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Utilization of Lanah Sug Mixed with Bangkit as an Alternative Topical Medicine for Wound Healing among Residents of Tulay, Jolo, Sulu, Philippines

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ABSTRACT:

Background: Traditional medicine remains an integral part of healthcare in communities where access to modern medical facilities is limited. In Tulay, Jolo, Sulu, Philippines, a locally prepared mixture of lanah sug (virgin coconut oil) and bangkit is used as an alternative topical medicine for wound healing, yet its utilization and demographic correlates have not been documented.

Methods: A descriptive cross-sectional study was conducted among 100 residents of Tulay, Jolo, Sulu, selected through simple random sampling. A researcher-developed questionnaire collected data on age, sex, monthly income, and educational level, and on self-reported frequency of lanah sug mixed with bangkit utilization measured on a five-point Likert scale. Data were analyzed using frequency, percentage, mean, standard deviation, independent t-test, and one-way ANOVA at a significance level of 0.05.

Results: The majority of respondents were aged 45 years and above (40%), male (60%), with a monthly income of PHP 15,001-25,000 (41%), and tertiary education (54%). The mean utilization score was 3.81 (SD = 1.212), interpreted as “often”. Utilization differed significantly by age ($F(3,96) = 10.987, p < 0.001$), sex ($t(98) = 3.643, p < 0.001$), and monthly income ($F(4,95) = 6.485, p < 0.001$); the difference by educational level was borderline ($F(3,96) = 2.704, p = 0.050$).

Conclusion: Utilization of lanah sug mixed with bangkit is common among residents of Tulay, Sulu, and varies significantly with age, sex, and income. The findings support the culturally sensitive integration of traditional remedies into local wound care and provide baseline data for further research.

1. INTRODUCTION

Traditional, complementary, and alternative medicine remains an integral part of healthcare in many communities, particularly where access to modern medical facilities is limited (James et al., 2018). The one-year prevalence of complementary and alternative medicine (CAM) use is estimated at around 20% in some countries (Ernst, 2000), and in low- and middle-income settings, reliance on locally available remedies is often driven by cost, accessibility, and cultural acceptance (James et al., 2018; Sirois and Gick, 2002).

Wound care is one area in which traditional remedies are widely used. Untreated or poorly managed wounds carry a significant risk of infection, delayed healing, and, in severe cases, amputation, particularly among individuals with limited access to health services. Virgin coconut oil (VCO), extracted from the mature kernel of the coconut (*Cocos nucifera* L.) without chemical or high-heat treatment, has been shown to possess antimicrobial, anti-inflammatory, antioxidant, and wound-healing properties

(Intahphuak et al., 2010; Nevin and Rajamohan, 2010; Marina et al., 2009; Yeap et al., 2015). Topical VCO accelerated dermal wound healing and improved skin components in animal models (Nevin and Rajamohan, 2010), reduced the surface area of diabetic foot ulcers in a clinical study (Dafriani et al., 2020), and improved skin barrier function in patients with xerosis and atopic dermatitis (Evangelista et al., 2014; Chew, 2019). Because the physicochemical properties of VCO vary with the processing method used (Mansor et al., 2012), the manner in which lanah sug is prepared in this community may influence its properties.

In the province of Sulu in the southern Philippines, a locally prepared remedy known as “lanah sug mixed with bangkit” is used as an alternative topical medicine for wound healing. Lanah sug is a form of virgin coconut oil prepared by slowly cooking grated coconut until it becomes clear and translucent. Bangkit is a white substance traditionally used in the preparation of betel quid and for cleaning, and it is mixed with lanah sug for topical application. Its appearance and traditional use are consistent with slaked lime (calcium hydroxide), the form of lime traditionally combined with areca nut in betel quid preparations across Southeast Asia; however, its exact composition in this community has not been chemically characterized. Despite the widespread use of this remedy, no study has documented its utilization or the demographic factors associated with its use among the residents of Tulay, Jolo, Sulu.

