



STRESS AND ANXIETY AND THE USE OF HERBAL REMEDIES: EVALUATION OF KNOWLEDGE AND PERCEPTIONS

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ABSTRACT:

Background: Anxiety and stress-related disorders are among the most prevalent mental health conditions worldwide, significantly impacting quality of life and healthcare utilization. While conventional pharmacologic therapies such as selective serotonin reuptake inhibitors (SSRIs) and benzodiazepines remain standard treatments, increasing interest has emerged in the use of herbal remedies as complementary or alternative approaches. However, variability in evidence, safety concerns, and limited patient and provider knowledge highlight the need for further evaluation. This study aimed to review commonly used herbs in the management of stress-related disorders, assess knowledge and perceptions of herbal remedies for stress and anxiety, and evaluate the influence of demographic factors on these perspectives.

Methods: A literature review was conducted to evaluate the current evidence of herbs in this regard and summarized. For the survey, a cross-sectional survey was conducted among 40 participants from diverse educational and professional backgrounds. The survey included demographic questions, opinion-based items, and knowledge-based questions related to commonly used herbal therapies such as chamomile, valerian, lavender, and ashwagandha. Descriptive statistics were used to summarize responses, and chi-square analyses were performed to evaluate associations between demographic variables and participant responses, with statistical significance set at $p < 0.05$. **Results:** The literature review revealed overwhelming overall evidence in the efficacy of the herbs reviewed. In the survey,

participants demonstrated generally favorable attitudes toward herbal remedies, with a majority agreeing on their potential benefits in managing stress and anxiety. Knowledge levels were relatively high, with an overall correct response rate of 80.6%; however, notable gaps were identified in understanding the role of ashwagandha in stress adaptation and the importance of dosing consistency. A statistically significant association was observed between age and openness toward herbal remedies ($p = 0.007$), with younger participants showing greater acceptance. No significant associations were found for gender, education level, or work type. **Conclusion:** Although there are evidence in the efficacy of herbal remedies and baseline knowledge is generally strong, important knowledge gaps remain. These findings underscore the need for enhanced education on the safe and evidence-based use of herbal therapies. Pharmacists and other healthcare professionals play a critical role in patient counseling, identifying potential herb–drug interactions, and promoting informed decision-making.

KEYWORDS: Anxiety, Stress, Herbal Remedies, Chamomile, Lavender, Ashwagandha.

INTRODUCTION

Stress and anxiety are among the most prevalent mental health conditions worldwide and represent a growing public health concern. Anxiety disorders affect hundreds of millions of individuals globally and are associated with impaired quality of life, reduced productivity, and increased healthcare utilization. Symptoms such as persistent worry, sleep disturbances, irritability, and difficulty concentrating can significantly interfere with daily functioning. The increasing prevalence of stress-related conditions has led to greater interest in both pharmacologic and non-pharmacologic approaches for symptom management.^[1]

Conventional treatments for anxiety commonly include pharmacologic therapies such as selective serotonin reuptake inhibitors (SSRIs), serotonin–norepinephrine reuptake inhibitors (SNRIs), and benzodiazepines.^[2] These medications act on neurotransmitters involved in mood regulation, particularly serotonin, norepinephrine, and gamma-aminobutyric acid (GABA). Although these treatments can be effective for many patients, concerns regarding adverse effects, delayed onset of action, and potential dependence, especially with benzodiazepines—may lead some individuals to explore complementary approaches for managing stress and anxiety.

Herbal remedies have gained increasing popularity as complementary or alternative options for managing symptoms of stress and anxiety. Commonly used herbal products include chamomile (*Matricaria chamomilla*), valerian (*Valeriana officinalis*), lavender (*Lavandula angustifolia*), and ashwagandha (*Withania somnifera*).^[3] These herbal agents have been traditionally used for their calming and stress-reducing properties and are widely available as dietary supplements. However, despite their popularity, concerns remain regarding the safety, efficacy, and consistency of herbal products, as variations in manufacturing and regulatory oversight may lead to differences in potency, formulation, and quality.

