

IMPACTS OF TOBACCO USE IN NEPAL:

Literature Review

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Key Results of the NDRI Survey (2020)

Tobacco still persists as a major global public health problem. The use of tobacco is impeding people's health and wealth in Nepal too. The National Survey on Socio-economic and Policy Aspects of Tobacco Use in Nepal (NSEPT) was conducted by NDRI in 2020 and explored the understanding of people and their attitude and behavior towards tobacco use and the role of tobacco control policies behind it. The survey collected facts supported by evidence from focus group and key informant interviews. A few key findings are set out below:

- The survey indicates a strong social gradient of the tobacco users. **Greater numbers of the tobacco users are poor and uneducated**, whereas educated males with bachelor's degree are three times less likely to use tobacco than an illiterate man.
- Overall, **men use more tobacco than women** (51% vs 13.7%), and they either smoke or use smokeless tobacco. But 25% women of mountainous region use tobacco.
- The younger generation in Nepal are initiating their bad habit of consuming tobacco since their early teenage years, and peers and family who use tobacco are strong influencers for the young ones.
- But a **large majority in Nepal are concerned about young people using tobacco and its increasing trend of use** among them.
- **Tobacco is easily accessible and affordable** in Nepal to young ones, as well as to those in lowest income quintiles.
- **95% respondents** in the NSEPT survey (representing respondents across all geographical areas, occupations and age groups) **were aware of the health impacts of tobacco**, but the average prevalence of tobacco use among adults is high at 31.7%.
- The majority of the respondents in the NSEPT Survey perceived tobacco in a negative way and considered it harmful: **80.5% respondents perceive smoked tobacco as a very harmful substance to the user's health**.
- More than **75% of respondents believe that people important to them should not use tobacco that harms the user as well as the surroundings (second hand smoke)**. In addition, even 60% of heavy smokers are aware of the impact of second hand smoking and agree that people important to them should not smoke.
- Nearly half of the illiterate people (48.3%) surveyed were aware of the **effect of second hand smoke and the awareness increased with the level of education**.
- **More than 25% tobacco users are affected by tobacco related health problems**. The majority of them are aware of the health impacts but put them as a third priority health problem.
- Different tobacco control policies in Nepal have been neglected due to fragile enforcement and regulation. Large numbers of respondents exhibited their **strong support for raising the tax in tobacco products to curb its use**.
- In addition, **half of the tobacco users surveyed are motivated to cut down the consumption if price of the tobacco is doubled**.

Introduction:

Tobacco use is one of the major risk factors for preventable and non-communicable diseases (NCDs), causing significant numbers of deaths globally as well as in Nepal.¹ It is the one risk factor common to the four main groups of NCDs — cardiovascular disease, cancer, chronic lung disease and diabetes.² Annually 27,100 people die of tobacco related diseases in Nepal, and 90% of these deaths are due to lung cancers.³ The number of cancer patients in Nepal is increasing every year: according to WHO's country profile on cancer, there were an estimated 10,144 new cancer cases in 2014, and the incidence increased to 26,184 new cases in 2018, which is an increase of over 150%. Cancer-related deaths are also increasing: there were estimated to be 14,300 deaths due to cancer in Nepal in 2014, which had escalated to 19,413 deaths in 2018⁴ - a 35% increase. Tobacco use also has a significant economic cost: according to 'The Tobacco Atlas' report published in 2018⁶ the economic cost of smoking (excluding smokeless tobacco use) amounted to NPR 22.94 billion (US\$258 million) – which accounted for 1.5% of its GDP – due to smoking related illness in 2012.

According to Nepal Demographic and Health Survey (NDHS) 2016, the overall prevalence rate for any form of tobacco use in Nepal was higher in males (52.3%) than in females (8.4%) of age group 15-49. This trend is continuing: according to the National Survey on Socioeconomic and Policy Aspect of Tobacco Use in Nepal (NSEPT) conducted by NDRI in 2020, the prevalence of tobacco use among Nepali adults is also higher in males (51%) than females (13.7%), and significantly is increasing among youngsters. As shown in Chart 1 below, there is an increasing trend of use of tobacco with the increasing age groups.

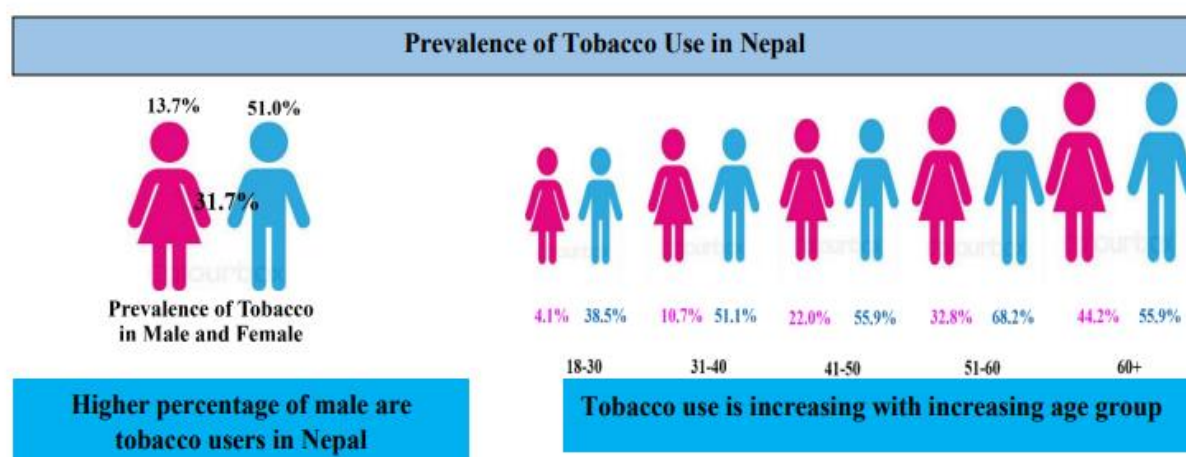


Chart 1: Gender wise and age wise prevalence of tobacco use in Nepal (Source: NSEPT 2020)

