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Knowledge and attitude regarding Shilajit use among orthopedic patients: A cross-sectional study

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Abstract

Shilajit is used commonly as Ayurvedic medicine worldwide which is Rasayana herbo-mineral substance and consumed to restore the energetic balance and to prevent diseases. Locally, Shilajit is applied for patients diagnosed with bone fractures. Our research to evaluate the Knowledge and attitude and practice towards using Shiljat in fracture in our community. A cross sectional study will be conducted at King Fahad university hospital patients during the period from October 1, 2024 to October 1, 2025. Data will be collected using a structured, pre-validated questionnaire designed to assess demographic characteristics, as well as participants' knowledge and attitudes toward the use of Shilajit. A total of 149 participants were included. Among males, 40 (38.8%) reported using Shilajit, while 63 (61.2%) reported no use. Among females, 19 (41.3%) reported using Shilajit compared to 27 (58.7%) who did not. Overall, 59 participants (39.6%) reported using Shilajit, whereas 90 (60.4%) reported no used. A weak, non-significant negative correlation was observed between duration of use and perceived usefulness ($r = –0.25$, $p = 0.077$). Gender showed no significant association with perceived usefulness ($\chi^2(1) = 0.08$, $p = 0.776$), and age demonstrated a weak, non-significant positive correlation ($r = 0.08$, $p = 0.333$). Overall, none of the examined user characteristics were significant predictors of perceived usefulness. The findings indicate that perceived usefulness was not significantly influenced by duration of use, gender, or age. Although longer use showed a slight trend toward lower perceived usefulness, this relationship did not reach statistical significance. Further research with larger and more diverse populations may help clarify potential influencing factors.

Keywords: Attitude, Cross-sectional study, Knowledge, Orthopedic patients, Shilajit.

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1. Introduction

Shilajit is a traditional osteoprotective asset. Shilajit found to speed up recovery time in patients with a tibia fracture as, according to previous work, it hastens mineralized callus formation [1]. Bone remodeling in vivo in responding to mid-palatal suture expansion [2] and in vitro [3] was evident with the Shilajit treatment. Moreover, Shilajit found controlling the characteristic features of knee osteoarthritis (KOA) [4]. Vitamin D (VitD) was found in Shilajit Wilson, et al. [5] and its peculiar elevated content of Ca (> 100.000 mg/kg) disclosed here, which its Ca/VitD content participates in being a co-therapeutic choice to improve muscle and bone health-related complaints. Ca/VitD role in bone remodeling and steonoid mineralization is essential [6]. Fracture susceptibility, a consequence of the low-Ca diet/absorption, could be countered with Ca supplements [7]. Post-fracture dietary Ca/VitD supplementation, fracture-healing augmented in the human osteoporotic proximal humerus [8] and in mice osteoporosis model with Ca/VitD-deficient diet where fracture-induced bone resorption also effectively restrained [9]. Osteoporotic fracture healing in rats seemed to be improved with Ca supplements [10]. Moreover, taking of Ca supplementation liked to skeletal muscle performance-enhancing in Ca-deficient elderly subjects [7] and VitD supplements functioned as a pain-relieving and muscle-strengthening physical activity booster in KOA patients [11]. Shilajit contains a lot of essential elements like Magnesium, Sodium, Potassium and a huge amount of calcium (about 100,000 mg/kg) which can play a major role in bone hemostasis as it is a major component of inorganic extracellular matrix of the bone and bone healing, especially in hard callus formation, although bone healing is a complex biological process and regulated by different gene and chemical factor, shilajit has positive effect on new bone formation and remodeling also bone strengthening through inflammatory cell infiltration and capillary intensity at fracture site by increasing osteoblast proliferation and by up regulating the genes involved in the synthesis of collagen and associated proteins [2, 12-15].

