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EXPLORING THE ACCEPTANCE AND PERCEPTIONS OF HERBAL MEDICINE AMONG THE GENERAL PUBLIC IN PAKISTAN: A SOCIETAL PERSPECTIVE

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Abstract

Background: Herbal medicine has been widely used as an alternative or complementary form of treatment in many countries, including Pakistan. This study aimed to assess the perception and usage of herbal medicine among the general population of Pakistan with different educational backgrounds.
Method: An online descriptive cross-sectional study was conducted from January 1, 2023, to January 15, 2023, through electronic media channels. A self-administered semi-structured questionnaire was used to gauge the most common disorders in the population and the most common herbal medicines used by the population.
Results: Of the 273 participants, 43.75% were male and 56.25% were female, with 78% belonging to the age group of 18-29 Years. Over 60% of the respondents had used herbal medicines in the last 6 months, with most of them using herbal medicine for 1 week. The most common sources of medical information were family and internet sources. Nearly half of the participants did not feel the need to

inform their physician regarding the use of herbal medicine, and most of the population perceived that herbal medicines are safer and more economical than pharmaceutical medicines.
Conclusion: The study results showed that the population of Pakistan has a neutral to positive perception of herbal medicine, with most believing that herbal medicines are safe, economical, and beneficial to their health. Further research is required to assess the safety and efficacy of herbal medicines in Pakistan.

Keywords: Herbal medicine, public perception, Traditional medicine, Complementary medicine

INTRODUCTION

The achievements of science in the fields of medicine, biology, and pharmacology have increased the interest in drugs made based on biologically active substances of medicinal plants, which are practically devoid of allergic and toxic side effects that do not cause withdrawal and addiction. Herbal preparations that meet naturopathic requirements and have clinical pharmacological activities can be used for the treatment of various diseases. The World Health Organization (WHO) reports that the use of herbal medicinal products is two–three times greater than that of conventional medications worldwide[1]. Although the US Food and Drug Administration (FDA) does not classify herbal medicines as drugs, considering that they are natural products obtained from nature, they are thought to be safe for use by the general public[2]. Approximately 75–80% of people worldwide consume herbal medicine as their primary source of healthcare[3,4].

The use of herbal medicine has been documented in Indian, Chinese, Egyptian, Greek, Roman, and Syrian texts for more than 5,000 years; therefore, herbal remedies and traditional medicines are a result of the rich traditions and scientific history of ancient civilizations.

Any type of plant or plant-derived material, such as leaves, stems, flowers, roots, and seeds, used for the treatment or prevention of diseases can be considered as herbal medicines. Devil's claw, kava, echinacea, ginseng, ginger, St. John's wort, black and blue cohosh, red raspberry leaf, and castor oil are a few of the most popular herbal medicines[5].

These plants can be consumed either fresh or as extracts, where some phytochemicals are extracted by macerating the plant in water, alcohol, or other solvents. Numerous components, such as fatty acids, sterols, alkaloids, flavonoids, glycosides, and saponins, are present in the resulting products. Any plant contains a variety of compounds, so some manufacturers have attempted to develop standardized herbal products by discovering a component that could be the active ingredient and modifying technological innovations to achieve a consistent amount [6].

Herbal medicines have long been used worldwide for the prevention and treatment of several health disorders. Herbal medications continue to be widely practiced in both developed and developing countries despite the gradual acceptance of modern treatment throughout civilizations. The World Health Organization estimates that 80% of the Asian and African populations rely on traditional medicines for their basic medical requirements [7]. Plants have been used for therapeutic purposes since history, and much of the medicinal science has its roots in this practice. Most of the few effective treatments from a century ago were plant-based; therefore, many standard drugs now have plant origins. Examples include morphine (from the opium poppy), digoxin from foxglove, quinine from cinchona bark, and aspirin from willow bark.

The early 19th century was a turning point in the recognition and utilization of therapeutic herbs. Scientific pharmacies began with the identification, validation, and isolation of alkaloids from plants, such as poppy (1806), ipecacuanha (1817), strychnos (1817), quinine (1820), pomegranate (1878), and others, followed by the identification of glycosides. Other active components of medicinal plants, such as tannins, saponosides, etheric oils, vitamins, and hormones, have also been identified with the advancement of chemical methodologies[8].

Aspirin, morphine, and digoxin, among other medications, have been synthesized by medicinal herbs. Psychiatric and immunological disorders, reproductive health problems, cancer, trauma, and

noncommunicable diseases such as malaria are only a few conditions that are treated with herbal medication [9].

