Lifestyle illness in Bhutan

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ABSTRACT

Over the past decade, Bhutan has experienced a marked rise in lifestyle-related health problems as traditional patterns of living give way to modern habits. NCDs cause over half of all deaths in Bhutan (WHO, 2017a). This paper examines emerging non-communicable diseases and risk factors in Bhutan from ~2015–2025, drawing on government data, surveys, and academic studies. It reviews Bhutan's traditional active, agrarian lifestyle and diet, then detail how rapid socio-economic development has altered lifestyles. Sedentary behaviour, processed diets, and other changes have led to increasing obesity, diabetes, and cardiovascular diseases. The causes of these shifts – urbanisation, globalisation, and changing socio-cultural norms – are explored. The paper analyses the geographical distribution of lifestyle diseases and the age groups affected. Health expenditure trends are reviewed, showing growing government spending on non-communicable disease prevention and treatment. The paper further evaluates national responses, including government programmes and health education initiatives, as well as contributions from multilateral agencies and the nascent role of the private sector in healthcare and wellness. Findings indicate that while Bhutan has made progress, significant challenges remain in curbing lifestyle-related diseases. Strengthening intersectoral collaboration, sustaining health education, and greater private sector engagement are recommended to complement government efforts.

Keywords: lifestyle diseases, non-communicable diseases, health transition, public health, Bhutanese health policy.

Introduction

Bhutan has undergone rapid socio-economic development in the past two decades, bringing profound changes to daily life and health patterns. Traditionally, Bhutanese lifestyles included physical labour (subsistence farming, herding, walking long distances) and diets high in organic grains and vegetables. However, over the last few decades, Bhutan has seen rising trends in non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes, and cancers (MoH, 2022). The National Health Survey 2023 showed that cardiovascular disease risk increased from 3.7% in 2019 to 6.1% in 2023 (Chozom, 2024). These are often termed lifestyle-related health problems because they are closely linked to shifts in

diet, physical activity, and habits. According to the World Health Organisation (WHO), NCDs now account for an estimated 69% of all deaths in Bhutan, up from about 55% a decade earlier (WHO, 2021). This suggests an ongoing epidemiological transition away from primarily infectious diseases towards chronic conditions influenced by lifestyle.

Historically, the majority of Bhutanese lived in rural villages, practicing subsistence agriculture and pastoralism. Daily life involved intensive physical activity – farming terraced fields, tending cattle and yaks, foraging for firewood, and walking over mountainous terrain as a primary mode of transport. Even today, Bhutan has no railways and has limited paved roads, so people often walk long distances between settlements, fostering high baseline fitness. Diet in traditional Bhutan had high nutrition from the local produce. Staple foods included red rice, maize (corn), buckwheat, barley, and a variety of vegetables and tubers. Chillies and fermented cheese are central to daily cuisine – the national dish ema datshi (chilies and cheese) reflects a diet rich in vegetables and dairy, with meat consumed sparingly. Overall, rural diets were low in refined sugars and processed fats. Sweets and packaged snacks were virtually unknown in villages until recent years. Instead, protein came from occasional meat (yak or pork in highlands, fish in some river valleys) and legumes. Butter tea (*suja*) and locally brewed alcohol (*ara*) were common but taken in moderation as part of cultural rituals. Traditional lifestyle also involved strong social cohesion and spiritual practices – community work exchanges (*layog*), village meetings (*zomdu*), and meditation in monasteries – which contributed positively to mental well-being (Ura, 2015).

These traditional lifestyles protected Bhutanese from certain modern ailments. Until the 1990s, conditions like obesity, type 2 diabetes, and heart disease were reported at very low levels nationally (WHO, 2011). Older health surveys suggest that as recently as 2000, obesity was virtually absent in rural Bhutan and overall prevalence of diabetes in adults was under 3% (WHO, 2014). The main health concerns historically were infectious diseases (respiratory infections, diarrhoeal illnesses) and maternal/child health issues, reflecting Bhutan's status as a low-income country then. The concept of lifestyle disease was largely foreign in a society where lifestyles had changed little over generations. Traditional healthcare, too, was holistic and preventive. Bhutan has a rich system of traditional medicine (Sowa Rigpa), integrated into the national health system, which emphasises balance of diet, behaviour and herbal remedies to maintain health. This cultural orientation meant that historically, Bhutanese had relatively low incidence of maladies associated with sedentary living or rich diets that plague more urbanised societies.

Several aspects of Bhutan's traditions provided inherent protection against NCDs. The active farm work maintained cardiovascular fitness and muscle strength into old age. Diets high in vegetables provided ample micronutrients and fibre, while limited meat intake kept saturated fats low. Although salt usage was high – which might raise hypertension risk – historically shorter lifespans meant fewer people lived to ages where chronic diseases manifest (WHO, 2011). Harmful habits were constrained - tobacco use was minimal due to cultural norms and later legal restrictions (Bhutan banned the sale of tobacco in 2004 but reversed later). Strong community bonds and religious faith (predominantly Buddhism) likely buffered stress and promoted active ageing – elderly people remained engaged in household and spiritual duties rather than leading isolated lives (Ura, 2015).

Patterns of Changing Lifestyles

Bhutanese lifestyles have been shifting in significant ways. The country has improved roads, electricity, communications, and markets even in remote areas. Urbanisation and socio-economic changes have introduced new lifestyle patterns, especially among younger Bhutanese and those in towns.