Fracture management in our community often includes the traditional use of Shilajit, a natural mineral-rich resin believed to enhance bone healing and recovery. Despite its widespread use, there is limited scientific understanding of how much the public truly knows about its safety, effectiveness, and proper application. Evaluating the knowledge, attitude, and practices related to Shilajit use in fracture care is essential to identify misconceptions, guide awareness programs, and support evidence-based decision-making in clinical and community settings. This research aims to assess these factors within our population to improve overall fracture management and promote safe and informed use of traditional remedies

2. Methods

2.1. Population

A cross sectional study will be conducted at King Fahad university hospital patients during the period October 1, 2024 to October 1, 2025.

2.2. Inclusion

- Over the age of 13 years
- Admitted to the hospital under the orthopedic department in the last 12 months
- Diagnosed by fracture and treated surgically.

2.3. Exclusion

- Patients under 13 yrs.
- Patients diagnosed by fracture and treated conservatively

2.4. Tools:

Data will be collected using a structured, pre-validated questionnaire designed to assess demographic characteristics, as well as participants' knowledge and attitudes toward the use of Shilajit. The questionnaire was developed based on a comprehensive review of relevant literature and refined through expert consultation [5].

2.5. Data Analysis plan:

Patients will be divided based on Age, Gender, usage of Shiliajit then chi-square test and ANOVA test will be done using a statistical program.

Means of central tendency of dispersion of each group might be calculated based on the sample.

the number of cases admitted to the King Fahd Hospital of the University under the orthopedic department and performed the surgery was 589 cases, including 219 cases of fractures of age over 13 years (Around 37% fracture cases). We exclude any fracture that was managed conservatively either admitted as inpatient or dealt with in the emergency room (Figure 1).

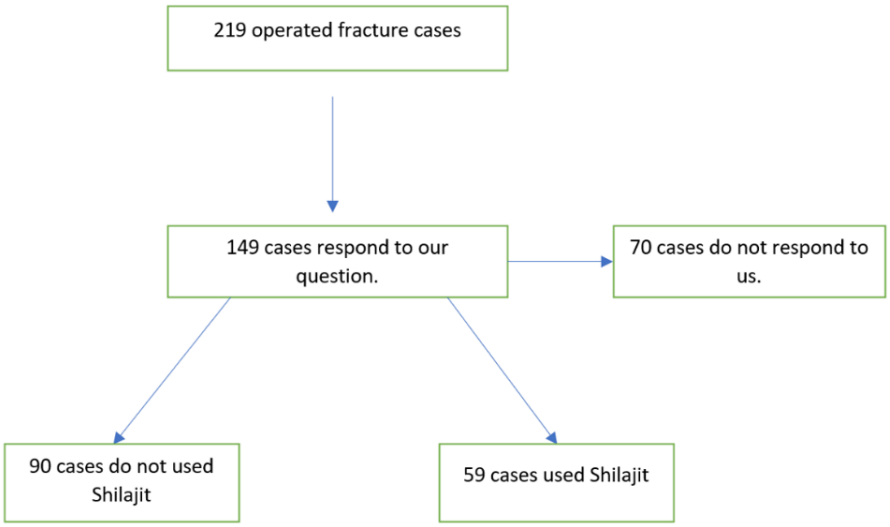

Figure 1.
Flow diagram of the number of cases.

3. Result

3.1. Basic Characteristics of the Participants

A total of 149 participants were included. Among males, 40 (38.8%) reported using Shilajit, while 63 (61.2%) reported no use. Among females, 19 (41.3%) reported using Shilajit compared to 27 (58.7%) who did not. Overall, 59 participants (39.6%) reported using Shilajit, whereas 90 (60.4%) reported no use (Figure 2).