According to Pakistan's geographic location, the country is surrounded by a wide variety of medicinal plants. As a result, locals utilize herbal remedies that are commercially available and are made from various phytoconstituents as herbal remedies. Upper and lower respiratory infections that cause asthma, bronchitis, common cold, cough, pneumonia, and whooping cough are among the most serious respiratory disorders. People rely more on medicinal plants than synthetic medications, and traditional treatments for respiratory disorders are widely used in human health care. The 21 species of medicinal plants have been used to treat various respiratory infections. These plants belong to different families such as Lamiaceae, Boraginaceae, and Zingiberaceae. Herbs such as Glycyrrhiza glabra, Acacia arabica, and Mentha piperita have higher usage values and significant potential therapeutic efficacy for respiratory diseases [10].

According to a study regarding the use of traditional herbal remedies for the treatment of diabetes, it was observed that elderly patients in the study area used local medicinal herbs to treat their diabetes. They consider conventional treatments to be superior, long-lasting treatments for their disease. Therefore, indigenous knowledge serves as the foundation for the development of rural communities. This study discovered that conventional phytotherapies had a longer history and were more widely accepted. Folk herbal medicines seem to be a case of both desire and lack of alternatives due to their widespread use. Folk herbal medicines seem to be a case of both preference and absence of alternatives because of their widespread use. It is important to continue investigating this type of medical system, because the majority of the population has been using it successfully for many generations. Therefore, it is highly recommended to conduct phytochemical and clinical studies on newly discovered plant species to support and validate the use of traditional herbal remedies[11].

People have always sought ways to treat different ailments and reduce their suffering. The therapeutic benefits of several medicinal plants have been discovered, recognized, and passed down from generation to generation to succeeding generations in every era and century since the origin of humankind and advanced civilizations. The benefits of one civilization were transmitted to another, which improved the original resources and discovered new ones. Modern and advanced methods of processing and using medicinal plants are the result of people's persistent and continuous interest in them [8].

Thus, the assumption that all herbal medications are safe and natural alternatives to conventional medicines is a factor in the rise in the use of herbal medicines, either alone or in combination with allopathic drugs [12]. For those who practice self-care and play an active role in their healthcare, the use of herbal medicines is emerging as a traditional therapy [13].

This research aimed to examine the usage and perceptions of herbal medicine among respondents. The objectives included assessing demographics, understanding the reasons for herbal medicine use, identifying sources of information, and gauging perceptions of herbal medicine's price and effectiveness compared to allopathic medicine. Additionally, the study explored the common forms of herbal medicine used, specific health conditions treated, and whether individuals inform their healthcare providers or experience side effects. It also assessed perceptions of herbal medicine in terms of efficacy, side effects, cost, and naturalness, providing valuable insights into herbal medicine usage and attitudes within the study population.

METHOD

An online descriptive cross-sectional study was conducted from January 1, 2023, to January 15, 2023, via the distribution of self-administered questionnaires through electronic media channels. The questionnaire was directed towards the general population of Pakistan, with different educational backgrounds. As most herbal medicines are available as over-the-counter medications, a self-administered semi-structured questionnaire was used to gauge the most common disorders occurring in the population and the most common herbal medicines used by the population. This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. According

to code of federal regulations "45 CFR 46.104(d)(4)(i)", this study is exempted from ethical or institutional review board approval as it is difficult to determine the identity of the human subjects, either directly or by identifiers connected to the individuals.

The survey was generated based on previous studies. The questionnaire was divided into three sections: Section:1 contained demographic variables such as gender, age group, marital status, educational background, field of study/work, family income per month and any health condition the respondents may be suffering from. Section 2 contained questions related to the use of herbal medicine, the most common dosage form, the most common indication for which they used herbal medicine, the duration of use of herbal medicine, and the source of information related to herbal medicine. The final section included Likert-scale questions related to respondents' beliefs about herbal medicine compared with pharmaceutical medicine.

Statistical Package for the Social Sciences (SPSS) version 26 was used to evaluate the acquired data and ensure its reliability. Proportions, means, and standard deviations were used to describe the data. Cronbach's alpha was calculated to check the response reliability. Pearson chi-square and Cramer's V (C.V) were calculated to assess the degree of association of socio-demographic factors with mean score of herbal medicine belief.

