table 5. Adverse Events and Disclosure Among Herbal Users (n = 228)

Variable	n	%	Association with Disclosure χ^2 (df)	p-value
Any adverse event	68	29.8	12.44(1)	<0.001*
Gastrointestinal upset	36	15.8	–	–
Fatigue	24	10.5	–	–
Liver-related symptoms	6	2.6	–	–

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Disclosed use to healthcare staff	87	38.2	–	–

*Significant at $p < 0.05$

Discussion

Such research reinstates the fact that the use of herbal remedies in the management of weight is prevalent amongst the overweight and obese groups. Ahmad et al. (2019) found that over fifty percent of respondents in Saudi Arabia administered herbal preparations: green tea, ginger, and flax, with more than one-third of them having adverse effects and most failing to report their use to medical professionals. In the same way, Alkhatib et al. (2023) established that 79.9% of adult Jordanian individuals with excess weight had attempted using herbs or dietary products to reduce weight, where women were more prevalent than men.

We have also found that herbal use was strongly predicted by feminine gender and positive attitudes about the safety and effectiveness of herbs. These observations are consistent with a population-based study in Korea where Lee et al. (2024) showed that women, younger adults, and higher income earners, as well as those with poor body image or stress, had higher chances of using herbal medicine to lose weight.

These patterns can be explained with the help of behavioral theory. A Health Belief Model (HBM)-based intervention as implemented by Faghih et al. (2024) showed that, by improving perceived benefits and self-efficacy and decreasing barriers to physical activity, body mass index decreases and physical activity behavior improvements were observed in overweight women. Similarly, Vo et al. (2025) used HBM in Vietnam and demonstrated that the perceived threat of being overweight, of being female, and of having a higher education had a strong correlation with the intentions to manage body weight. These findings confirm our observation that even in cases of weak clinical evidence, beliefs form a potent driving force behind the use of herbs.

Issues relating to safety and negative events should also be highlighted. According to Alonso-Castro et al. (2019), 42.9 percent of Mexican adults self-medicated with herbal weight-loss products, and the female gender was a powerful predictor. Nevertheless, there were also negative consequences, including gastrointestinal symptoms, which were widespread and hardly reported to doctors. This was also the case with our findings because almost one-third of herbal users reported side effects, but less than 40% of them said they toldhealthcare practitioners.

Ethnobotanically speaking, Anyanwu et al. (2025) reported a great deal of traditionally used plants in Nigeria to regulate weight, such as Vernonia amygdalina and Gongronema latifolium. Such results demonstrate the cultural entrenchment of herbal medicine use for obesity in the world. However, the level of evidence regarding efficacy is poor. In a scoping review of randomized controlled trials, Chan (2025) found that herbal medicines might lead to small weight losses, but methodological limitations and the lack of uniformity of outcome scales do not allow any strong conclusions.

Combined, these findings support that the use of herbal medicine in the management of obesity is widespread, highly influenced by gender and belief systems, and associated with safety risks and evidence gaps. Patient beliefs, open disclosure, and

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herbal product regulation are interventions that are urgently required.

Conclusion

This paper shows that the use of herbal remedies in the management of obesity is widespread, with half of the respondents giving a positive response of either current or previous use. Predictors of use were female gender, increased educational attainment, and positive attitudes toward efficacy and safety. Even though there was a general perception of safety and effectiveness, almost 1/3 of participants reported adverse effects of the use of herbs, and less than 40% acknowledged using them to a healthcare provider. The results indicate that there is a lack of connection between the user practices and medical supervision as an indicator of both cultural dependence on herbal medicine and ineffective clinical communication.

Recommendations

The prevalence of the use of herbs among obese individuals is high, which demands increased incorporation of screening, counseling, and education in clinical practice. It is important that medical practitioners consistently ask about the use of herbal medicine during consultation and should do so in a nonjudgmental manner that promotes candidness. The effectiveness of GSK is limited by clinical evidence, and it should be highlighted with respect to the potential risk of adverse events, such as hepatotoxicity in public health campaigns. To counter the problem of adulteration, mislabeling, and unregulated sales of herbal weight-loss products, policymakersshould tighten regulatory control of these products. Moreover, the behavior-change interventions relying on the developed models, like the Health Belief Model, might be modified to redesign patient beliefs and shift them to more evidence-based and safer weight management.

Limitations

There are a number of limitations to the study. First, the study design is cross-sectional, which excludes the possibility of drawing causalconclusions concerning the association between beliefs, demographics, and herbal use. Second, data were self-reported, which can be biased by recall and social desirability, especially when it comes to sensitive problems like non-disclosure to physicians. Third, the adverse effects were not clinically established and thus may be under- or overestimated. Fourth, the findings were recruited in a subset of the clinics, gyms, and online sources, so there is a risk of the sample not being relevant to other areas or groups with different cultural habits. Lastly, the sample size was adequate to do statistical analyses, but subgroup analyses (e.g., by herb type) might have been underpowered.

In spite of these constraints, the study offers new understanding of the convergence of beliefs, demographics, and herbal use in obesity management and highlights the need to take a culturally sensitive, evidence-based approach to treating patients.

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