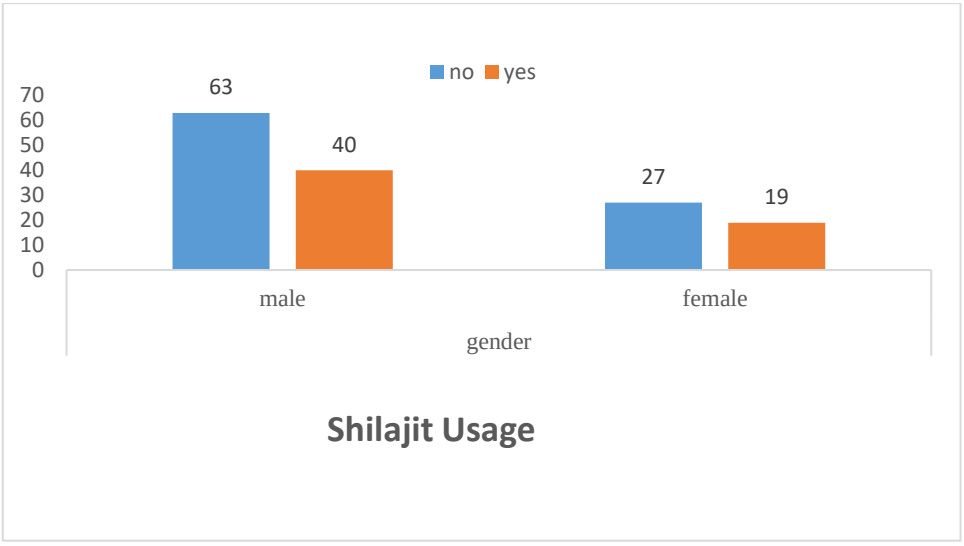

Figure 2.
Gender distribution of Shilajit Usage.

The survey results indicated that the practice is moderately uncommon in Saudi Arabia. Out of 149 respondents, 59 participants (39.6%) reported using Shilajit, while 90 participants (60.4%) did not use it. This suggests that most of the population surveyed does not engage in this practice (Table 1).

Table 1.
Prevalence Shilajit Usage in Saudi Arabia.

Usage	Frequency	Percent
Yes	59	39.6%
No	90	60.4%
Total	149	100.0%

Among the 59 participants who reported using *Shilajit*, the most frequently employed approach was dates alone (40.7%), followed by *Shilajit* alone (30.5%). Less frequently used methods included milk (15.3%), the combination of dates and milk (8.5%), and water (5.1%). These findings indicate a clear preference for consuming *Shilajit* with dates, either alone, suggesting that cultural or traditional practices may influence the choice of method (Figure 3).

3.2. Approach to Shilajit Consumption

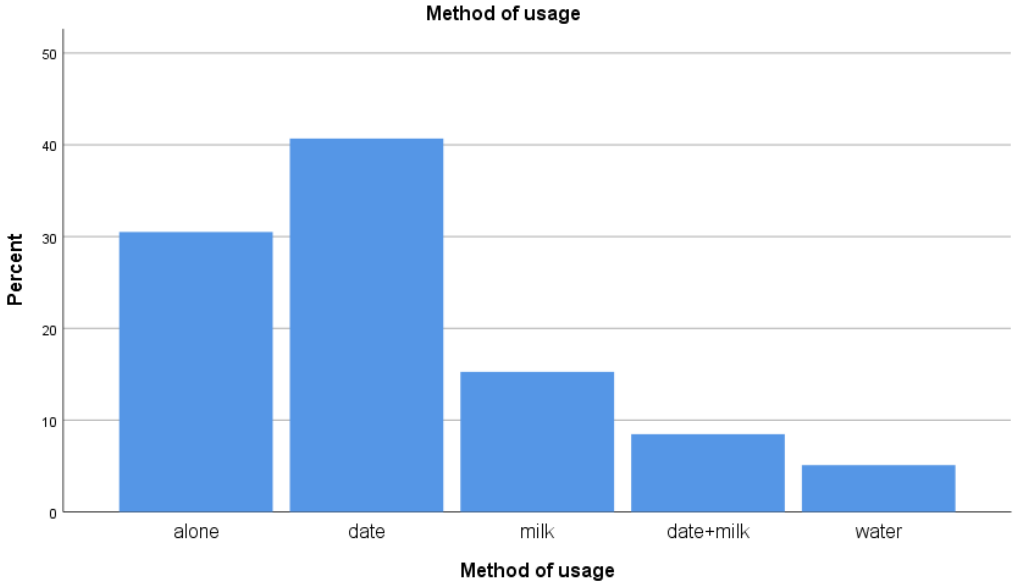

Figure 3.
Approach to Shilajit consumption.

