https://doi.org/10.47811/bsj.0021060102

SHORT COMMUNICATION Open Access

# Proportion of patients with *Yama gosin* (sinusitis) availing Traditional Medicine Services at three district hospitals in Bhutan, 2021 – 2022: a cross-sectional study

Pelden Zangpo[1*], Dorji Zam[2*], Leki Wangchuk[2], Tempa Gyeltshen[3], Dorji Niddup[4], Karma Tenzin[5]

## ABSTRACT

**Introduction:** *Yama gosin* (sinusitis) is one of the top ten diseases reported by Traditional Medicine sector in Bhutan. *Yama gosin* is categorised as *kar*, *nak* and *thrawa*. It is caused by disturbance of *sin* residing in nostril, sinuses and head resulting in the imbalance of the three humours. The study reports on the proportion of patients with *Yama gosin*, and dietary and lifestyle patterns among those presenting to Traditional Medicine Units in three selected district hospitals.

**Method:** This cross-sectional study was conducted at the Traditional Medicine Units at Paro, Punakha, and Wangdue Phodrang Hospitals between August 2021 and January 2022. This was a convenience sampling and data were collected using a questionnaire.

**Results:** The overall proportion of patient with *Yama gosin* was 3.65% (535 out of 14566 patients). There were 312 patients (4.64%) out of 6711 at Paro Hospital, 129 patients (5.17%) out of 2497 at Punakha Hospital, and 94 patients (1.75%) out of 5358 at Wangdue Phodrang Hospital. The majority of the patients reported never consuming *Phulu* (455, 85.02%) and fermented cheese (310, 57.87%). Among meat items, most of the patients never consumed yak meat (322, 60%) and pork (267, 49.9%).

**Conclusion:** The proportion of *Yama gosin* reported in these three hospitals is slightly lower than reported from other hospitals. Patients with *Yama gosin* reported specific dietary and lifestyle patterns.

**Keywords:** Alternative Medicine; Complementary Therapy; Dietary Patterns; Sinusitis; Bhutan

Corresponding author✉: Pelden Zangpo, Traditional Medicine Unit, Gasa Hospital, Gasa, Bhutan. Email: pelzangpaldhen93@gmail.com
Dorji Zam Paro Hospital, Traditional Medicine Unit, Paro Hospital, Paro, Bhutan. Email: dorjeezangmo89@gmail.com

[1]Traditional Medicine Unit, Gasa Hospital, Gasa, Bhutan
[2]Traditional Medicine Unit, Paro Hospital, Paro, Bhutan
[3]Faculty of Traditional Medicine, Khesar Gyalpo University of Medical Sciences of Bhutan, Thimphu, Bhutan
[4]Traditional Medicine Unit, Punakha Hospital, Punakha, Bhutan
[5]Faculty of Postgraduate Medicine, Khesar Gyalpo University of Medical Sciences of Bhutan, Thimphu, Bhutan

*Joint first author and equal contribution



## INTRODUCTION

According to the Annual Health Bulletin, sinusitis (*Yama gosin* – ཡ་མ་མགོ་སྡིན།) is one of the top ten common diseases seen by the Traditional Medicine Units in Bhutan with 7482 cases managed in 2023 [1]. In a survey of patients visiting 19 Traditional Medicine Units in 2019 and 2020, sinusitis was ranked as the third most common disease diagnosed in 8.6% of the participants [2]. *Yama gosin* is one of the eight types of primary head diseases, which is caused by the disturbance in one of *sin* (pathogen) present in nostril, sinus, and head [3]. The disturbance in *sin* results in the imbalance of the three humours; wind, bile, and phlegm. Three types of sinusitis – *Yama Kar*, *Nak*, and *Thrawa*, can occur depending on the type of im-

balance in wind, phlegm, blood, bile, and serum [4]. The commonly reported symptoms are headache, fever, runny and stuffy nose, swollen nose, blurred vision, giddiness, tinnitus, persistent pain in and around the gum, behind the eye and cheeks, forehead and nasal cavity [5].