A major lifestyle change is the decline in physical activity. As Bhutan modernises, more people have moved away from farming into service-sector and office jobs. The urban population grew from about 30% in 2010 to nearly 42% by 2022. In cities like Thimphu and Phuentsholing, jobs often involve desk work (government administration, business, retail) with long hours sitting in front of the computers or in meetings. Even in rural areas, mechanisation is slowly reducing manual labour. For instance, power tillers are replacing oxen for ploughing fields, and motorbikes reduce the need to walk to distant markets. A national STEPS survey found that in 2019, over 21% of adults reported insufficient physical activity, a sharp rise from 9% a decade earlier (Department of Public Health, 2020). Leisure-time activities have also shifted towards sedentary forms - television, smartphones, and decreased participation in sports or traditional dance. Especially among urban youth, active pastimes like hiking or playing *khuru* (traditional dart game) are being overtaken by screen time.

Dietary habits have changed, moving away from the traditional diet towards more processed and calorie-dense foods. With increased imports and the rise of grocery stores, Bhutanese today have access to a variety of packaged snacks, sugary drinks, and refined foods that were previously unavailable. Urban supermarkets stock processed meats, instant noodles, and confectionery from India and beyond, and

these have become popular especially among children and youth. White rice is now more commonly consumed (often replacing local red rice or maize as a staple), and use of cooking oil and sugar has increased with rising incomes (MoH, 2017). Concurrently, there is a trend of eating out - restaurants in Thimphu serve fast foods like pizza, fried chicken and momos (dumplings), contributing to higher intake of fats and salt. Even traditional meals are adapting – for instance, the classic ema datshi may now be made with processed cheese, and accompanied by polished rice. These shifts have led to higher caloric intake and greater fat/sodium consumption. The Bhutan STEPS Survey 2019 found that only 25% of Bhutanese adults eat the recommended ≥5 servings of fruits/vegetables per day, while over 60% reported eating fatty or fried foods at least once daily (Department of Public Health, 2020).

Transport and daily routines have also become more convenient but less active. The number of vehicles in Bhutan rose from around 57,000 in 2011 to over 124,000 by 2025, according to Bhutan Construction and Transport Authority. In Thimphu, many households now own a car, and people rely on motor transport even for short distances that were once walked. Improved road networks mean rural farmers can transport produce to markets by truck instead of carrying it on foot for hours or days. Labour-saving appliances also mean fewer calories expended in chores, especially for women who traditionally bore water and firewood duties.

Bhutan has long had low smoking rates culturally, but lifestyle westernisation has introduced new temptations. Despite strict tobacco laws, there has been some uptick in smoking and smokeless tobacco use among urban youth (Department of Public Health, 2020). The 2019 STEPS survey reported 24.8% of men and 5.3% of women currently using tobacco in some form, slightly higher than in 2014 (WHO, 2014). This suggests the global tobacco epidemic is touching Bhutan, albeit still at comparatively low levels thanks to strong regulations.

Alcohol consumption is a more significant concern - Bhutan traditionally brewed ara and millet beer for ritual use, but now inexpensive industrial alcohol and beer are widely sold. Patterns of harmful drinking are contributing to liver disease and injuries. Hospital records show that alcoholic liver disease has been a top cause of hospital admissions and deaths in Bhutan throughout the last decade (MoH, 2022). Thus, changing lifestyles include greater exposure to tobacco and alcohol risk factors.

Another subtle lifestyle change is in recreation and leisure preferences. The introduction of cable television and internet exposed Bhutanese to global media and consumer culture. Over the past ten years, Western and Indian cultural influences have accelerated lifestyle shifts among youth. Spending free time watching TV, playing video games, or on social media has become common, replacing traditional sports or communal activities. There is also a shift in food culture – for instance, celebrating birthdays with cake and sweets, or viewing imported packaged foods as status symbols. These behaviours, while a natural part of modernisation, often entail increased calorie intake and decreased physical exertion.

Causes of Lifestyle Changes

Several interrelated factors have driven the lifestyle changes in Bhutan. Understanding these causes is crucial for formulating appropriate public health responses.

The movement of people from rural to urban areas is a primary driver. Bhutan's development policies, including investments in infrastructure under successive Five-Year Plans, have concentrated opportunities and amenities in urban centres. Young adults often migrate to Thimphu (NSB, 2017) or emerging towns for education, government jobs, or business, leaving behind the physically demanding agrarian life. Urban living inherently involves more sedentary jobs and convenience-oriented lifestyles. Thimphu's booming construction, civil service and corporate sectors attract rural migrants who then adopt city habits—commuting by bus or car, eating at cafeterias, and having less time for jobs demanding physical labour. Urbanisation also leads to nuclear family structures replacing extended family farmsteads, meaning less labour is spent on agricultural chores or cooking traditional meals, and more on wage-earning activities and time-saving consumer goods.

Rising incomes and economic growth have increased consumption of modern goods. Bhutan's GDP per capita roughly tripled from around USD $800 in 2000 to over $3,300 by 2020 (World Bank, 2021). With greater disposable income, Bhutanese families can afford imported foods, motorbikes or cars, televisions, and dining out – all hallmarks of lifestyle change. Improved purchasing power often leads to nutritional transitions - people add more meat, oil, and sugar to their diets as these become affordable. Imported cooking oils and packaged snacks from India became cheap and ubiquitous in the past decade due to better trade and road connectivity. Economic progress has reduced poverty and undernutrition, but

introduced overnutrition problems like obesity as food scarcity is replaced by abundance of energy-dense foods.

The penetration of global media and products influenced the Bhutanese food habits and pattern of daily activities. Since the introduction of television in 1999, there has been exposure to international advertising, fast-food culture, and consumer ideals. Over the last ten years, with wide internet access[1], Bhutanese—especially youth—consume global social media and entertainment daily. This influences their preferences in food, fashion, and leisure. The desire to emulate lifestyles seen on TV or Instagram also contributes to changes like driving cars and drinking alcohol in trendy bars. Even rural areas, now connected via satellite TV, experience these influences. Globalisation has essentially imported the risk factors of developed countries into Bhutan's setting, compressing into a decade a lifestyle transition that took many Western countries generations (WHO, 2017).