This study is framed within the Health Belief Model, which proposes that health behaviors are influenced by perceived threat and perceived benefits and barriers (Rosenstock, 1974), and the Health Promotion Model, which emphasizes factors that promote health behaviors (Aqtam and Darawwad, 2018; Sakraida, 2013).

This study aimed to determine the utilization of lanah sug mixed with bangkit as an alternative topical medicine for wound healing among residents of Tulay, Jolo, Sulu, and to determine whether utilization differs significantly according to age, sex, monthly income, and educational level.

2. MATERIALS AND METHODS

2.1 Research design

A descriptive cross-sectional design was used to gather quantifiable information on the demographic profile of the respondents and the utilization of lanah sug mixed with bangkit (Gay et al., 2012).

2.2 Study locale and participants

The study was conducted in Barangay Tulay, Jolo, Sulu, Philippines. The target population comprised residents of Tulay aged 15 years and above who use or have used lanah sug mixed with bangkit as an alternative topical medicine for wound healing.

2.3 Sampling

A total of 100 respondents were selected using simple random sampling, in which every member of the defined population had an equal and independent chance of being selected (Gay et al., 2012). The sample size was set at 100, a size judged feasible within the time and resources available for the study while still permitting the planned subgroup comparisons.

2.4 Research instrument

Data were gathered using a researcher-developed questionnaire consisting of two parts. Part 1 collected the socio-demographic profile of the respondents, including age, sex, monthly income, and educational level. Part 2 contained a single statement, “I utilized lanah sug mixed with bangkit as an alternative topical medicine for wound healing”, rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The score was treated as a self-reported measure of the frequency of use rather than as a prevalence proportion. Utilization was interpreted using the following scale: 1.00-1.79 = never; 1.80-2.59 = rarely; 2.60-3.39 = sometimes; 3.40-4.19 = often; and 4.20-5.00 = always.

2.5 Validity and reliability

The questionnaire was validated by a panel of expert validators for content and clarity. A pilot test was conducted with 10 respondents to assess the reliability of the instrument using the test-retest method, in which the questionnaire was administered to the same group on two separate occasions and the correlation between the two administrations was computed. The test-retest reliability coefficient was $r = 1.0$

2.6 Data collection procedure

The researcher administered the questionnaire to the selected respondents after explaining the purpose of the study and obtaining their consent. Completed questionnaires were collected immediately.

2.7 Statistical analysis

Data were encoded and analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics. An independent t-test was used to compare utilization between male and female respondents, and one-way ANOVA was used to compare utilization across age, monthly income, and educational level groups. The level of significance was set at $p < 0.05$.

2.8 Ethical considerations

The study involved human respondents and was conducted in accordance with the ethical principles for research involving human participants. Prior to data collection, each respondent was provided with a written explanation of the purpose of the study and assured that all responses would be treated with strict confidentiality and would not be linked to their identity in any reporting or publication of results. Participation was voluntary, and completion of the questionnaire indicated informed consent.

3. RESULTS AND DISCUSSION

3.1 Demographic profile of the respondents

The largest proportion of respondents (40%) were aged 45 years and above, followed by those aged 35-44 (34%), 15-24 (16%), and 25-34 (10%) (Table 1). Sixty percent of the respondents were male and 40% were female (Table 2). The largest group of respondents (41%) reported a monthly income of PHP 15,001-25,000, followed by those earning below PHP 5,000 (30%), PHP 25,001-35,000 (20%), PHP 35,001-45,000 (6%), and PHP 45,000 and above (3%) (Table 3). The majority of respondents (54%) had tertiary education, followed by secondary (17%), no schooling (16%), and primary (13%) (Table 4).