An excessive consumption of yak meat, dry fish, garlic, alcohol, sweets, and dairy products trigger episodes of sinusitis [5]. In addition, unhealthy behaviour such as prolonged exposure to smoky environment, inadequate sleep, talking and crying too much, and windy and dusty environment are also associated with increased frequency of symptoms of sinusitis [6]. This study reports on the proportion of patients with *Yama gosin* who presented to three selected district hospitals in western Bhutan, and their dietary habits.

## METHODS

### Study design

This cross-sectional study was conducted among patients presenting with *Yama gosin* availing Bhutanese Traditional Medicine services in Paro, Punakha, and Wangdue Phodrang Hospitals from August 2021 to January 2022.

### Sample size and study population

This was a convenience sample of all new cases of *Yama gosin* presenting at the Traditional Medicine Units at Paro, Wangdue Phodrang, and Punakha District Hospitals from August 2021 to January 2022. For this study, the inclusion criteria were patients with symptoms of sinusitis who were above 18 years old. The exclusion criteria were patients with terminal health conditions, patients already on medication for sinusitis, and those who visited the hospital on more than one occasion for sinusitis.

### Data collection tool and procedure

A questionnaire was designed for this study. The questionnaire included sociodemographic profile (age, sex, education and occupation), dietary and behavioural patterns. The questionnaire was pre-tested on 10 patients for clarity of language and content for necessary changes. For participants who were able to read and write, the questionnaire was self-administered. For those who could not read or write, a trained data collector conducted a face-to-face interview to administer the questionnaire.

### Data Analysis

The data was double entered and validated using EpiData version 3.1 and analyzed using EpiData Analysis version V2.2.2.183 (EpiData Association Odense Denmark). Categorical data such as demographic characteristics, lifestyle and dietary behaviour were described using frequency and percentage.

### Ethics Consideration

The ethics approval was obtained from the Research Ethics Board of Health (REBH/approval/2021/010 dated 15 July 2021). Administrative clearance was obtained from the respective study sites. All participants were enrolled voluntarily after obtaining informed written consent. Consent forms were printed both in English and Dzongkha.

## RESULTS

A total of 535 patients with sinusitis participated in this study – 312 at Paro Hospital, 129 at Punakha Hospital, and 94 at Wangdue Phodrang Hospital. Of the total, there were 345 (64.5%) female patients and 400 (74.7%) were aged between 18 – 45 years. The details of sociodemographic characteristics of patients with sinusitis are given in Table 1.

During the study period, there were 535 patients (3.65%) with *Yama gosin* out of total 14566 patients. There were 312 patients (4.64%) out of 6711 at Paro Hospital, 129 patients (5.17%) out of 2497 at Punakha Hospital, and 94 patients (1.75%) out of 5358 at Wangdue Phodrang Hospital.

Among those with *Yama gosin*, 148 (27.66%) consumed alcohol, 78 (14.58%) were vegetarian, and 205 (38.50%) reported regular exercise. The majority of the patients reported never consuming *Phulu* (455, 85.02%) and fermented cheese (310, 57.87%). Among meat items, most of the patients never consumed yak meat (322, 60%) and pork (267, 49.9%). The details of the dietary habits among patients with Yama gosin is showed in Table 2.

## DISCUSSION

The proportion of patients with *Yama gosin* treated at these selected hospitals was lower than that reported in earlier studies from Bhutan. This might have been because only new cases were included in this study while repeat visits were excluded. However, given our clinical experience, many patients have