¹ Population Based Cancer Registry in Nepal-2018 available at <http://nhrc.gov.np/wp-content/uploads/2019/04/Progress-Interim-cancer.pdf>

² See https://ncdalliance.org/sites/default/files/rfiles/NCDA_Tobacco_and_Health.pdf

³ http://www.ncrs.org.np/page/42/programme/preventive_activities/tobacco_control_programme

⁴ https://www.who.int/cancer/country-profiles/npl_en.pdf

⁵ <https://gco.iarc.fr/today/data/factsheets/populations/524-nepal-fact-sheets.pdf>

⁶ <https://tobaccoatlas.org/>

Tobacco control in Nepal

Several efforts have been made to tackle tobacco use in Nepal, including the ratification of the WHO Framework Convention on Tobacco Control (FCTC) along with adoption of MPOWER policies, which have been put forward by the Tobacco Product (Control and Regulatory) Act, 2011.⁷ But due to a lack of proper regulation and monitoring body in Nepal, few policies have been enforced effectively. With the overall aim of making tobacco a more salient issue for policymakers and influencers in Nepal, and to strengthen Nepal's tobacco control policy in the short- to medium-term, NDRI are conducting a Tobacco Control Project (TCP) in collaboration with Cancer Research UK which runs from 2019 - 2021.

As part of the TCP NDRI have analyzed the currently known scale of the problem with tobacco use and its impacts in a context mapping document, which is an intensive review of the available documents in tobacco (<http://www.ndri.org.np/ourresources/tobacco-control-program/>). To address the lack of data and evidence available on tobacco use in Nepal and to gather information related to the public's understanding and attitude as well as the efficacy of policy implementation, NDRI also conducted a nationwide NSEPT survey along with focus group discussions and key informant interviews. The survey output found that people's attitude towards tobacco is highly negative, and that younger generation are particularly concerned about tobacco use. It found that although across all regions and age groups the majority of respondents were aware of the harmful effects of tobacco, tobacco in Nepal is still affordable to even to the lowest income quintiles. This is partly because the laws related to tobacco control are poorly enforced and not well understood well – the survey found that only 4% of respondents think that tobacco control policies are well enforced. Furthermore, 27% of tobacco users had one or more than one type of tobacco related health issues. Based on the qualitative and quantitative results of the of NSEPT survey, it is evident that tobacco control is still a second order issue demanding political and public attention to raise its salience. Key findings from the NSEPT survey can be found on page ii above.

MPOWER measures are a package of 6 proven policies introduced by WHO to fight against tobacco epidemics worldwide and which is adopted by all the signatory parties of WHO FCTC:

- **M**onitor tobacco use and prevention policies,
- **P**rotect people from tobacco smoke,
- **O**ffer help to quit tobacco use,
- **W**arn about the dangers of tobacco,
- **E**nforce bans on tobacco advertising, promotion and sponsorship, and
- **R**aise taxes on tobacco.

What is Known About the Costs of Tobacco Related Illness in Nepal?

Despite the fact that the personal costs incurred by patients for the diagnosis and treatment of tobacco related illnesses can be catastrophic, there are insufficient statistics about the direct and indirect financial costs associated with such illness for patients. There is also little available information about the socioeconomic and mental impacts such illnesses have on the patients as well as their families. The information presented in NDRI's report '*Impacts of Tobacco Use In Nepal: How the tobacco epidemic is increasing health costs and affecting the lives of tobacco users and their families*' (which is available at <https://www.ndri.org.np/publication/>) and specifically the case studies presented in this report therefore

⁷ WHO Report on the Global Tobacco Epidemic, 2008 The MPOWER package, https://www.who.int/tobacco/mpower/mpower_report_full_2008.pdf

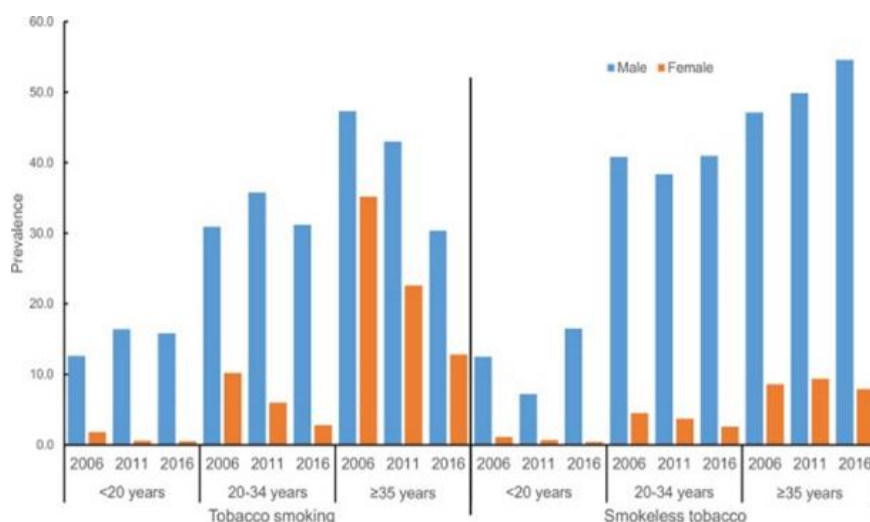
serve to showcase the impact tobacco use and tobacco related illness can have on individuals' quality of life.