Several herbal remedies are believed to influence physiological pathways associated with stress and anxiety. Chamomile and valerian may exert anxiolytic effects through modulation of gamma-aminobutyric acid (GABA) neurotransmission, promoting relaxation and sedation. Lavender has been associated with calming effects through serotonergic pathways and autonomic nervous system modulation^[4], while ashwagandha has been studied for its adaptogenic properties and potential ability to regulate the body's response to stress and reduce cortisol levels. Chandrasekhar et al. demonstrated that a high-concentration ashwagandha extract significantly reduced stress and anxiety scores in adults experiencing chronic stress.^[5]

Despite these potential benefits, the use of herbal remedies may also be associated with clinical risks. Herb–drug interactions, inconsistent dosing, and lack of standardized formulations may contribute to adverse outcomes or reduced therapeutic effectiveness when herbal products are used alongside conventional medications. In addition, individuals may delay seeking evidence-based treatment if they rely solely on alternative therapies. Healthcare professionals therefore play an important role in counseling patients about the safe and appropriate use of herbal supplements.

Previous clinical studies have explored the effectiveness of several herbal therapies in managing anxiety and stress. Chamomile has demonstrated anxiolytic potential in randomized controlled trials involving patients with generalized anxiety disorder. Amsterdam et al.^[6] reported that oral *Matricaria recutita* extract significantly reduced anxiety symptoms compared to placebo, while Mao et al.^[7] found that long-term chamomile therapy may help reduce relapse in generalized anxiety disorder. More recently, Saadatmand et al.^[8] concluded in a systematic review that chamomile may have beneficial effects on anxiety outcomes, although further high-quality studies are needed.

Lavender has also shown promising results in clinical trials. Woelk and Schläfke^[9] demonstrated that the lavender oil preparation Silexan was comparable in efficacy to lorazepam in patients with generalized anxiety disorder. Similarly, Kasper *et al.*^[10] reported that Silexan was significantly more effective than placebo and showed comparable efficacy to paroxetine. In addition, a meta-analysis by Dold *et al.*^[11] confirmed that Silexan is effective in reducing anxiety symptoms across multiple randomized controlled trials.

Additional herbal agents have also been investigated. Mazidi *et al.*^[12] demonstrated that saffron significantly improved symptoms of anxiety and depression in a randomized placebo-controlled trial, and these findings were further supported by Mahmoudi *et al.*^[13] in a systematic review and meta-analysis. Kava has also been studied for its anxiolytic effects, with Sarris *et al.*^[14,15] showing improvement in generalized anxiety disorder in randomized controlled trials. However, safety concerns, particularly hepatotoxicity, limit its widespread clinical use.

In addition to clinical efficacy, it is important to consider the knowledge and awareness of healthcare professionals regarding herbal medicine use. Patients often obtain information about herbal remedies from informal sources such as social media, family members, or community recommendations, which may not always provide accurate or evidence-based guidance. As a result, pharmacists and other healthcare professionals play a critical role in identifying potential herb–drug interactions, providing evidence-based counseling, and promoting safe use of complementary therapies. However, knowledge gaps may still exist among both patients and healthcare trainees regarding the effectiveness, safety, and appropriate use of herbal remedies, highlighting the need for improved education in this area.

Studies have also evaluated the knowledge and perceptions of healthcare and pharmacy students regarding the use of herbal remedies. Bakare *et al.*^[16] reported that students demonstrated varying levels of knowledge and awareness regarding herbal therapies, with some misconceptions related to efficacy and safety. Similarly, Tadele and Hailemeskel^[17] found that while students showed interest in herbal remedies, knowledge gaps remained regarding appropriate use and potential risks. In another study, James *et al.*^[18] reported that healthcare students demonstrated positive attitudes toward herbal medicine but lacked sufficient knowledge regarding herb–drug interactions and safety considerations. Likewise, Fakeye *et al.*^[19] found that although herbal remedies were commonly used among healthcare students, many lacked formal education on their clinical applications and potential risks.