**Table 1.** Social-demographic characteristics of the adult patients with *Yama gosin* (sinusitis) treated at Paro, Punakha and Wangdue Phodrang Hospitals, Bhutan, 2021 – 2022 (n = 535)

| Characteristics | n | (%) |
|---|---|---|
| Sex | | |
| Female | 190 | (35.51) |
| Male | 345 | (64.51) |
| Age group (years)[1] | | |
| 18 – 25 | 101 | (18.9) |
| 26 – 35 | 168 | (31.4) |
| 36 – 45 | 131 | (24.5) |
| 46 – 59 | 78 | (14.6) |
| 60+ | 48 | (9.0) |
| Education[2] | | |
| Who cannot write or read | 166 | (31.20) |
| Non-formal education | 13 | (2.44) |
| Primary school | 50 | (9.40) |
| Secondary class | 200 | (37.59) |
| Higher Secondary School | 63 | (11.84) |
| Degree and above | 36 | (6.77) |
| Monastic | 4 | (0.75) |
| Others | 3 | (0.6) |
| Occupation | | |
| Farmer | 139 | (25.98) |
| House wife/house husband | 103 | (19.25) |
| Civil servant | 65 | (12.15) |
| Corporate worker | 20 | (3.74) |
| Military | 10 | (1.87) |
| Student | 43 | (8.04) |
| Monk/Gomchen/Nun | 30 | (5.61) |
| Construction worker | 7 | (1.31) |
| Private worker | 74 | (13.83) |
| Others | 44 | (8.22) |

[1]Missing = 9

[2]Missing = 3

multiple hospital visits, and *Yama gosin* represent a reasonable proportion of clinical burden.

In Traditional Medicine, it is believed that the symptoms of *Yama gosin* are influenced by dietary habits. It is believed that dried fish causes sinusitis primarily due to the presence of Dichloro-diphenyl-trichloroethane, and yak meat, which is hot in nature (རྒྱས་པ་དྲོ་བ།) causing increased blood circulation in the nasal area [6,7]. In our studies, it is likely that the patients avoided these foods. However, it is recommended to conduct further studies to describe patient beliefs and perceptions related to food choices among patients with *Yama gosin*.

Alcohol affects the blood circulation system, resulting in increased blood circulation, thereby flaring the symptoms of sinusitis [7]. In Bhutan, it was reported that 40.2% of the people aged 15 – 69 years consumed alcohol in the past 12 months, and 34.5% consumed it in the past 39 days [8]. Common forms of alcohol consumed were beer, home brewed *ara* and *singchang*, and wine. Strategies to prevent alcohol consumption are implemented in view of preventing non-communicable diseases. In addition, the Traditional Medicine sector also recommends avoidance of alcohol. Therefore, we recommend joint advocacy programmes in the prevention of alcohol use in the country.

In *Sowa Rigpa*, non-pharmacological interventions play an important role in the management of chronic diseases. *Yama gosin* is one disease conditions that can be effectively managed through avoidance of specific diets such as alcohol, fermented/processed cheese, dry fish, and pork. Diets such as alcohol, dairy products, fermented/processed cheese, dry fish, and certain meats (like pork, beef, and chicken) can contribute to sinusitis in sensitive individuals by triggering inflammation, allergic reactions, nasal congestion, or mucus build up [9].

This study has several limitations. This study captured patients from only selected district hospitals in the western region. The proportions of patients with symptoms, the level of severity of symptoms, and dietary patterns may be different in other districts. This study does not provide details on other factors or reasons behind dietary patterns. We recommend further studies to provide a detailed description of the dietary patterns and quality of life among patients with *Yama gosin*.

## CONCLUSION

The proportion of patients with *Yama gosin* presenting in the three selected district hospitals was 3.65%. There are specific dietary and behavioural patterns observed among patients with *Yama gosin*. We recommend further studies to describe the symptoms and patient perceptions regarding dietary and lifestyle patterns on symptoms of *Yama gosin*.

### Declarations

Ethics approval and consent to participate

The ethics approval was approved by the Research Ethics Board of Health (REBH/approval/2021/010 dated 15 July 2021) prior to the conduct of the study. Administrative clearance was obtained from the respective study