Background and Context:

The tobacco epidemic is a huge threat to public health. It is estimated to kill more than 7 million people every year across the globe, accounting for more deaths each year than HIV/AIDS, tuberculosis, and malaria combined, and 80 percent of these premature deaths are taking place in the developing world.⁸ It claims 1.6 million lives in the South East Asia Region alone,⁹ and in Nepal, it is claiming 27,100 lives every year.¹⁰ Tobacco use is the single greatest avoidable risk factor for cancer mortality.¹¹

Levels of tobacco consumption in Nepal are high. NDRI's 2020 National Survey on Socioeconomic and Policy Aspect of Tobacco Use found the prevalence of any type of tobacco use among 18+ aged people to be 31.7% on average: men 51% and women 13.7%.¹² The overall prevalence rate of tobacco use was found to be 28.9% among 15-69-year adults by STEPS survey 2019 carried out by Nepal Health Research Council (NHRC)¹³. This prevalence rate is significantly higher in comparison to the average for other low-income countries: The World Health Organization (WHO) estimate that in 2015 the percentage of Nepalese smoking was 21.6% compared with 11.6% for all low-income countries. Nepal also has higher prevalence of tobacco consumption (whether smoking or smokeless) than other South Asian countries apart from Bangladesh.

Chart 2 below (sourced from NDRI's 'Tobacco in Nepal: The current context'¹⁴) shows the trend in smoked and smokeless tobacco use: overall tobacco consumption rates have been broadly steady over time – while they are not getting worse, they also do not appear to be improving. Chart 1 above also shows that smoked tobacco use is decreasing in different age groups while smokeless tobacco use is increasing.



⁸ <https://www.worldbank.org/en/topic/tobacco>

⁹ <https://www.who.int/southeastasia/health-topics/tobacco/tobacco-control-in-the-south-east-asia-region>

¹⁰ <https://tobaccoatlas.org/>

¹¹ <https://www.who.int/activities/preventing-cancer>

¹² Nepal Development Research Institute. *National Survey on Socio-economic and Policy Aspects of Tobacco use* (2020)

¹³ Tobacco Fact sheet, Nepal STEPS Survey 2019, NHRC

¹⁴ Nepal Development Research Institute. *Tobacco in Nepal: The Current Context* 2019, NDRI

Chart 2 (left): Trends

Chart 3 shows the burden of tobacco related illness in Nepal in 2016 and demonstrates that NCDs are estimated to account for 66% of all deaths.¹⁵ Tobacco is a major risk factor for at least 20 cancer types and for other NCDs, such as cerebrovascular disease, heart disease, chronic respiratory disease.¹⁶ In 2018 the cancer incidence in Nepal was 26,184 and is higher among females (15,912) than males (10,272) as shown in Chart 4 below. Further, cancer alone killed 19,413 Nepali in 2018 with lung cancer the prime killer among men (18.9%) and cervix and uterine cancer among women (9.9%)¹⁷. It is estimated that 15.6% of deaths among males and 14.1% of deaths among females in Nepal were caused due to tobacco use in 2016.¹⁸ However, these figures are based on estimates as country specific data sources for incidence and mortality due to cancer for Nepal are not yet available. Strengthening the hospital-based cancer registry and population-based cancer registries is needed to provide more accurate figures to demonstrate the true scale of the cancer burden in Nepal.

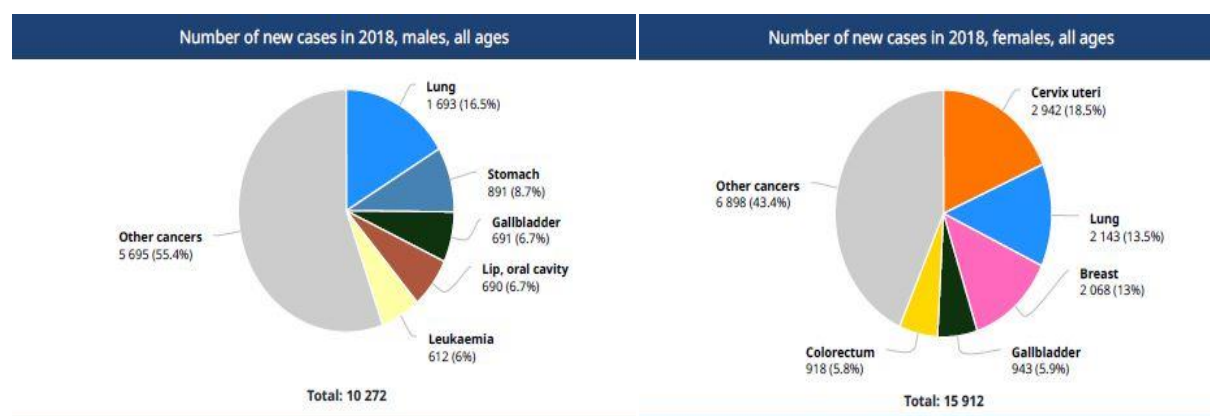
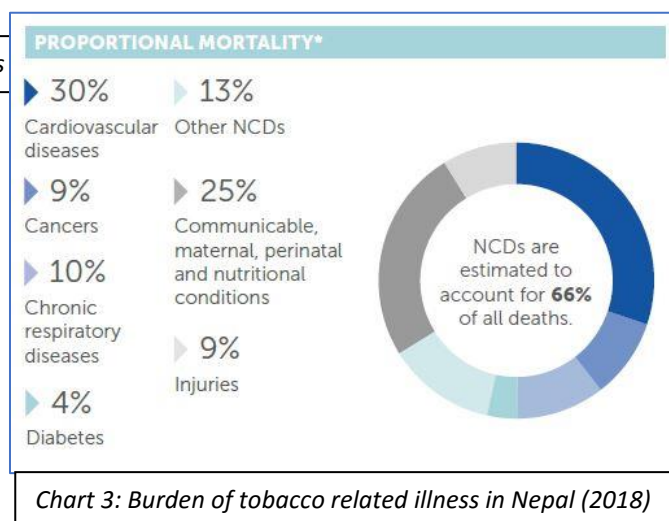