RESULTS

In total, 273 participants responded to the survey. Of these, 43.75% (n=119) were male and 56.25% (n=153) were female. Most respondents belonged to the age group of 18-29 Years (78%). The data represented a more skewed response with respect to the educational level of the respondents, as 41.4% (n=113) were graduates with a major field of study in Medical & Health Science (31.9%, n=87) and Engineering Sciences (22.3%, n=61). More than half of the respondents had a family income in the range of 50,000–150,000PKR Table-1. Nearly two-thirds of the respondents were perfectly healthy, with a relatively healthy population observed in female population Table-2. Most of the anemic population was absorbed by females, whereas obesity was mostly observed in the male population.

More than 60% of the respondents had used herbal medicines in the last 6 months, with most of them using herbal medicine for 1 week (40.12%), and only 15.5% of the population using herbal medicine for over 2 months. The most common source of medical information related to herbal medicine was from family (29.6%) and Internet sources (20.8%) followed by clinicians (20.3%), pharmacists (14.6%) and friends (14.5%). Nearly half of the participants (47.8%) did not feel the need to inform their physician regarding their usage of herbal medicine. The most common dosage form for herbal medicine was observed to be Syrups (31.6%, n=86) followed by Powder/sachet (30.8%,n=84), Tablet/lozenges (25.7%,n=70) capsules (8.8%,n=24), raw herb decoction (2.2%,n=6). All responses were statistically significant as confirmed by chi-square test ($p<0.001$) Table-3.

The Cronbach alpha reliability assessment for perception related to herbal medicine compared to pharmaceutical medicine was calculated to be 0.902, which shows a valid internal reliability in the responses. Compared to pharmaceutical medicines, the population perceived that the herbal medicine has almost equivalent effect. With regards to safety of herbal medicines, most of the population (>45%) perceived that herbal medicine are more safe and more economical. While the respondents do not feel the need for informing their consultants regarding their intake of herbal medicine, almost 38% respondent believed that herbal medicine cannot be taken without the consultation with their clinicians. Nearly half of the participants believed that herbal medicine have a beneficial effect in improving their health with a neutral response was observed for efficacy when herbal medicine and pharmaceutical medicine are co-administered. Although formulation excipients are present, most of the respondents believed that herbal medicine are purely natural. while a dissatisfaction was observed regarding flavor and taste of herbal medicine.

DISCUSSION

The present study aimed to investigate the utilization patterns and perception towards herbal medicines among the general population of Pakistan. The results of the study revealed that over 60%

of the respondents had used herbal medicines in the past 6 months, with syrups and powder/sachet being the most commonly used dosage forms. Furthermore, the most common source of information regarding herbal medicines was found to be family members and the internet, while only 47.8% of the participants felt the need to inform their physicians about their use of herbal medicines. As the population of this study are educated, it is plausible that there source of information can be the internet. However, the authenticity and reliability of information from the internet is questionable as lack of health knowledge and/or digital literacy might lead to errors when interpreting medical facts on the internet.[14,15]

In terms of perception, the results showed that a majority of the respondents believed that herbal medicines were equally effective and safer compared to pharmaceutical medicines. This belief is in concordance with the global belief that herbal medicine are more safer provided that they are made with standardized raw materials [16]. However, a neutral response was observed for the efficacy of herbal medicines when co-administered with pharmaceutical medicines. According to some studies (particularly in case of diabetes management), the combination of herbal medicine with prescribed medicine has proven more efficacious results [17,18] provided that no drug-herb interaction should take place [19] Additionally, nearly 38% of the participants believed that herbal medicines should not be taken without consulting a physician.

The results of this study are in line with previous studies which have reported a high utilization rate of herbal medicines in the general population. A study conducted in Iran showed that over 70% of the participants used herbal medicines in the past year, with similar utilization patterns observed in the present study[20]. Similarly, a study conducted in India showed that a majority of the participants believed that herbal medicines were effective and safe[21].

The high utilization rate of herbal medicines observed in the present study may be attributed to various factors, such as availability, affordability, and perception towards their safety and efficacy. The easy availability of herbal medicines as over-the-counter medications may have contributed to their high utilization rate, as the participants may not have felt the need to consult a physician before using them. Affordability and accessibility have been a major factor for more herbal medicine consumption in some countries[22] Furthermore, the perception that herbal medicines are safer compared to pharmaceutical medicines may have encouraged their use, as the general population may have felt that they had a lower risk of adverse effects.

The results of this study highlight the need for proper regulation of the herbal medicine market in order to ensure the quality and safety of these products [23]. The high utilization rate of herbal medicines observed in the present study, combined with the perception that they are safe, highlights the need for proper regulatory mechanisms to be put in place in order to ensure that these products are of high quality and do not pose any health risks to the users. Furthermore, the low percentage of participants who felt the need to inform their physicians about their use of herbal medicines highlights the need for healthcare professionals to be better informed about the utilization patterns and perception towards herbal medicines in order to provide appropriate advice to their patients.