These findings suggest that while herbal medicine is widely discussed, formal education and training on complementary therapies may be insufficient. Improving knowledge among pharmacy students and healthcare trainees is essential to ensure safe and evidence-based patient counseling.

Despite increasing public interest in herbal medicine, limited data exists regarding perceptions and knowledge about herbal remedies for stress and anxiety. Given the growing interest in complementary therapies and the potential risks associated with unsupervised herbal supplement use, the objective of this study was to assess participants' perceptions and knowledge regarding the use of herbal remedies for stress and anxiety, as well as to examine whether demographic factors influence attitudes and understanding of these therapies.

METHODS

This study reviewed the most relevant literature using PubMed and other web-based sources to identify appropriate citations. It also employed a cross-sectional survey design to evaluate participants' perceptions and knowledge regarding the use of herbal remedies for stress and anxiety. A total of 40 participants were recruited using convenience sampling from the Mid-Atlantic region, including individuals with pharmacy-related, healthcare, and non-healthcare backgrounds.

The survey consisted of three sections: demographic characteristics, opinion-based questions, and knowledge-based questions. Demographic variables included age, gender, geographic location, work type, and highest level of education. Opinion-based items assessed participants' attitudes toward the effectiveness and role of herbal remedies using Likert-scale responses, which were subsequently categorized into agree and disagree groups. Knowledge-based questions evaluated participants' understanding of commonly used herbal therapies and their safety considerations.

Descriptive statistics were used to summarize demographic data and response distributions, reported as frequencies and percentages. Knowledge scores were calculated as the proportion of correct and incorrect responses. Chi-square tests were performed to examine associations between demographic variables and participant responses. Statistical significance was defined as a p-value < 0.05.

RESULTS

The literature review found several studies to support the use of herbs to manage stress-related disorders as discussed in the introduction section. The data from the survey is shown in the tables discussed below.

Table 1 presents the demographic characteristics of the study participants (n = 40). The sample was predominantly female (75%), with most participants falling within the 18–30 year age range, indicating a relatively young study population. Over half of respondents reported pharmacy-related work experience, while the remainder were employed in non-pharmacy healthcare or non-healthcare settings. Participants were primarily drawn from the Mid-Atlantic region, with the largest proportion residing in Maryland, followed by other states. Educational attainment was high, as the majority of participants reported holding at least a bachelor's degree, and a substantial proportion had completed a master's degree or higher. Overall, the demographic profile reflects a young, well-educated population with relevant healthcare exposure, which may influence attitudes and knowledge regarding herbal remedies for stress and anxiety.

Table 1: Demographic Characteristics of Participants (n = 40).

Variable	Category	n	%
Gender	Male	10	25.0
	Female	30	75.0
Age Group	• 18–24	21	52.5
	• 25–30	15	37.5
	• 30–40	3	7.5
	• Above 40	1	2.5
Geographic Location	Maryland	15	38.5
	Washington, DC	6	15.4
	Virginia	1	2.6
	Other States	17	43.6
Work Type	Pharmacy-related	20	52.6
	Non-pharmacy, health-related	9	23.7
	Non-healthcare	9	23.7
Highest Degree	Pre-pharmacy/Other	1	2.4
	Pre-pharmacy certificate	6	14.3
	Associate degree	2	4.8
	Bachelor's degree	26	61.9
	Master's or higher	7	16.7

Table 2 presents participants' opinion-based responses regarding the use of herbal remedies for stress and anxiety. Overall, respondents demonstrated favorable attitudes toward herbal interventions. A high proportion of participants agreed or strongly agreed that chamomile can be effective in managing mild to moderate anxiety and that valerian may reduce cortisol levels and anxiety symptoms. Most participants also agreed that there is a need for increased education on herbal remedies. Opinions were more divided regarding the role of herbal remedies as complementary treatments to conventional mental health care, indicating some variability in perceptions. Additionally, a majority of respondents agreed that openness toward herbal remedies varies by individual, highlighting differences in personal beliefs and comfort levels regarding herbal use.