For instance, the combination of dates and milk was more frequently associated with positive evaluations of usefulness, whereas other methods (such as milk or water alone) did not receive any “useful” ratings. However, the majority of responses fell under the “not sure” category, reflecting either uncertainty or lack of knowledge among participants regarding the actual benefits of these practices. However, the findings indicate that most respondents were unsure about the usefulness of the product across all methods of usage, with particularly high counts observed for "Date" (n =19) and "Alone" (n = 16). This suggests a substantial level of uncertainty regarding the perceived benefits, regardless of the method of consumption (Table 2).

Table 2.
Crosstabulation of Method of Usage and Perceived Usefulness.

	Method of usage					
Perceived Usefulness	**Alone**	**Date**	**Milk**	**Date with Milk**	**Water**	**Total**
No	2	2	2	0	1	7
Yes	0	3	0	3	0	6
Not sure	16	19	7	2	2	46
Total	18	24	9	5	3	59

In contrast, relatively few participants considered the product to be definitively useful (*Yes*). Positive perceptions were observed most prominently when the product was consumed with *Date with Milk* (n = 3) and *Date* (n = 3). Conversely, *alone*, *Milk* and *Water* registered very low counts in the *Yes* category.

Similarly, negative perceptions (*No*) were minimal overall, with the highest counts recorded for *"Alone" (n = 2) and "Milk"* (n = 2). This indicates that outright rejection of usefulness was relatively uncommon compared to uncertainty.

3.3. Duration of Use and Perceived Usefulness

A Pearson correlation was performed to examine the relationship between duration of use and perceived usefulness. The results showed a weak negative correlation, $r(48) = –0.25$, $p = 0.077$. Although longer use tended to be associated with slightly lower perceived usefulness, the association was not statistically significant (Table 3).

3.4. Gender and Perceived Usefulness (Yes/No Use)

A chi-square test was performed to explore whether gender was associated with perceived usefulness of the system/tool. The results indicated no significant association, $\chi^2(1, N = 149) = 0.08$, $p = 0.776$. Males and females reported similar levels of usefulness (Table 3).

3.5. Age and Perceived Usefulness

A point-biserial correlation was used to assess the relationship between age and perceived usefulness. The correlation was weak and non-significant, $r(147) = 0.08$, $p = 0.333$, indicating that age was not a meaningful predictor of perceived usefulness. Furthermore, A chi-square test was performed to explore whether gender was associated with perceived usefulness of the system/tool. The results indicated no significant association, $\chi^2(1, N = 149) = 0.08$, $p = 0.776$. Males and females reported similar levels of usefulness (Table 3).

Table 3.
Associations of Duration, Gender, and Age with Perceived Usefulness.

Analysis Type	Variables Examined	Statistical Test	Effect Size / Test Value	p-value
Correlation	Duration of use × perceived usefulness	Pearson correlation	$r = –0.253$	0.077
Association	Gender × perceived usefulness	Chi-square test	$\chi^2(1, N = 149) = 0.08$	0.776
Correlation	Age × perceived usefulness	Point-biserial correlation	$r = 0.080$	0.333

4. Discussion

The primary objective of this cross-sectional study was to evaluate the Knowledge, Attitude, and Practice (KAP) of orthopedic patients regarding the use of Shilajit as a complementary therapy for bone fractures in our community.The results indicate that the practice is moderately uncommon in Saudi Arabia. Out of 149 respondents, 59 participants (39.6%) reported using Shilajit primarily driven by cultural recommendations rather than clinical advice. However, knowledge about correct dosage and purification remains low.