Bhutan's population is young and becoming more educated. Increased education has numerous benefits, but one side effect is that educated youth often seek modern, convenience-oriented lifestyles, seeing them as aspirational compared to traditional ways. There is a noted shift in attitude where farming or manual work is considered something to avoid if one has schooling. This aspiration effect means the new generation is less inclined to continue the physically active occupations or simple diets of their grandparents. Education also delays marriage and childbearing, concentrating young adults in campuses or training centres where they might pick up unhealthy habits. The demographic trend of a large urban youth cohort contributes to rapid spread of lifestyle norms among peers.

Certain government policies have unintentionally influenced lifestyles. Bhutan's push for infrastructure development under the ethos of GNH aimed to balance modernity with tradition, but building roads and electrification inevitably altered lifestyle patterns. The expansion of the road network, while vital for economic development, reduced the need for long walks or porterage. Rural electrification enabled electrical appliances – electric rice cookers made it easier to consume large quantities of polished white rice, whereas traditional cooking of local grains was more laborious, possibly contributing to dietary change. The introduction of utility vehicles and farm machinery, subsidised by the government to improve rural livelihoods, reduced drudgery but also physical exertion. Trade liberalisation

[1] As per BICMA, mobile penetration was ~93% by 2021

allowed a flood of processed food imports. Without strong regulatory controls, the market became saturated with cheap, unhealthy food options.

Bhutanese society itself has been evolving. Traditional social norms that once guided diet and activity are weakening in urban settings. Communal labour and village sports that encouraged physical activity are less common as urban lifestyles emphasise individual work and nuclear families. Convenience and modernity are increasingly valued. Exposure to global education means returning individuals might prefer gym workouts over traditional games, or coffee and doughnuts over butter tea and *tsampa* (roasted barley flour) – symbolising a shift in tastes and norms. Traditional health practices like herbal baths or seasonal dietary moderation are practiced less in fast-paced city life.

Geographical Distribution of Lifestyle-Related Health Issues

Lifestyle-related health problems in Bhutan do not affect all areas uniformly. There are noticeable geographic patterns. Urban centres and more economically developed districts show a higher prevalence of NCDs and risk factors compared to remote rural areas (MoH, 2019). Disparities are observed within Bhutan's 20 districts.

The most pronounced difference is between urban municipalities (Thimphu, Phuentsholing, Paro) and rural villages. Urban populations have significantly higher rates of obesity, diabetes, and hypertension. An analysis of the 2019 STEPS survey data showed that urban residents were about twice as likely to be obese (BMI ≥30) as rural residents (Department of Public Health, 2020). Thimphu consistently records the highest average Body Mass Index (BMI) and waist circumference among districts (MoH, 2017). In contrast, rural eastern Bhutan (Zhemgang, Lhuentse) still has relatively low obesity rates and even pockets of under-nutrition, reflecting more traditional lifestyles and limited access to processed foods. Hypertension prevalence in 2019 was 35% in urban areas versus 25% in rural areas (Department of Public Health, 2020). Rural diets, though gradually changing, remain closer to traditional patterns – many villagers grow their own vegetables and walk to their fields, thus they face lower risk of lifestyle diseases so far. However, rural communities are not entirely insulated. As roads reach villages and markets expand, some increase in NCD risk factors is observable even there.

The West, Central, East, and South regions too show variations. The western region is relatively affluent and urbanised. This region shows the highest incidence

of lifestyle ailments. The capital city Thimphu alone, housing roughly 15% of country's population, contributes a disproportionately large share of diabetes and hypertension cases nationally (MoH, 2022). In the south, lifestyle changes are also advanced. In Tsirang district there are more than a thousand diabetes patients of which 70 per cent are farmers and housewives (Wangchuk, 2019). Border towns like Phuentsholing and Gelephu are commercial hubs with easy access to Indian markets. Residents here consume more Indian packaged foods and fast food, and prevalence of tobacco use and alcohol consumption is relatively high. The south has also historically had higher rates of certain conditions like stroke and hypertension, possibly due to both dietary factors and newer lifestyle shifts. The eastern region remains more rural and traditional. These areas report lower NCD rates, though the gap is narrowing. Healthcare data indicates that hospital admissions for heart disease and diabetes are still lower in eastern districts compared to western (MoH, 2019). Central Bhutan has intermediate levels of lifestyle change – small towns have seen diets modernise and vehicle use increase, and consequently are witnessing rising hypertension and overweight issues. Central rural pockets continue traditional farming lifestyles, sustaining lower risk profiles for now.

Thimphu and Phuentsholing warrant special mention as epicentres of lifestyle health problems. Thimphu, with around 115,000 people, has Bhutan's highest concentration of offices, restaurants, vehicles, and supermarkets. Unsurprisingly it has the highest rates of metabolic syndrome conditions. A study at the Jigme Dorji Wangchuk National Referral Hospital (JDWNRH) in 2018 found that over 45% of individuals over age 40 screened in Thimphu were either diabetic or pre-diabetic. Phuentsholing, adjacent to the Indian city of Jaigaon, is a trade hub where Indian fast-food franchises and cheap snacks are plentiful. The lifestyle risk profile of Phuentsholing's residents now resembles that of an Indian city - relatively high smoking prevalence, heavy alcohol use by men, and increasing overweight among women. These two cities also drive trends elsewhere.