Table 2: Opinion-Based Responses on Herbal Remedies.

Statement	Agree n (%)	Disagree n (%)
Chamomile can manage mild–moderate anxiety	31 (86.1)	5 (13.9)
Valerian reduces cortisol and anxiety levels	33 (91.6)	3 (8.4)
Need for more education on herbal remedies	30 (83.3)	6 (16.7)
Herbal remedies are complementary to mental health treatment	21 (58.3)	15 (41.7)
Openness toward herbal use varies by individual	33 (91.7)	3 (8.3)

Table 3 summarizes participants' knowledge-based responses related to herbal remedies for stress and anxiety. Overall knowledge accuracy was relatively high, with an average correct response rate of **80.6%** and an average incorrect response rate of **19.4%** across the five knowledge questions. Nearly all participants correctly identified the importance of consulting a healthcare provider prior to herbal use and recognized the anxiety-relieving effects of chamomile and lavender. However, lower accuracy was observed for questions related to Ashwagandha's role in stress adaptation and the consistency of herbal dosing and duration, suggesting areas where additional education may be beneficial.

Table 3: Knowledge-Based Responses.

Statement	Correct n (%)	Incorrect n (%)
Consultation required before herbal use	36 (100.0)	0 (0.0)
Chamomile relieves anxiety symptoms	35 (97.2)	1 (2.8)
Ashwagandha helps adapt to stress	14 (38.9)	22 (61.1)
Lavender reduces stress	32 (88.9)	4 (11.1)
Herbal dosage consistency	28 (77.8)	8 (22.2)
Overall Average	29 (80.6)	7 (19.4)

Table 4 summarizes the statistically significant associations identified through chi-square cross-tabulation analyses examining relationships between demographic variables and

responses to herbal remedy questions. A statistically significant association was observed between age group and openness toward using herbal remedies for stress and anxiety ($p = 0.007$), indicating that attitudes toward herbal remedy use varied by age. Younger participants demonstrated greater openness compared to older age groups. No other demographic variables, including gender, education level, or work type, showed statistically significant associations with opinion or knowledge-based responses ($p > 0.05$). These findings suggest that age may play an important role in shaping perceptions of herbal remedies, while other demographic factors were not significantly associated within this sample.

Table 4: Statistically Significant Findings.

Comparison	Test	Statistic	p-value
Age group \times Openness toward herbal remedies	Pearson Chi-Square	χ^2	0.007

Statistical analysis revealed no significant differences in knowledge scores across demographic variables, including gender ($p = 0.73$), education level ($p = 0.47$), work experience ($p = 0.46$), and age ($p = 0.68$). These findings suggest that participants demonstrated relatively consistent knowledge of herbal remedies for anxiety and stress regardless of demographic background.

DISCUSSION

In addition to assessing participants' knowledge and perceptions, this study also reviewed existing literature on the efficacy of herbal remedies in managing anxiety and stress-related disorders. Previous clinical studies discussed in the introduction have demonstrated that herbal therapies such as chamomile, lavender, saffron, and kava may provide beneficial effects in reducing anxiety symptoms. These findings provide important context for interpreting the survey results, as participants' positive perceptions of herbal remedies may be influenced by the growing body of evidence supporting their potential therapeutic use.

This study examined participants' perceptions and knowledge regarding the use of herbal remedies for stress and anxiety. Overall, the findings suggest generally positive attitudes toward herbal interventions and a relatively strong baseline knowledge among respondents, while also highlighting specific areas where further education may be beneficial.

The demographic characteristics of the study population indicate that the sample consisted largely of young, well-educated individuals, many of whom had healthcare or pharmacy-

related experience. This background may partially explain the high level of awareness and favorable perceptions observed in the study. Individuals with academic or professional exposure to healthcare topics may be more familiar with complementary and alternative medicine approaches, including herbal remedies. However, the demographic composition also limits the generalizability of the findings to broader populations that may have different educational backgrounds or levels of healthcare literacy.