Chart 4: Nepal's cancer incidence rate among male (left) and female (right), 2018

It is well known that both active and passive smoking are harmful for human health and are associated with huge economic costs, both for the wider economy and for the individuals (and their families) who are

¹⁵ World Health Organization. *Non-Communicable Disease country profile* (2018)

¹⁶ World Health Organization. *World Health Report on Cancer* (2020)

¹⁷ World Health Organization. *International Agency for Research on Cancer* (2018)

¹⁸ Nepal Development Research Institute. *Tobacco in Nepal: The Current Context 2019*, NDRI and <https://files.tobaccoatlas.org/wp-content/uploads/pdf/nepal-country-facts-en.pdf>

affected by tobacco related illnesses.¹⁹ Tobacco related illness can also have a significant impact on the mental health of sufferers, and can cause social stigmas. Cancer in particular can exert tremendous physical, emotional, and financial strain on individuals and families.²⁰ The following sections will in turn examine (i) the financial impacts of tobacco related illnesses; and (ii) others socioeconomic and personal impacts tobacco related illness can have for patients and their families. They will set out existing evidence, as well as highlighting areas where evidence is lacking and further research is required.

Financial Impact of Tobacco Related Illness in Nepal and Internationally:

Wider Economic Costs of Tobacco Related Illness

The health costs of tobacco use are high: tobacco use causes economic loss due to the treatment of disease and loss of productivity in life due to premature death and disability. Such costs must be borne by the public sector and healthcare system, or by individuals and their households. Using the cost of illness approach that distinguishes economic costs of tobacco use into direct and indirect costs, according to the WHO the direct cost of tobacco use refers to the expenditures made on goods and services as a result of tobacco use and related illnesses.²¹ It consists of healthcare costs (e.g. medical supplies, medicine, treatment, doctors visits etc.) and non-healthcare costs such as transportation to health providers, care-giver/family members time provided to sick smokers. Indirect costs include the value of productivity loss, disability, lives lost due to the tobacco related illness of patient as depicted in Chart 5 below. This section will consider the wider economic impact of the cost of treatment for tobacco related illness before examining the possible financial impacts such illness may have on patients and their families.

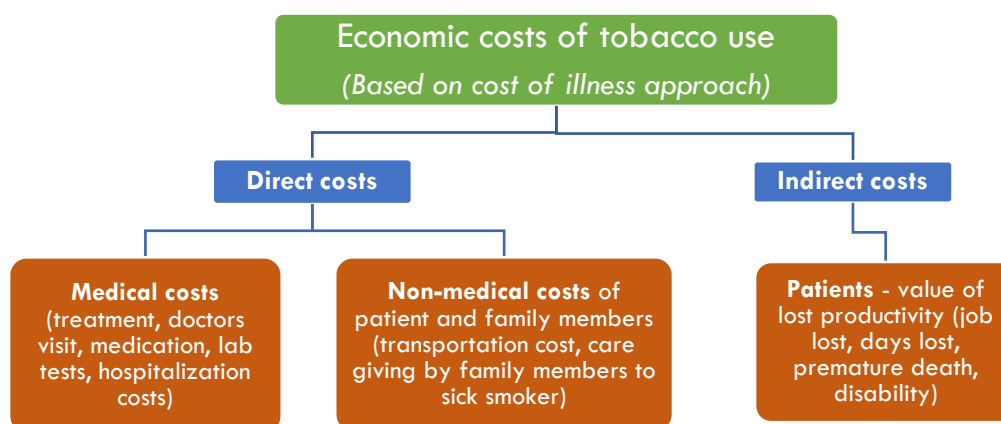


Chart 5: Economic costs of tobacco use (Source: Prepared by NDRI based on the information from Economics of tobacco toolkit (2011), WHO)

According to the WHO, globally smoking causes total economic costs (from health expenditure and productivity losses together) of around US\$1.4 trillion per year (in 2016), which is equivalent to 1.8% of

¹⁹ Ekpu and Brown. The Economic Impact of Smoking and of Reducing Smoking Prevalence: Review of Evidence. *Tobacco Use Insights* 2015;8 1–35 doi:10.4137/TUI.S15628.

²⁰ World Health Organization. *World Health Report on Cancer* (2020)

²¹ WHO. *Economics of tobacco toolkit* (2011)

the world's annual gross domestic product (GDP). Almost 40% of these costs occurred in the developing world, indicating the substantial burden these countries suffer.²² This huge economic burden of smoking is shown across different contexts: for example, economic costs equate to approximately 1% of GDP in the United States and approximately 0.7% of China's GDP.²³ Smoking related illness in the United States costs more than US\$300 billion each year including nearly US\$170 billion for direct medical care, more than US\$156 billion in lost productivity (which includes US\$5.6 billion in lost productivity due to second hand smoking exposure).²⁴ In the UK, the direct costs of smoking to the National Health Service have been estimated to be £30,424 million pounds (US\$40 billion)²⁵ and the total cost of smoking in Australia in 2016 was AUD 136.9 billion (US\$99.92 billion)²⁶.