Age Distribution and Demographics of Affected Populations

Lifestyle-related health problems in Bhutan exhibit a clear age gradient. Chronic NCDs and their risk factors accumulate with age, but trends over the last decade show an earlier onset of risk and disease in the population compared to the past.

Bhutanese over 40 years have the highest prevalence of established NCDs like type 2 diabetes, hypertension, and cardiovascular disease. Hospital data and STEPS survey results consistently show low rates of these conditions in young adults (20s

and early 30s), with a sharp rise after age 40 (Department of Public Health, 2020). The national STEPS survey (2019) found diabetes prevalence of only about 1% in 30–39 year-olds, but 13% in 50–59 year-olds. Hypertension prevalence jumps from 15% in the 30s to over 50% in those 60+ (MoH, 2019). Many Bhutanese under 30 remain relatively healthy in terms of NCDs – reflecting that it takes years of sustained lifestyle risk for diseases to manifest.

While older adults bear the brunt of disease, worrying trends are emerging among younger Bhutanese in their teens, 20s, and 30s in terms of risk factors. Over the past decade, rates of overweight and elevated blood pressure in younger age groups have risen. The 2016 Global School-Based Student Health Survey reported that 8.2% of adolescents (13–17 years) were overweight or obese, up from 3.3% in 2010 (WHO & MoH, 2017). Similarly, more urban schoolchildren are getting insufficient physical activity (only 19% met the recommended ≥60 minutes of exercise daily) and consumption of sugary drinks among teens is high. These habits are concerning because they portend earlier onset of NCDs in the future.

The distribution by age intersects with gender differences. Men historically had higher rates of hypertension and harmful alcohol use at earlier ages, whereas women, especially after menopause, saw rising cardiovascular risk. That pattern still holds. STEPS 2019 found men in their 40s had higher prevalence of hypertension and overweight than women of the same age (Department of Public Health, 2020). However, the gap narrows in older age. By their 50s and 60s, women's rates of hypertension catch up, partly due to post-menopausal changes (MoH, 2019). One significant shift is that younger women (20s-30s) in urban areas are gaining weight more rapidly than men – possibly related to changes in diet, less physical labour compared to older generations, and weight retention after pregnancies. Obesity prevalence in women aged 25–34 was 10% in 2014 but nearly 17% by 2019, a larger jump than observed in men (WHO, 2015; Department of Public Health, 2020). Young women in cities increasingly work desk jobs and also manage household duties, leaving little time for exercise. This is a concerning sign that both genders and all adult age brackets are now experiencing lifestyle risks, whereas in the past it was more skewed to older males. More Bhutanese men suffer stroke although international studies reveal women at higher risk (Dema, 2024).

Bhutan's life expectancy has climbed to about 71 years, meaning more people survive into ages where chronic diseases manifest. There is now a larger elderly population (though still only 6% over age 65). Among the elderly (65+), chronic conditions are very common – a survey in 2017 found over 75% of Bhutanese

seniors had at least one chronic NCD diagnosis. This is expected as they accumulate risks over a lifetime. Notably, many of today's elderly grew up in the pre-modern era and only faced risk factors later in life. Yet they still show high NCD rates. The younger generation is exposed to risks from childhood – meaning by the time they reach their 60s, disease burden could be even greater if trends continue. In public health terms, the window of opportunity is now, while the youth are still in the mostly risk factor stage, to prevent conversion to full-blown disease in middle age.

Age distribution of lifestyle issues also varies regionally due to demographics. Urban areas have more young and middle-aged adults, and these groups in cities show higher risk factor prevalence (MoH, 2019). Rural areas often have older populations, but these remaining rural elderly might paradoxically have fewer NCDs if they maintained traditional lifestyles. A 70-year-old farmer in rural Bumthang may be lean and active (lower NCD risk) compared to a 55-year-old retired civil servant in Thimphu who is sedentary and diabetic. This means urban healthcare facilities are already dealing with NCD patients in their 40s–60s, whereas some rural clinics see more infectious or degenerative issues in the elderly rather than obesity or diabetes (MoH, 2022).

A National Diabetes Control Program was launched in 1996. Of 350 registered Diabetes Mellitus (DM) patients (52 % female, median age 55 years), 63(18 %) were lost to follow up before treatment initiation (pre-treatment attrition). Of the remaining 287 individuals who started treatment, 226(79 %) were retained in care while 61(21 %) either died or were lost to follow up. Glycaemic control was achieved in 85(38 %) patients retained in care. Between 7 and 98 % of monitoring parameters had missing data (Zam, et all. 2015).

Diabetes Prevention and Care Programme has more than 12,000 registered cases of diabetes, with more than 1,000 cases registered in 2014 alone (Dorji, et all, 2016).

Health Budgets and Spending Trends

Bhutanese government has long prioritised healthcare as a key sector. Over the past ten years, health spending in Bhutan has increased steadily, reflecting both growing resources and recognition of rising health needs including NCDs.

Total health expenditure has risen in absolute terms and as a share of government spending in the last decade. According to the Ministry of Health, annual health

expenditure grew from approximately Nu 2 billion in 2010 (MoH, 2011) to Nu 8.7 billion by 2020 (MoH, 2021). Health spending as a percentage of GDP hovered around 3–4% throughout the decade (WHO, 2022). The government remains the principal financier of healthcare. Around 70% of total health expenditure is public financing, with the rest mostly out-of-pocket by households (World Bank n.d.). Bhutan provides free healthcare at the point of service in government facilities, so budget allocation is critical. The share of the national budget devoted to health has generally been between 7–10% in recent years (MoH, 2022). The 12th Five-Year Plan (2018–2023) elevated health as a flagship area, pledging substantial resources to tackle NCDs and other priorities. This is in contrast to earlier periods where health's budget share was slightly lower (WHO, 2017). The upward trend signals strong political commitment to healthcare funding.