4.1. Interpretation of Knowledge and Practice

The high traditional usage observed aligns with Shilajit's long history in Ayurvedic and Traditional Persian Medicine, where it is classified as a rasayana (rejuvenator) and has been cited for its efficacy in fracture healing and treating various bone ailments.

Our findings on patient knowledge underscore a critical gap between traditional practice and modern, evidence-based healthcare. Although all the 59 cases report one complication of shilajit, which is broken teeth if coming in contact, that way they try to swallow the shilajit and prevent contact with the teeth, although no one has this side effect, but according to the inherited experience from old people. This side effect needs further study to determine which component of shilajit is causing these side effects and we did not come across it in the literature review report. This side effect may be due to using the purified shilajit in most of the studies, which is different from what is available in our market. The apparent reliance on cultural or non-clinical sources for information highlights a need for targeted patient education. This is especially important given the potential for unpurified Shilajit to contain heavy metals, a safety concern that requires clinical oversight [12]. Despite shilajit usage for several years [16] but there is no consensus about the best amount and duration of shilajit use in a fracture.

4.2. Biological Plausibility and Mechanisms of Action

The observed community practice of using Shilajit is, in fact, supported by a growing body of preclinical and clinical evidence demonstrating its osteoprotective and osteogenic properties. The efficacy is attributed primarily to its unique chemical composition, featuring an elevated content of Calcium (Ca) (> 100,000 mg/kg) and Vitamin D (VitD), along with potent humic substances [17].

Mineral and Vitamin Support: The peculiarly high Ca/VitD content of Shilajit positions it as a significant co-therapeutic choice to improve muscle and bone health-related complaints [17]. The essential role of Ca/VitD in bone remodelling and osteoid mineralisation is well-established in bone physiology [10]. Furthermore, research confirms that fracture susceptibility resulting from a low-Calcium diet or absorption can be countered with Ca supplements [9].

Osteoblast and Callus Formation: Preclinical research provides direct evidence for Shilajit's regenerative capacity. In vitro studies using human osteoblast-like cells (MG63) demonstrated that Shilajit extract promotes cell proliferation and enzyme expression vital for bone formation [12]. Complementary in vivo studies on rat bone tissue revealed a marked response in bone remodelling [13]. Crucially, one study specifically found that Shilajit hastens mineralised callus formation, which in turn speeds up the recovery time in patients with a tibia fracture [1]. This effect has also been shown to involve the acceleration of Adipose-Derived Mesenchymal Stem Cells (ASCs) differentiation into osteoblasts, thereby enhancing bone defect repair [18].

Anti-inflammatory and Antioxidant Activity: Beyond direct bone support, Shilajit helps to control the characteristic features of Knee Osteoarthritis (KOA) [19]. This anti-inflammatory profile is essential, as Shilajit is known to reduce oxidative stress and inflammation [20]. By attenuating increased bone turnover, inflammation, and oxidative stress, Shilajit helps to dose-dependently preserve bone mineral density (BMD) in high-risk populations, such as postmenopausal women with osteopenia [20].

Clinical Relevance: The findings of better radiological improvement rates observed in human patients with tibial and femoral fractures following oral administration of Shilajit further align with the favourable remodelling observed in this current study's literature review [14].

5. Limitations

This study's cross-sectional design only captures a snapshot of KAP at a single point in time, preventing us from establishing a cause-and-effect relationship between knowledge and practice, or from tracking changes over time. Furthermore, data on actual clinical outcomes and complications related to Shilajit use were not systematically collected, representing a significant area for future prospective research.

6. Conclusion

This cross-sectional study successfully documented a high and deeply rooted traditional acceptance of Shilajit within the orthopedic patient community. Howe the findings indicate that perceived usefulness was not significantly influenced by duration of use, gender, or age. Although longer use showed a slight trend toward lower perceived usefulness, this relationship did not reach statistical significance. Similarly, both gender and age demonstrated weak, non-significant associations with usefulness. Overall, the results suggest that none of the examined user characteristics meaningfully predicted perceptions of usefulness in this sample. Further research with larger and more diverse populations may help clarify potential influencing factors.

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