These significant economic costs are also felt in low- and middle-income countries. According to the WHO, tobacco is closely linked to poverty and development in the South East Asia region. A study in Vietnam shows the total economic costs of smoking in 2011 was 24679.9 billion Vietnamese Dong (US\$1173.2 million), accounting 0.97% of that year's GDP. The direct cost of patient care was US\$592 million while indirect costs (productivity loss) due to morbidity and mortality were US\$121.1million and US\$454.6 million respectively. These indirect costs of smoking accounted for 49.5% of total costs.²⁷ In Thailand the cost of smoking in 2015 was 74.88 billion Baht (US\$2.18 billion) which accounted for 0.78% of country's GDP. The majority of the cost burden was due to productivity loss at 62.24 billion Baht (US\$1.81 billion), followed by direct medical costs of 12.64 Baht (US\$0.37 billion).²⁸ Similarly, in Indonesia - which is the top tobacco using country in the South East Asia Region - the health cost due to tobacco related illness is significant: the treatment cost of smoking was estimated to be US\$2177 million accounting for 2.5% of the country's GDP in 2015.²⁹ Asian countries ranged from US\$22.5 million to US\$34.4 billion (calculated in 2012), which is 0.68% to 1.8% of GDP of the respective countries as shown in Chart 6 below.³⁰

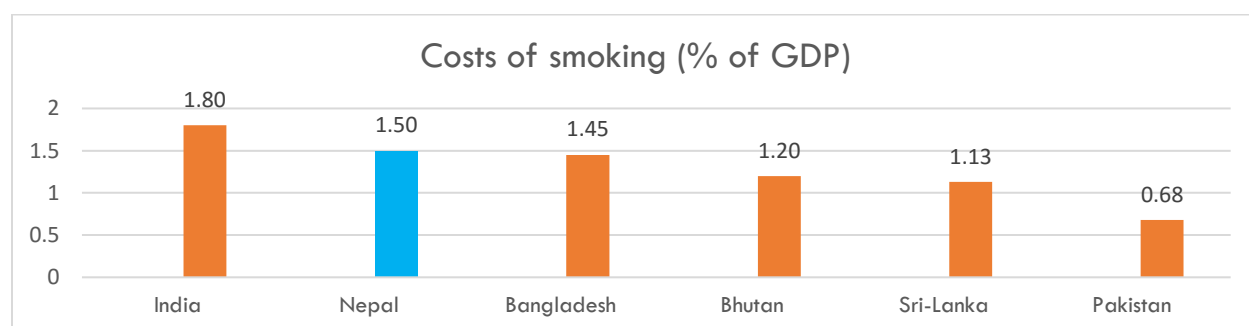


Chart 6: Economic cost due to smoking attributable disease in South Asia

²² https://www.who.int/health-topics/tobacco#tab=tab_2

²³ Ekpu and Brown. The Economic Impact of Smoking and of Reducing Smoking Prevalence: Review of Evidence. *Tobacco Use Insights* 2015;8 1–35 doi:10.4137/TUI.S15628

²⁴ https://www.cdc.gov/tobacco/data_statistics/fact_sheets/economics/econ_facts/index.htm

²⁵ <https://tobaccoatlas.org/country/united-kingdom/>

²⁶ National Drug Research Institute. *Identifying the social costs of tobacco use to Australia 2015/16*

²⁷ Hoang Anh PT, et al. Direct and Indirect cost of smoking in Vietnam, *Tob Control* 2016;25:96–100. doi:10.1136/tobaccocontrol-2014-051821

²⁸ Bundhamcharoen K, Aungkulanon S, Makka N, Shibuya K. Economic burden from smoking-related diseases in Thailand. *Tobacco Control*. 2015;25:tobaccocontrol-2015

²⁹ Kristina SA, Endarti D, Wiedyaningsih C, Fahamsya A, Faizah N. Health Care Cost of Noncommunicable Diseases Related to Smoking in Indonesia, 2015. *Asia Pac J Public Health*. 2018;30(1):29-35. doi:10.1177/1010539517751311

³⁰ GDP of each country sourced from World Bank.

It is clear that there can be significant economic costs arising from tobacco use, and the high prevalence of tobacco use in the South Asian region is putting additional burden onto economies.³¹ Nepal is no exception: as shown in Chart 6 above, Nepal has high economic costs attributable to smoking and in 2012 lost NPR 22.94 billion (US\$258 million) – which accounted for 1.5% of its GDP – due to smoking related illness in that year. If we adjust those costs for inflation, we get an estimated cost of smoking in Nepal of around NPR 39.25 billion (US\$334 million)³² in 2020.³³

Further, this cost only includes costs for smoking related illness and does not include costs related to smokeless tobacco (due to a lack of data and literature). Furthermore, this cost calculation has been limited to direct healthcare costs only and excludes non-health care costs such as transportation and time spent by caretakers/family members.³⁴ This suggests that the estimated health costs of tobacco related illnesses are significantly underestimated.

Financial Impacts on Individuals and Their Families

The costs of tobacco related illness fall on both the government and on individuals. As shown by Chart 5 above, they can be either direct or indirect costs. In Nepal, an estimated 48-69% of health costs in general (so not simply those related to tobacco related diseases) are covered by individuals. This includes out of pocket (OOP) expenditures which are those costs borne by individuals and households away from medical facilities, as well as the cost of hospitalization.³⁵ Medical expenses associated with treatment of tobacco related conditions can be catastrophic, especially for Nepalese belonging to the lower socioeconomic status. According to the WHO: “when people have to pay fees or co-payments for health care, the amount can be so high in relation to income that it results in “financial catastrophe” for the individual or the household. It can mean people having to cut down on necessities such as food and clothing, or being unable to pay for their children’s education.”³⁶ At the household level, this implies a loss of earnings, household savings, and investments. In one study from Eastern Nepal conducted among hospitalized patients who consumed tobacco, 40% experienced catastrophic health care expenditure.