CONCLUSION

In conclusion, the results of the present study provide valuable insights into the utilization patterns and perception towards herbal medicines among the general population of Pakistan. The high utilization rate and positive perception towards herbal medicines observed in this study highlights the need for proper regulation of the herbal medicine market and for healthcare professionals to be better informed about these products in order to provide appropriate advice to their patients. Further research is needed in this area in order to fully understand the utilization patterns and perception towards herbal medicines in different populations, and to develop appropriate regulatory mechanisms in order to ensure their quality and safety.

DECLARATIONS

Ethics approval: This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. This study utilized online surveys to collect data from the general public, and no personal identifying information was collected. As such, this research was deemed exempt from institutional review board (IRB). 45 CFR 46.104(d)(2)(i)

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TABLES

VARIABLES		FREQUENCY (N)	PERCENT (%)
GENDER	Male	120	44.0
	Female	153	56.0
Age group	<18 years	1	0.4
	18-29 years	213	78.0
	30-45 years	52	19.0
	>45 years	7	2.2
EDUCATIONAL LEVEL	Matriculation	4	1.5
	Intermediate	18	6.6
	Diploma/Certificate	10	3.7
	Graduate	113	41.4
	Masters	87	31.5
	Doctorate	41	15.0
EDUCATIONAL BACKGROUND	Arts & Literature	20	7.3
	Business, Commerce & Finance	60	22.0
	Social Sciences	37	13.2
	Chemical Sciences	8	2.9
	Engineering Sciences	61	22.3

	Medical & Health Sciences	87	31.9
Family income (per month)	Less than 50 thousand	62	22.3
	50 thousand to 1.5 lac	150	54.9
	1.5 Lac to 3 Lac	46	16.8
	Greater than 3 Lac	15	5.5
Marital status	Single	173	63.0
	Married	100	36.6

Table 1 *Descriptive statistics of survey respondents*

HEALTH CONDITION (N=273)	FEMALE	MALE	TOTAL
Perfectly healthy	69.9%	58.0%	64.7%
Anaemic (low haemoglobin)	11.8%	7.6%	9.9%
Hypertension	8.5%	4.2%	6.6%
Obesity (fat)	2.6%	10.1%	5.9%
Hormonal issues	3.9%	8.4%	5.9%
Diabetic	2.0%	9.2%	5.1%
Immunological disorder	0.7%	0.8%	0.7%
GIT disorders	0.7%	0.8%	0.7%
Disc bulging	0.0%	0.8%	0.4%
GRAND TOTAL	**100.0%**	**100.0%**	**100.0%**

Table 2 *Health Condition of sample population*

DESCRIPTION (n=273)	STRONGLY DISAGREE (1) N(%)	DISAGREE (2) N(%)	NEUTRAL (3) N(%)	AGREE (4) N(%)	STRONGLY AGREE (5) N(%)	MEAN SCORE	p-Value (one-sample chi-square)
Herbal medicines have more beneficial effect compared to pharmaceutical medicine	34 (12.1%)	28 (10.3%)	122 (44.7%)	67 (24.5%)	22 (8.1%)	3.06	<0.001
Herbal medicines have fewer side effects than pharmaceutical medicines	40 (14.7%)	24 (8.8%)	76 (27.8%)	80 (29.3%)	52 (19%)	3.29	<0.001
Herbal Medicine are less expensive than pharmaceutical medicine	31 (11.4%)	47 (17.2%)	76 (27.8%)	79 (28.9%)	39 (14.3%)	3.18	<0.001
Herbal Medicine can be taken without consultation with physician	53 (19.4%)	52 (19%)	91 (34.1%)	63 (23.1%)	11 (4%)	2.73	<0.001
Herbal medicine improved my health condition	35 (12.8%)	11 (4%)	91 (33.3%)	109 (39.9%)	26 (9.5%)	3.29	<0.001
Herbal medicine is purely natural	28 (10.3%)	43 (15.8%)	99 (36.3%)	67 (24.5%)	35 (12.8%)	3.14	<0.001
Herbal medicines have more appealing flavour and taste	32 (11.7%)	70 (25.6%)	96 (35.2%)	60 (22%)	14 (5.1%)	2.83	<0.001
Combination of the pharmaceutical medicine and herbal medicine have more beneficial effect	38 (13.9%)	43 (15.8%)	92 (33.7%)	73 (26.7%)	26 (9.5%)	3.02	<0.001

Table 3 *Public perception towards the use of herbal medicine*