Traditionally, a large portion of Bhutan's health budget went to primary care, maternal and child health, infectious disease control, and infrastructure. However, with the epidemiological shift, spending on NCD management has increased. The government established a dedicated NCD Programme in the MoH around 2005 (Dorji, et all. 2016), with budget allocation for NCD prevention and control (MoH, 2019). Though exact breakdowns vary, recent budget documents indicate that about 15–20% of health expenditure is now directed to NCD-related programmes and clinical services (MoH, 2021).

A challenge for Bhutan's health financing is that treating NCDs can be costlier in the long run than preventing infectious diseases. Dialysis for one patient with kidney failure costs the government over Nu 300,000 per year, and the number of dialysis patients has increased as more diabetics develop complications. Bhutan now refers some complicated heart disease and cancer patients abroad (often to India) at government expense. There's high death rate from cancer (Kuensel, 2020). These referral costs have been rising and put pressure on the budget (MoH, 2022). In 2019, roughly 12% of the health budget was spent on referrals outside Bhutan for treatments not available in-country – many of which were for lifestyle-related illnesses like cardiac surgeries and oncology. This has prompted the government to invest in domestic capacity, establishing a cardiac catheterisation lab in Thimphu in 2023, and a Cancer services introduced in the JDWNRH. A new clinic for breast cancer inaugurated in 2025 (Chen, 2025). Those investments are large upfront costs but expected to reduce expensive referrals over time.

The government has allocated funds for health promotion activities. Targeted NCD prevention programs accounted for around 5% of health spending by 2020.

This includes funding for the Multi-Sectoral Task Force on NCDs to run awareness campaigns, implement taxes on unhealthy products, and integrate physical activity promotion into other sectors (MoH, 2015). Ten years ago, a dedicated budget for NCD prevention was negligible (MoH, 2011), whereas by 2019, specific line items existed for Healthy lifestyle advocacy and screening camps (MoH, 2019). Still, a significant bulk of funding inevitably goes to treatment (hospitals, drug procurement). As NCD burdens grow, Bhutan will have to keep raising health spending or find efficiencies, otherwise costly treatments could crowd out resources for prevention and other services (World Bank, n.d.).

Bhutan historically received donor assistance for health expenses but as it graduates to middle-income status, external funding is tapering off. By the 2010s, external funding comprised <10% of total health expenditure (down from ~30% in 2000s) (WHO, 2017). For lifestyle-related conditions, there is limited direct external funding; global donors often prioritise communicable diseases or maternal health. However, some multilateral grants support health system strengthening broadly, indirectly benefiting NCD care. The World Bank and Asian Development Bank have provided loans/grants for health infrastructure. WHO provides technical assistance and small catalytic funds for NCD strategy implementation (WHO, 2021). Additionally, UNDP co-funded a project with the government to integrate NCD prevention into local development plans (UNDP, 2018). But the majority of financing for tackling lifestyle diseases comes from Bhutan's domestic budget.

An important part of spending has been investment in human resources to manage NCDs. In the past decade, Bhutan expanded its health workforce – training more doctors, especially specialists. There are now Bhutanese cardiologists, endocrinologists, and other NCD-related specialists, which was rare in 2010. The MoH has sent doctors abroad for specialty training in diabetes, cardiology, oncology, etc., requiring funds for scholarships and equipment upon their return. The number of doctors grew from 120 (2010) to about 376 (2020), and nurses from 1,000 to over 1,800 in the same period (WHO, 2022). Many of these additional personnel support the growing chronic disease caseload. Training primary health workers in WHO's PEN (Package of Essential Noncommunicable disease interventions) was a key program scaled up nationwide by 2018, requiring funding for workshops and new clinical protocols (MoH, 2019). These upstream investments aim to control long-term costs by ensuring early detection and management of NCDs at local levels.

Beyond the formal budget, lifestyle diseases impose indirect costs on Bhutan's economy – lost productivity from sick workers, household expenses for long-term care, etc. A study by MoH and WHO estimated that by 2030, Bhutan could lose the equivalent of 2% of GDP annually due to productivity losses from NCDs if trends continue unchecked (WHO, 2021).

Government Programs Addressing Lifestyle Diseases

Recognising the growing threat of lifestyle-related illnesses, the Bhutanese government launched numerous programmes and policies in the past decade to promote healthier lifestyles and manage NCDs.

In 2015, Bhutan's Ministry of Health introduced a comprehensive plan to tackle NCDs, aligning with WHO's Global Action Plan on NCDs. The National Multi-Sectoral Action Plan for the Prevention and Control of NCDs (2015–2023) brings together various ministries (health, education, agriculture, finance, etc.) to implement interventions in four key risk areas - unhealthy diet, physical inactivity, tobacco use, and harmful alcohol use (MoH, 2015). Specific targets were set – to reduce premature mortality from NCDs by 25% by 2025, and to halt the rise in obesity and diabetes. Government initiatives under this plan included establishing NCD surveillance, integrating NCD services into Basic Health Units (BHUs) at the community level, and enacting health-promoting policies (MoH, 2019). Health is not seen as only the health ministry's responsibility. The education ministry is tasked with improving school nutrition and physical education, while the agriculture ministry works on increasing the availability of fruits and vegetables (MoH, 2015). This whole-of-government effort is a flagship strategy, though implementation strengths vary by sector.