**Table 2.** Dietary habits of the patients with *Yama gosin* who were treated at the Paro, Punakha and Wandue Phodrang Hospitals, Bhutan, 2021 – 2022 (n = 535)

| Food items | Frequency of consumption | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Never | | Rarely | | Sometimes | | Often | | Always | |
| | n | (%) | n | (%) | n | (%) | n | (%) | n | (%) |
| Dairy products | | | | | | | | | | |
| Fresh cheese | 40 | (7.5) | 8 | (1.50) | 128 | (23.9) | 145 | (27.1) | 214 | (40.1) |
| Processed cheese | 168 | (31.4) | 27 | (5.0) | 139 | (26.0) | 104 | (19.4) | 97 | (18.1) |
| *Phulu* | 455 | (85.02) | 27 | (5.0) | 44 | (8.2) | 4 | (0.7) | 5 | (0.9) |
| Fermented cheese | 310 | (57.87) | 54 | (10.1) | 143 | (26.7) | 19 | (3.6) | 9 | (1.7) |
| Types of Meat | | | | | | | | | | |
| Beef | 120 | (22.4) | 34 | (6.44) | 217 | (40.6) | 150 | (28) | 14 | (2.6) |
| Pork | 267 | (49.9) | 45 | (8.4) | 182 | (34) | 34 | (6.44) | 7 | (1.3) |
| Chicken | 186 | (34.8) | 31 | (5.8) | 239 | (44.7) | 65 | (12.1) | 14 | (2.6) |
| Dried fish | 212 | (39.6) | 90 | (16.8) | 202 | (37.8) | 24 | (4.5) | 7 | (1.3) |
| Yak meat | 322 | (60.) | 88 | (16.4) | 103 | (19.3) | 15 | (2.8) | 7 | (1.3) |

sites. All participants were enrolled only on voluntary basis after obtaining informed written consent. Consent forms were printed both in English and Dzongkha.

### Consent for publication

Not applicable

### Competing interests

TG and KT are editors of this journal. TG and KT were blinded from all stages of peer review process of this article.

### Funding

There was no funding for this article.

### Availability of data materials

All public sources of data have been cited in this article.
The data set is available from the corresponding author on request.

### Author contribution

Conceptualization, Methodology, Investigation, Resources, Writing – original draft, Writing – review & editing – PZ, DZ, LW, TG, DN, KT
Data curation – LW, DN
Validation, Visualization, Project administration, Formal analysis – PZ, DZ
Supervision – KT, TG

Received: 25 January, 2024, Accepted: 01 March, 2025
Published online: 08 May, 2025

## REFERENCES

1 Ministry of Health. Annual Health Bulletin 2023. Thimphu: Ministry of Health, Royal Government of Bhutan; 2024. Available from: https://moh.gov.bt/wp-content/uploads/2025/01/Annual-Health-Bulletin-2024.pdf

2 Singye J, Wangchuk D, Chophel K, Chophel T, Dorji T, Dorji N, et al. Demographic and disease profile of patients availing Traditional Medicine services in Bhutan: a cross-sectional study. Bhutan Sorig J. 2024;1: 19–22. doi:10.47811/bsj.0006050309

3 Jamtsho T. *Lus-sTod-gSowa*. Sonam J, Dakpa J, Namgay D, editors. Xizang (Tibet): Mirigs-Petrunkhang; 2004.

4 Thinley J. *Krungoi Boed gi Sowa Rigpa*. 2nd Edition. Xizang (Tibet): Krungoi Boedki Sherig Petrunkhang; 2012.

5 Samten. *Sorig Ningdue Chareng Sarpa.* Xizang (Tibet): Mirigs-Petrunkhang; 1997. p. 293.

6 Tshenam T. *Sorig rgyud bzhi'i' grelchen drang srong zhal lung*. Xizang (Tibet): Mirigs-Petrunkhang; 2000.

7 Gonpo TTD. *Tshang toe zenti yangthi.* Xizang (Tibet): Mirigs-Petrunkhang; 2004.

8 Ministry of Health. 5th National Health Survey - Integrated Stepwise Household Survey 2023. Thimphu: Ministry of Health, Royal Government of Bhutan, 2023. Available from: https://www.unicef.org/bhutan/media/4061/file/NHS%20Factsheets%202023.pdf.pdf

9 Traditional Medicine Division, Department of Health Services. Traditional Medicine Treatment Guideline. 2nd Edition. Thimphu. Ministry of Health; 2023.