Similar evidence exists elsewhere, for example:

- In 2015, in Australia, the cost of productivity loss and work absenteeism was AUD 5 billion (USD\$ 3.75 billion) followed by AUD 2 billion (US\$1.43 billion) for family members caring for someone with smoking related diseases.³⁷
- A study among lung cancer patients in Indonesia found the average cost per patient per treatment was Rp 1250000 (US\$85) in 2004 and all patients experienced a loss of income due to inability to

³¹ <https://www.who.int/southeastasia/health-topics/tobacco/tobacco-control-in-the-south-east-asia-region>

³² Calculated by NDRI incorporating the inflation rates sourced from Nepal Rastra Bank; 1 USD = 117.52 on 12 January 2021.

³³ Note that the WHO FCTC investment case study of Nepal report has shown the total economic loss due to tobacco use has further increased since 2012: this study used a different methodology to the Tobacco Atlas report and suggested the cost was NPR 47 billion (US\$458 million) in 2017, accounting for 1.8% of national GDP. And if we inflate this amount to 2020, then it is NPR 54.6 billion (US\$464 million). This shows the costs may range up to NPR 54.6 billion per year.

³⁴ Goodchild, M., et al. (2016), ‘Global economic costs of smoking attributable diseases’, *Tobacco Control*, Volume 27, Issue 1: 58-64; <http://dx.doi.org/10.1136/tobaccocontrol-2016-053305>.

³⁵ See <https://apps.who.int/iris/bitstream/handle/10665/205319/B0575.pdf?sequence=1&isAllowed=y>

³⁶ See https://www.who.int/health_financing/documents/pb_e_05_2-cata_sys.pdf

³⁷ National Drug Research Institute. *Identifying the social costs of tobacco use to Australia 2015/16*

work at full capacity. Patient's family members were also unable to continue work as time was needed to care the patient.³⁸

- In Bangladesh, a survey in 2007 found tobacco related illness costs an average BDT 22528 (US\$264.19) per person per hospitalization. The OOP expenditure at the household level is higher for tobacco related illness compared to other illness in Bangladesh.³⁹
- Another recent study in Bangladesh found around 76% of the cost for tobacco related illness is paid by tobacco user's households and rest is financed by government. The OOP expenditure per day for an inpatient is BDT 8238 (US\$97.63) and average length of hospital stay was 9.32 days (which totals US\$902 per hospitalization). And OOP expenses per visit for treatment abroad was BDT 87703 (US\$1040) that includes foreign travel, lodging, food and other daily expenses along with the cost of treatment. Due to tobacco related illness on average, patients reported to be ill for 12.68 days per month and annual household productivity loss per patient was BDT 59,787 (US\$708.53). Moreover, employment probability was lowered by 0.2 (20%) due to the disease.⁴⁰
- National surveys in India in 1996 and 2004 revealed that the share of OOP expenditure borne by individuals for NCD treatment increased from 31.6% to 47%, demonstrating an increased financial impact of NCDs on households. The sources of financing these costs were personal savings, income, and borrowing. The odds of catastrophic expenditure for cancer were nearly 170% greater than other communicable diseases.⁴¹
- A systematic review of the impact of NCDs in India in 2011 highlighted that 45% of OOP expenditure for NCD care comes from household income or savings, 33% from borrowing and 12% from friends and family. The situation is more severe with cancer, where almost 50% of households experience catastrophic spending and 25% are driven to poverty by the health care expenses.⁴²

In Nepal, a large proportion (48.7%) of health care expenditure is borne "out of pocket" which means the cost is borne by individuals and their families rather than the government.⁴³ Several quantitative⁴⁴ and qualitative⁴⁵ studies have been carried out among patients suffering from cancer, CVD (cardiovascular disease) and hypertension which demonstrate a significant financial impact of tobacco related illness on individuals and their families in Nepal:

- A quantitative cross-sectional study to estimate direct and indirect costs associated with treatment of cancer was carried out on 294 cancer patients who were receiving treatment from Bhaktapur Cancer Hospital. It found the mean direct cost of cancer care was NRs. 387 thousand which was far above than average annual income of a person of NRs. 78.9 thousand, enough to have

³⁸<http://documents1.worldbank.org/curated/en/868961468772779635/pdf/288670Djutaharta1Research0on01whole.pdf>

³⁹ World Health Organization. *Impact of Tobacco-related illness in Bangladesh* (2007)

⁴⁰ GM, Faruque & Ahmmed et al. (2020). The Economic Cost of Tobacco Use in Bangladesh: A Health Cost Approach. 10.13140/RG.2.2.33392.28169/1.

⁴¹ Engelgau et al. The economic impact of Non-Communicable Diseases on households in India. *Globalization and Health* 2012

⁴² Thakur, J., Prinja, S., Garg, C. C., Mendis, S., & Menabde, N. (2011). Social and Economic Implications of Noncommunicable diseases in India. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, 36(Suppl 1), S13-S22. <https://doi.org/10.4103/0970-0218.94704>

⁴³ Saito E et al. Catastrophic household expenditure on health in Nepal: a cross-sectional survey. *Bull World Health Organ* [Internet]. 2014

⁴⁴ Khatiwoda Shiva Ram, Dhungana Raja Ram, Sapkota Vishnu Prasad, Singh Sarswoti (2019). Estimating the Direct Cost of Cancer in Nepal: A Cross-Sectional Study in a Tertiary Cancer Hospital. *Frontiers in Public Health*.

<https://www.frontiersin.org/article/10.3389/fpubh.2019.00160>

⁴⁵ Sagtani, RA.Gautam, R. Gurung, GN. Pokharel PK. (2015). Financial burden of tobacco and catastrophic health care expenditure among smokers admitted in a tertiary care center in eastern Nepal. *Nepal Med Coll J*; 17(3-4).