Bhutan was among the first countries in WHO's South-East Asia Region to roll out the WHO Package of Essential Noncommunicable Disease Interventions (PEN) nationwide. Starting 2016, the government trained primary health care workers to screen and manage common NCDs at local clinics (Singh et al., 2017). By 2019, all 20 districts had at least one health centre offering PEN services (WHO, 2021). This means villagers can get their blood pressure and blood sugar checked during routine visits, and those at risk receive counselling or medications early. The Better Health for Bhutan initiative (as PEN was locally branded) led to over 120,000 adults being screened for NCD risk factors between 2017–2020. This early detection program is yielding results. Thousands of previously undiagnosed hypertension and diabetes cases have been identified and enrolled in care, potentially preventing complications. The government supports this with free

distribution of essential NCD medicines through all health facilities (MoH, 2022). The successful PEN implementation is often cited as a model in the region for integrating NCD care into grassroots health systems.

A major behaviour-change communication effort launched by MoH in 2008 is the nationwide HEHE campaign – the name stands for Healthy Eating, Healthy Lifestyle, and also mimics a laugh to catch public attention (MoH, 2018). The campaign enlisted popular public figures –the Queen Mother and sports personalities – to champion healthy traditional diets and physical activity. School-based components of HEHE include classroom sessions on nutrition and the formation of School Health Clubs where students engage in fitness activities and peer education. A notable event under this campaign is 'Move for Health Day,' observed as an annual national holiday (every September) when citizens participate in mass walks, marathon races, and yoga sessions (MoH, 2019). There are also monthly "Move for Health" events in workplaces where civil servants do group exercises. The government reports modest improvements – e.g. public awareness that high salt intake leads to hypertension rose from 45% to 67% in surveys after the campaign (MoH, 2021). The HEHE campaign is ongoing and refreshed with new themes.

Given Bhutan's youthful demographics, the government has targeted schools as critical for combating future lifestyle diseases. The School Health and Nutrition Program, run jointly by MoH and MoE, was strengthened in the 2010s. In 2015, School Canteen Guidelines were issued to ensure healthier food options for students (MoE, 2016). Health workers (School Health Coordinators) conduct annual check-ups in schools, and any student overweight or with other issues gets counselling and a referral if needed (Helms, 2022). Some schools have introduced innovative projects like student-run vegetable gardens to encourage healthy eating and integrate traditional agrarian skills into education. By instilling good habits early and preventing childhood obesity, these efforts aim to alter the trajectory of lifestyle disease prevalence in the long term. Separate budget is allocated for physical activities in schools (Dekar & Tshomo, 2024).

The Ministry of Agriculture run initiatives to improve access to healthy foods. The government supports farmers to increase production of fruits, vegetables, and buckwheat to supply domestic markets year-round (MoAF, 2019). Strategies like establishing farmers' markets in urban centres and kitchen garden programs in villages aim to ensure nutritious foods are readily available and affordable, countering the influx of junk foods. Bhutan released National Dietary Guidelines

in 2019, which include culturally tailored advice such as moderating consumption of *doma* (betel nut chew) and encouraging traditional high-fibre staples (MoH, 2019). These guidelines are disseminated via health workers and community meetings as part of government nutrition outreach.

The government has also employed policy instruments like taxation to nudge behaviour. They increased excise taxes on sugary drinks and processed snacks (imported chips, sweets) in 2020 as a health measure, adding to already steep import duties (MoF, 2020). While the revenue impact is modest, it sends a price signal to consumers. There is ongoing discussion about introducing front-of-package warning labels on high-sugar or high-salt products to inform consumers (MoH, 2022).

Multilateral Programs and International Collaboration

International organisations and development partners have been supporting Bhutan in addressing its emerging lifestyle-related health challenges. Given Bhutan's limited resources and the global nature of NCD epidemics, multilateral collaborations provide technical expertise, funding, and knowledge exchange.

The WHO has been a primary partner for MoH on NCD control. WHO helped Bhutan formulate its National NCD Strategy and the Multi-Sectoral Action Plan in 2015, providing technical experts and facilitating stakeholder workshops (WHO, 2017). It also co-financed STEPS surveys in 2014 and 2019 that yielded crucial data on risk factor prevalence (Department of Public Health, 2020). Through its country office in Thimphu, WHO has conducted training programs for healthcare workers on PEN protocols, essentially catalysing PEN implementation. WHO grants are relatively small (often under $100k per year for NCDs), but they fill gaps like procurement of BP monitors, glucometers, and test strips for new screening services (MoH, 2019). Bhutan also participates in regional WHO initiatives, gaining insights from neighbours and sharing experiences. UNDP supported research on the economic impact of NCDs (UNDP, 2017), which influenced high-level policy by showing the cost of inaction. UNICEF, focusing on child health, assisted with prevention of childhood obesity and malnutrition. It helped the government draft the School Nutrition and School Canteen guidelines. UNESCO aided integration of health education into school curricula (MoE, 2019). These collaborations ensure that Bhutan's fight against lifestyle diseases is aligned with global best practices and benefits from international know-how.

Bilateral donors have contributed to infrastructure that benefits NCD management. The Government of India funded the new National Referral Hospital expansion, including a cancer centre opened in 2023. The Japanese aid agency JICA funded upgrades to cardiac care units and equipment in 2018. Such investments expanded Bhutan's ability to treat cancers and heart diseases domestically. The RGoB-India Small Development Project scheme has also built or refurbished many Basic Health Units in rural areas, which are frontline for NCD screening. Bhutan has so far screen over 75% of its population for NCDs which identified over 35,000 to be at risk (Wangdi, 2025) These bilateral contributions, while not always labelled 'lifestyle disease projects,' strengthen the overall health system needed to address chronic diseases.