Table 1. Demographic profile of the respondents in terms of age

Age group	Frequency	Percentage
15-24	16	16.0
25-34	10	10.0
35-44	34	34.0
45 and above	40	40.0
Total	100	100.0

Table 2. Demographic profile of the respondents in terms of sex

Sex	Frequency	Percentage
Male	60	60.0
Female	40	40.0
Total	100	100.0

Table 3. Demographic profile of the respondents in terms of monthly income

Monthly income	Frequency	Percentage
Below PHP 5,000	30	30.0
PHP 15,001-25,000	41	41.0
PHP 25,001-35,000	20	20.0
PHP 35,001-45,000	6	6.0
PHP 45,000 and above	3	3.0
Total	100	100.0

Note. The original instrument did not include a category for incomes between PHP 5,001 and PHP 15,000.

Table 4. Demographic profile of the respondents in terms of educational level

Educational level	Frequency	Percentage
No schooling	16	16.0
Primary	13	13.0
Secondary	17	17.0
Tertiary	54	54.0
Total	100	100.0

3.2 Utilization of lanah sug mixed with bangkit

The mean utilization score was 3.81 (SD = 1.212), which falls within the “often” category (3.40-4.19) (Table 5). This indicates that, on average, respondents frequently use lanah sug mixed with bangkit as an alternative topical medicine for wound healing. The standard deviation of 1.212 indicates moderate variability in the frequency of use across the sample.

Table 5. Utilization of lanah sug mixed with bangkit

Variable	Mean	SD	Description
Utilization	3.81	1.212	Often

Legend: 1.00-1.79 = Never; 1.80-2.59 = Rarely; 2.60-3.39 = Sometimes; 3.40-4.19 = Often; 4.20-5.00 = Always

3.3 Differences in utilization according to demographic factors

Utilization increased with age, from a mean of 2.69 (SD = 1.537) in the 15-24 group to 4.43 (SD = 0.813) in the 45-and-above group. One-way ANOVA showed a significant difference across age groups ($F(3,96) = 10.987$, $p < 0.001$) (Table 6), indicating that older residents use the remedy more frequently. This is consistent with findings that older adults are more inclined to use traditional remedies (James et al., 2018; Seo et al., 2013).

Table 6. ANOVA results for utilization by age

Age group	Mean	SD
15-24	2.69	1.537
25-34	3.40	1.350
35-44	3.74	0.963
45 and above	4.43	0.813

$F(3,96) = 10.987, p < 0.001$

The mean utilization score was significantly higher among males ($M = 4.15, SD = 1.039$) than females ($M = 3.30, SD = 1.285$) ($t(98) = 3.643, p < 0.001$) (Table 7). This finding diverges from the general CAM literature, which typically reports higher use among women (Bahall and Legall, 2017; Boccolini and Boccolini, 2020; Shih et al., 2012). The difference may reflect local patterns of wound exposure and the cultural context of this specific remedy, and should be explored in future studies.

Table 7. Independent t-test results for utilization by sex

Sex	Mean	SD
Male	4.15	1.039
Female	3.30	1.285

$t(98) = 3.643, p < 0.001$

Utilization was highest in the lowest income group ($M = 4.23, SD = 1.104$) and lowest in the highest income group ($M = 1.00, SD = 0.000$). One-way ANOVA showed a significant difference across income groups ($F(4,95) = 6.485, p < 0.001$) (Table 8), indicating that use decreases as income increases. This aligns with studies reporting that lower-income individuals are more likely to use traditional remedies because of their lower cost and greater accessibility (Sirois and Gick, 2002; James et al., 2018). Because the highest income group contained only three respondents, the results for this group should be interpreted with caution.