⁴⁶ Taranath Sapkota, Inge Houkes, Hans Bosma, Vicious cycle of chronic disease and poverty: a qualitative study in present day Nepal, *International Health*, ihaa016, <https://doi.org/10.1093/inthealth/ihaa016>

catastrophic financial impacts. Only 33% of respondents had used government subsidy (NRs. 100 thousand) to help cover the cost, and even then the study found that the subsidies are “*insufficient to protect people, especially those from lower socioeconomic households, from financial catastrophe*”. In the study around 86% reported experiencing financial hardship, and among them 78% had to take loans and 48% had to sell their properties to manage the cost.⁴⁷

- A study carried out among 50 tobacco user patients admitted to BP Koirala Institute of Health Sciences, Dharan, Nepal with various health problems has estimated the average per patient expenses per visit was NRs. 57.21 thousand which was NRs. 9 thousand more than the average annual per capita income of the respondents. Around 40% of the patients experienced catastrophic health care expenditure and 46% of patients had to take out a loan.⁴⁸
- Another qualitative study carried out on 21 chronically ill patients and/or caretakers (among them two thirds were patients with cancer, cardiovascular disease, hypertension, diabetes, of which tobacco is the established risk factor) concluded that the huge expenditure for chronic disease paralyzed patients’ financial activities to the extent that they were absolutely unable to purchase health care services and had to re-prioritize their expenditure. The impact was most severe when the whole family depended on the patient’s income, including experiencing increased poverty after the onset of the disease which tended to persist across generations.⁴⁹

An Evidence Gap

As demonstrated above, there is a strong evidence base on the broader economic impacts of tobacco related illness at international level. Similarly, international evidence exists which reveals the personal financial costs associated with NCDs and tobacco related illnesses. In the case of Nepal, fewer studies have been carried out which examine the personal financial impacts of tobacco related ailments on individuals and their families. Existing studies are confined to very small geographical areas or to a specific health institution, and whilst these studies give us a glimpse of the impact of tobacco related illness on individuals and their family members in Nepal, indicating that patients suffering from tobacco related illness can face financial hardship and economic catastrophe which might push their family into a poverty trap, the studies are not sufficient to make generalized claims for Nepal as a whole. In addition, in Nepal no health institutions were found to have disaggregated data based on risk factors causing illnesses, such as tobacco, meaning there is a lack of disaggregated data on the financial impact of tobacco related illness. A nationwide study on the financial impact of tobacco related illnesses is required to further understand how tobacco related illness can affect individuals.

Non-Financial Impact of Tobacco Related Illnesses on Patients and Their Families:

The cost of purchasing tobacco diverts the income of families which could have been used for other purposes. In addition, as shown above the expense for treatment of tobacco related diseases (like cancer and other NCDs) can exacerbate the financial status of affected individuals and can lead to impoverishment for them and their families. But importantly, tobacco related illness can have significant non-financial impacts on the lives of the patient and their family including stress, anxiety, depression and stigmatization.

⁴⁷ Khatiwoda SR, Dhungana RR, Sapkota VP and Singh S (2019) Estimating the Direct Cost of Cancer

in Nepal: A Cross-Sectional Study in a Tertiary Cancer Hospital. *Front. Public Health* 7:160. doi: 10.3389/fpubh.2019.00160

⁴⁸ Sagtani RA, Gautam R, Gurung GN, Pokharel PK. Financial burden of tobacco and catastrophic health care expenditure among smokers admitted in a tertiary care center in eastern Nepal: *Nepal Medical College Journal* 2015; 17 (3-4): 125-131

⁴⁹ Taranath Sapkota, Inge Houkes, Hans Bosma, Vicious cycle of chronic disease and poverty: a qualitative study in present day Nepal, *International Health*, ihaa 016, <https://doi.org/10.1093/inthealth/ihaa016>

Stress, Anxiety and Depression

The stressful nature of diseases like cancer and others caused by the consumption of tobacco is widespread and inescapable, not only for the patient but also their family members. During the course of treatment of tobacco related ailments, the financial and mental status of the patient and their family may worsen.⁵⁰ As demonstrated in the section above, in Nepal the average direct cost of cancer treatment was found to be higher than the average annual income of patients, sufficient to cause financial catastrophe.⁵¹ And this financial burden can add a burden onto family members as well as the patient⁵² because their minds may be occupied in thinking about the way out to manage the cost for the treatment and medication.⁵³ Financial stress can also affect other dimensions of family life, including for example concerns about how to repay loans taken out to finance treatment costs, and family members dropping out of school as well as working for income generation at a young age to help meet the cost of treatment.⁵⁴

There are many other non-financial impacts of tobacco related illnesses. For example patients with cancer, particularly those in active treatment and those with advanced stages of the disease, may experience severe symptom distress, which may influence social and physical as well as mental functions.⁵⁵ It can also add a heavy emotional and physical burden on the primary family caregiver when patients are bedridden. Patients with heart disease are at high risk for mental health disorders, such as depression and anxiety due to physical inability.⁵⁶ And cancer patients undergoing treatment and survivors are often left unable to work due to health impairment and disability induced due to the treatment and onset of cancer, in turn leading to emotional distress, as well as mental health and social problems.⁵⁷

Smoking tobacco is an important risk factor for chronic obstructive pulmonary disease (COPD). Incidences of anxiety and depression were found to be almost three times more common in COPD patients compared to the participants from the general population in rural Nepal.⁵⁸ It has also been found that the incidence of anxiety and depression is exaggerated due to increased mortality, decreased functional status, and decreased quality of life in these patients due to COPD.⁵⁹