The synergy between Bhutan's national commitment and external support has been positive. WHO in 2021 commended Bhutan for making 'notable strides in NCD control despite resource constraints,' noting that strong government ownership meant external aid was used effectively (WHO, 2021). Bhutan achieved high hepatitis B vaccination coverage and improved child nutrition partly through GAVI and UNICEF assistance, indirectly contributing to a healthier cohort less prone to disease later (WHO, 2017). On the other hand, as Bhutan approaches middle-income status, it must plan for sustainability as donor funding winds down.

Health Education

Health education and promotion are impart part of public awareness to combat lifestyle-related diseases. The government and various stakeholders have ramped up efforts to inform and empower citizens to make healthier choices.

Bhutan has utilised television, radio, and print media extensively for health messaging. The state broadcaster Bhutan Broadcasting Service(BBS) airs regular segments on health. Private radio Kuzoo FM runs program called Health Matters featuring discussions on topics like hypertension, diabetes, diet, and exercise, often with local doctors and patient testimonials. The Ministry of Health's HEHE campaign (described earlier) produced TV and radio public service announcements. A short TV ad shows a family reducing salt in their cooking and checking each other's blood pressure, ending with the slogan "Less salt, longer life – for a happy family". Catchy jingles on radio stations in Dzongkha and Tshangla promote drinking water instead of soft drinks and moderating alcohol, using simple rhymes to aid recall. A unique aspect of Bhutan's media approach is weaving in cultural elements. Some radio skits incorporate traditional music or proverbs to advocate healthy living, making the message more relatable. One popular

Dzongkha radio drama compares caring for one's body to 'caring for your *choeten* (stupa) – it's sacred,' thereby framing physical health as a spiritual responsibility (WHO, 2017). Print media, including the national newspaper Kuensel, regularly features health columns.

Recognising high community trust, Bhutan's health system leverages volunteer Village Health Workers (VHWs) to spread messages. In the past decade, VHW training has included NCD prevention topics. Over 1,000 VHWs across Bhutan conduct house-to-house visits and village meetings where they talk about diet, demonstrate home exercises, or help villagers fill out health risk self-assessments (MoH, 2019). These peer educators often use personal stories which can be powerful. Civil society groups have also emerged. RENEW has integrated health education for women, including nutrition classes and yoga sessions in its community outreach, understanding that informed women can influence family health (RENEW, 2020). Local leaders, such as village heads (gups) and monks, are engaged by health officials to reinforce messages during community gatherings and religious festivals, blending modern health advice with traditional authority.

Integrating health education in schools is a cornerstone for shaping lifelong habits. Beyond curriculum content and canteen policies, schools have introduced interactive programs. Many schools now have Health Clubs led by students and supervised by a teacher. These clubs organise activities like Fruit Day (each student brings a fruit for snacks once a week instead of junk food), fitness competitions, and drama skits about the dangers of smoking or junk food (MoE, 2019). The annual School Health Week is observed, during which normal classes give way to workshops on topics such as alcohol's effects, tobacco risks, benefits of traditional diets, often facilitated by visiting healthcare professionals. Life skills education in secondary schools covers substance abuse and mental well-being, linking how lifestyle choices affect overall health. Some schools are adopting WHO's Health-Promoting Schools framework, involving parents in the process – sending newsletters to parents with healthy recipes or advice to limit children's screen time (WHO, 2017). The aim is to create a supportive environment both in and out of school for youths to practice healthy behaviours.

The health sector has creatively involved monks and nuns in health promotion (Wangchuk, 2025). Under a Health Promotion in Monastic Schools initiative, health workers trained senior monks on basic NCD knowledge, who then disseminated it among over 5,000 monks in monastic schools. There have been instances where respected lamas include health messages in their teachings –

emphasising that overindulgence in alcohol violates the Buddhist principle of moderation, thereby framing temperance as a spiritual virtue. Traditional medicine practitioners (indigenous *Dungtsho*) also collaborate by advising patients on diet and lifestyle, blending modern recommendations with traditional concepts of balance. Use of religious gatherings for health outreach is notable. During major festivals like the Thimphu *Tshechu*, the health ministry sets up booths at the festival ground offering free BP checks and distributing brochures, capitalising on large crowds. Such culturally sensitive approaches ensure health messages are not seen as foreign or purely technical, but rather in harmony with local values and beliefs.

In recent years, recognising the digital shift, health promoters have turned to social media. The Ministry of Health's Facebook page (with over 147k followers) regularly posts infographics in English and Dzongkha about healthy eating and living. In 2019, a viral challenge tagged #HappyHeartChallenge saw Bhutanese youth posting short videos of themselves doing physical activity and nominating friends to do the same, akin to an online fitness chain letter (Bhutan Youth, 2019). This peer-driven trend made exercise fun and social. Some creative interventions involve popular culture - a hit Bhutanese song in 2020 subtly included lyrics about the harms of processed snacks and the value of eating vegetables, commissioned by the health ministry and performed by a popular singer to spread the message in an entertaining way.

Engaging Private Sector

Bhutan's healthcare system is predominantly public, but the private sector's role in health has slowly grown over the past decade. While still limited compared to many countries, private entities are increasingly contributing to both treatment and prevention of lifestyle-related health issues through clinics, pharmacies, fitness centres, and workplace wellness.

Until recently, Bhutan had no full-fledged private hospitals – all inpatient care was public. However, a few private diagnostic centres and clinics have opened, primarily in Thimphu, complementing public services (Pem, 2019). These clinics cater to those seeking convenience or more personalised service than the crowded public hospital. For lifestyle diseases, private clinics provide services like health check-up packages (including blood sugar and cholesterol testing), dietitian consultations, and routine management of diabetes or hypertension. While most Bhutanese still rely on free public care for chronic conditions, a segment of the urban population is willing to pay out-of-pocket for quicker access or perceived higher quality care. Private diagnostic centres with advanced equipment (MRI, CT

scans) also support NCD diagnosis. Menjong Diagnostic Centre and Padkar Diagnostic Centre in Thimphu help with timely CT/MRI scans for stroke or cancer patients when the public machine is booked, albeit at a cost.