Participants expressed generally positive opinions about herbal remedies as potential options for managing stress and anxiety. A large majority agreed that chamomile may help manage mild to moderate anxiety and that valerian could play a role in reducing anxiety-related symptoms. Additionally, most respondents agreed that more education on herbal remedies is needed, suggesting recognition that while herbal therapies are widely discussed, accurate information may still be limited. At the same time, opinions were more divided regarding whether herbal remedies should be used alongside conventional mental health treatments, which may reflect uncertainty about clinical evidence, safety considerations, or appropriate integration into standard care. These perceptions are consistent with findings from previous clinical studies demonstrating the potential efficacy of several herbal remedies in managing anxiety and stress-related conditions.

The knowledge-based findings further support the presence of relatively strong baseline awareness among participants. Most respondents correctly identified key facts regarding herbal remedies, including the importance of consulting healthcare professionals before use and the potential calming effects of chamomile and lavender. However, knowledge gaps were evident in specific areas, particularly regarding the role of ashwagandha in stress adaptation and the importance of consistent dosing of herbal products. These results highlight that while individuals may recognize commonly discussed herbal therapies, deeper understanding of mechanisms, evidence, and proper use may still be limited. Targeted education in these areas could improve safe and effective use of herbal supplements.

The chi-square analysis revealed that age was the only demographic factor significantly associated with attitudes toward herbal remedy use. Younger participants were more open to using herbal therapies compared to older individuals. This finding aligns with broader trends suggesting that younger populations are often more receptive to complementary and alternative medicine approaches. Increased exposure to wellness trends, social media information, and integrative health discussions may contribute to this openness. In contrast,

older individuals may rely more heavily on conventional medical approaches or may be less familiar with newer discussions surrounding herbal supplementation.

Interestingly, other demographic variables such as gender, education level, and work type were not significantly associated with knowledge or opinions in this sample. This suggests that awareness and attitudes toward herbal remedies may be relatively consistent across these groups within the studied population. However, the limited sample size may have reduced the ability to detect additional associations.

These findings have important implications for healthcare education and patient counseling. Pharmacists and other healthcare professionals are increasingly encountering patients who are interested in or already using herbal products for stress and anxiety. Ensuring that healthcare providers are equipped to discuss the efficacy, safety, and appropriate use of these remedies is essential. Educational initiatives that focus on evidence-based information regarding herbal therapies could help bridge the knowledge gaps identified in this study.

Several limitations should be considered when interpreting these results. The relatively small sample size and concentration of participants within a young and educated demographic limit the generalizability of the findings. Self-reported responses may also introduce response bias, as participants may overestimate their knowledge or provide socially desirable answers. Additionally, cross-sectional design prevents determination of causal relationships between demographic factors and attitudes toward herbal remedies.

Despite these limitations, this study contributes to the growing body of literature examining perceptions of herbal medicine use for mental health concerns. The results suggest that while interest in herbal remedies is high, there remains a need for improved education and clearer guidance from healthcare professionals. Future research with larger and more diverse populations would help further clarify how demographic factors influence knowledge, attitudes, and safe use of herbal therapies.

CONCLUSION

In conclusion, findings from both the literature review and survey indicate that herbal remedies may play a beneficial role in the management of stress and anxiety, while participants demonstrated generally positive perceptions and a relatively strong baseline level of knowledge regarding these therapies. However, important knowledge gaps remain,

particularly in areas related to mechanisms of action and appropriate use of certain herbal products.

A statistically significant association was identified between age and openness toward herbal remedies, with younger individuals demonstrating greater acceptance compared to older age groups. Other demographic variables, including gender, education level, and work type, were not significantly associated with knowledge or perceptions in this sample.

These findings highlight the growing interest in complementary and alternative therapies while emphasizing the need for improved education on the safe and evidence-based use of herbal remedies. Pharmacists and other healthcare professionals play a critical role in patient counseling, identifying potential herb–drug interactions, and promoting informed decision-making. Future research involving larger and more diverse populations is warranted to further evaluate knowledge gaps and optimize educational strategies.

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