Table 8. ANOVA results for utilization by monthly income

Monthly income	Mean	SD
Below PHP 5,000	4.23	1.104
PHP 15,001-25,000	3.88	1.187
PHP 25,001-35,000	3.55	0.945
PHP 35,001-45,000	3.50	1.049
PHP 45,000 and above	1.00	0.000

$F(4,95) = 6.485, p < 0.001$

Utilization was highest among respondents with primary education ($M = 4.46, SD = 0.776$) and no schooling ($M = 4.19, SD = 1.167$), and lowest among those with tertiary education ($M = 3.56, SD = 1.284$). One-way ANOVA showed a borderline difference across educational levels ($F(3,96) = 2.704, p = 0.050$) (Table 9). Because the p-value sits exactly at the conventional threshold, this result should be interpreted as marginally significant. Although a large proportion of users had tertiary education

(54%), the lower mean frequency of use among the more educated suggests that higher education increases awareness of alternative medicine while also diversifying the health approaches used (Bishop et al., 2007).

Table 9. ANOVA results for utilization by educational level

Educational level	Mean	SD
No schooling	4.19	1.167
Primary	4.46	0.776
Secondary	3.76	1.091
Tertiary	3.56	1.284

$F(3,96) = 2.704, p = 0.050$

3.4 Discussion

The findings indicate that lanah sug mixed with bangkit is commonly used for wound healing among residents of Tulay, Jolo, Sulu, with an average frequency of use in the “often” range. The higher use among older residents and lower-income residents is consistent with the broader literature on traditional and complementary medicine (James et al., 2018; Sirois and Gick, 2002; Seo et al., 2013). The higher use among males, however, contrasts with international patterns and highlights the importance of local context in understanding traditional remedy use (Bahall and Legall, 2017; Shih et al., 2012). CAM use is likewise common among patients with chronic conditions in other settings (Radwan et al., 2020), underscoring the relevance of documenting traditional remedy use in communities with limited access to care.

The documented wound-healing properties of virgin coconut oil, including its antimicrobial, anti-inflammatory, and antioxidant effects (Intahphuak et al., 2010; Nevin and Rajamohan, 2010; Marina et al., 2009; Yeap et al., 2015) and its beneficial effects on diabetic ulcers (Dafriani et al., 2020), provide a plausible basis for the continued use of lanah sug in this community. However, the present study did not evaluate the efficacy of the remedy, and its therapeutic value remains to be established through experimental and clinical studies. In addition, because bangkit appears consistent with slaked lime (calcium hydroxide), which is alkaline in nature, the safety of applying this mixture to open wounds should be examined before any recommendation for its use is made.

This study has several limitations. First, the sample was limited to 100 respondents from a single barangay, which limits the generalizability of the findings. Second, utilization was measured as self-reported frequency of use on a Likert scale rather than as a true prevalence proportion. Third, the income brackets used in the original instrument were internally inconsistent, with no category capturing incomes between PHP 5,001 and PHP 15,000, and the highest income group contained only three respondents; the income-related findings should therefore be interpreted with caution. Fourth, the outcome was based on a single self-report item. Fifth, the study did not assess the efficacy or safety of the remedy, and the chemical composition of bangkit was not characterized.

4. CONCLUSION

Lanah sug mixed with bangkit is frequently used as an alternative topical medicine for wound healing among residents of Tulay, Jolo, Sulu, with a mean utilization score of 3.81 (“often”). Utilization differs significantly according to age, sex, and monthly income, and marginally according to educational level. The findings provide baseline data on the use of this traditional practice and support the culturally sensitive integration of traditional remedies into local wound care. Future research should evaluate the efficacy and safety of lanah sug mixed with bangkit, characterize the composition of bangkit, and examine the reasons for the higher use among men in this community.

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AUTHOR CONTRIBUTIONS

Murmina B. Salim: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing - original draft.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

ETHICS STATEMENT

This study involved human respondents and was conducted in accordance with the ethical principles for research involving human participants. Each respondent was provided with a written explanation of the study's purpose and assured that all responses would be treated with strict confidentiality and would not be linked to their identity in any reporting or publication of results. Participation was voluntary, and completion of the questionnaire indicated consent to participate.

DATA AVAILABILITY STATEMENT

Data supporting the findings of this study are available from the corresponding author upon reasonable request.

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