The private retail pharmacy sector has expanded. A decade ago, most medications were dispensed only through hospital pharmacies. Now, private pharmacies in cities sell a range of drugs, including those for hypertension and diabetes, under prescription. This improves access — patients can purchase medicines after hours or if public stocks are low. Many pharmacies also sell wellness products - vitamins, glucometers, blood pressure cuffs, and even health foods like herbal teas. Pharmacists sometimes play an educational role - anecdotal reports note pharmacists advising customers on proper use of a BP monitor or on medication adherence. The government monitors drug prices to keep essential NCD medicines affordable in private outlets. Privately owned optical shops (some affiliated with Indian chains) provide vision screening and glasses, which is important for diabetic retinopathy checks. These retail health services indicate an emerging health market catering to chronic disease management needs.

Perhaps the most visible private sector role in lifestyle illness prevention is the boom in gyms, fitness centres, and yoga studios in Thimphu and other towns. Ten years ago, these were virtually non-existent. Now, Thimphu has several modern gyms such as Muscle Factory Gym and Thimphu Fitness Studio, which offer weight training, aerobics, and personal training. There are also yoga and meditation studios run privately that attract both locals and expatriates. While clients are mostly younger, urban Bhutanese and foreigners, it signifies a cultural shift in valuing structured exercise. Some gyms have partnered with health authorities – a gym in Paro offered discounted memberships to diabetic patients referred by the hospital's NCD clinic to encourage exercise as therapy. Private sports clubs have grown – Thimphu Mountain Biking Club organises regular rides and annual races. These private initiatives provide outlets for physical activity beyond what the government offers, contributing to prevention of lifestyle diseases by making exercise fashionable and accessible.

The private food industry in Bhutan is still small-scale, but it can influence diet choices. Restaurants and packaged food producers have started to respond (slowly) to health concerns. A few eateries in Thimphu now market themselves as health-conscious. Local entrepreneurs have launched products like low-sugar cereals made from buckwheat or gluten-free snacks from quinoa (an introduced crop),

touting them as healthier alternatives to imported junk food, often selling via social media channels.

A small private element exists in traditional health - some licensed traditional healers and herbal product sellers operate privately. With a rising interest in natural remedies for chronic ailments, a few small businesses sell herbal teas or supplements marketed for blood sugar control or heart health, often online or at handicraft markets. The government monitors these to prevent false claims, but generally tolerates them as long as they cause no harm. Bhutan's tourism sector has begun offering wellness tourism, establishing private retreats that feature yoga, meditation, herbal baths, and diet detox programs (Tourism Council of Bhutan, 2020). While aimed at foreign visitors, these wellness resorts also attract some affluent Bhutanese clients. They indirectly promote healthy practices and could influence local perceptions of wellness.

Conclusion

Bhutan's journey over the last decade highlights the challenges and responses of a society in rapid transition. The traditional Bhutanese lifestyle – active, community-oriented, and based on simple organic foods – had long protected the population from ailments common in more industrialised nations. As Bhutan has modernised, the emergence of lifestyle-related health problems such as obesity, diabetes, hypertension, and heart disease has become a significant concern. Data from the past ten years show a clear upward trend in these conditions, especially in urban areas and among middle-aged Bhutanese. The causes are multifaceted - urbanisation, economic development, and global cultural influences have changed how Bhutanese live, eat, work, and move.

The geographic and demographic analyses reveal that lifestyle diseases, while still not as prevalent as in some neighbouring countries, are unequally distributed – predominantly affecting urban and southern regions and increasingly creeping into younger age groups. This suggests Bhutan is at a critical inflection point where preventative interventions can still curb a potential epidemic of NCDs.

Health education has been a linchpin of Bhutan's strategy, leveraging both modern media and traditional channels to shift public attitudes. Over the past decade, Bhutanese from school children to monks to office workers have been increasingly exposed to messages about healthy lifestyles. While changing deeply ingrained habits is a slow process, early signs – such as improved health knowledge and modest behavioural shifts – are encouraging. Sustained emphasis on education and

community engagement will be needed to consolidate these gains into lasting behaviour change.

The private sector, though small, is an emerging player that can complement public efforts. As Bhutan's economy diversifies, private healthcare services, fitness businesses, and corporate wellness initiatives will likely expand. The government's challenge will be to harness this expansion for public good, ensuring accessibility and quality. The introduction of regulated private diagnostic clinics and fitness centres has provided more choice and coverage, particularly benefiting urban populations. Maintaining equity and not undermining the strong public health system will be important as this sector grows.

However, challenges persist. One is ensuring adequate human resources and expertise to manage chronic diseases at scale – Bhutan has made strides in training doctors and nurses, but retaining them and equitably distributing specialists (especially to smaller hospitals) needs ongoing attention. Another challenge is improving data and surveillance at local levels to fine-tune interventions - institutionalising STEPS surveys every few years and strengthening health information systems will be key. Societal norms are not quickly changed by policy alone – it will require persistent community-level work and generational shifts.

Economically, Bhutan must also prepare for the increasing costs of chronic care. As life expectancy improves and more people live long enough to develop NCDs, even with prevention success, the absolute number of patients needing treatment will rise. The health system will need sustainable financing strategies – possibly including social health insurance or public-private partnerships – to handle long-term treatments without imposing hardship on families or straining the national budget. The rising health budget share indicates progress, but efficient use of funds will be crucial.

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