Numerous studies have shown that lung cancer patients are also at an increased risk of having symptoms of depression, and the reasons behind it are varied.⁶⁰ One possible reason is linked to the habit of smoking tobacco, because people often regret and are defamed for the habit which could have saved them from getting the cancer. One study found that lung cancer patients with and without a history of smoking habits

⁵⁰ Kurtz, Margot E. Given, Barbara. R.N.F.A.A.N.J. Kurtz, C. and Given, Charles W.(1994). *Cancer Supplement*, The Interaction of Age, Symptoms, and Survival Status on Physical and Mental Health of Patients with Cancer and Their Families

⁵¹ Merlis M, Gould D, Mahato B, Fund C.(2006) Rising Out-of-Pocket Spending for Medical Care: A Growing Strain on Family Budgets. New York, NY: Commonwealth Fund

⁵² Kurtz, Margot E. Given, Barbara. R.N.F.A.A.N.J. Kurtz, C. and Given, Charles W.(1994). *Cancer Supplement*, The Interaction of Age, Symptoms, and Survival Status on Physical and Mental Health of Patients with Cancer and Their Families

⁵³ Taranath Sapkota, Inge Houkes, Hans Bosma, Vicious cycle of chronic disease and poverty: a qualitative study in present day Nepal, International Health, ihaa016, <https://doi.org/10.1093/inthealth/ihaa016>

⁵⁴ Taranath Sapkota, Inge Houkes, Hans Bosma, Vicious cycle of chronic disease and poverty: a qualitative study in present day Nepal, International Health, ihaa016, <https://doi.org/10.1093/inthealth/ihaa016>

⁵⁵ Kurtz, Margot E. Given, Barbara. R.N.F.A.A.N.J. Kurtz, C. and Given, Charles W.(1994). *Cancer Supplement*, The Interaction of Age, Symptoms, and Survival Status on Physical and Mental Health of Patients with Cancer and Their Families

⁵⁶ Bashiri, Z., Aghajani, M., & Masoudi Alavi, N. (2016). Effects of Psychoeducation on Mental Health in Patients With Coronary Heart Disease. Iranian Red Crescent medical journal, 18(5), e25089. <https://doi.org/10.5812/ircmj.25089>

⁵⁷ Institute of Medicine (US) Committee on Psychosocial Services to Cancer Patients/Families in a Community Setting; Adler NE, Page AEK, editors. Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs.

⁵⁸ Thapa Nireesh, Maharjan Muna, Shrestha Tirtha Man, Gauchan Srijana, Pun Prakash, Thapa Yam Bahadur. (2017). Anxiety and depression among patients with chronic obstructive pulmonary disease and general population in rural Nepal. *BMC Psychiatry* 17, 397. <https://doi.org/10.1186/s12888-017-1550-5>

⁵⁹ Putman-Casdoorp H, McCrone S.(2017) Chronic obstructive pulmonary disease, anxiety, and depression: state of the science. *Heart Lung*, 2009;38:34–47. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S0147956308000241>

⁶⁰ Gonzalez Brian D. and Jacobsen Paul B.(2010). Depression in lung cancer patients: the role of perceived stigma *Psycho Oncology*. DOI : 10.10 02/pon.188

were blamed for their habits as a cause of lung cancer by friends, relatives and even healthcare professionals, leading to mental strains.⁶¹ Another study in Japan found illiterate patients with lung cancer were at higher risk of becoming depressed.⁶² And in a study in China, patients with oral cancer exhibited signs of anxiety and symptoms of depression because of perceived stress but also the social isolation caused by stigmatization.⁶³

Stigmatization

Patients with tobacco related illnesses are often found to be stigmatized with significant after-effects including defamation, leading to guilt and shame. Such stigma may risk the patient's personal, social life, and economic opportunities and it can also profoundly affect families.⁶⁴

For example, lung cancer is well associated with consuming tobacco, and patients with lung cancer were stigmatized⁶⁵ in the UK and in India according to a qualitative study.⁶⁶ Lung cancer patients with and without history of smoking habits were unfairly accused of their habits as cause of lung cancer by friends, relative and even healthcare professionals. On top of this, treatment of cancer is often accompanied by hair loss⁶⁷, scars and other changes⁶⁸. Patients often are embarrassed with their appearance, and for example they have been found to be stigmatized as ill-omened when they suffer from neck cancer.⁶⁹ Patients with lung cancer in China also experienced discrimination, social isolation and exclusion from their colleagues, superiors, and even from peers.⁷⁰

The financial impact of tobacco related illness can also lead to stigmatism. For example in Nepal, poor people living in rural areas have been found to be exposed to hazardous social and physical environments: underprivileged families struggled to manage the cost of treatment of tobacco related chronic diseases, and patients with chronic diseases had low self- esteem and lived in a stress in order to manage finance for treatment, leaving them psychologically vulnerable.⁷¹ Additionally, patients with tuberculosis (in Kathmandu) were found to be unjustly stigmatized and discriminated by health workers and the community at home, in the workplace and in hospitals due to lack of knowledge and feared of being 'infected' with those diseases.⁷²

⁶¹ Schonfeld N, Timsit JF. (2008)Overcoming a stigma: the lung cancer patient in the intensive care unit. *Eur Resp J*;31:3–5.

⁶² Uchitomi Y, Mikami I, Nagai K, Nishiwaki Y, Akechi T, Okamura H. (2003). Depression and psychological distress in patients during the year after curative resection of non-small-cell lung cancer. *J Clin Oncol*.21:69.

⁶³ Yuan, L., Pan, B., Wang, W. et al. Prevalence and predictors of anxiety and depressive symptoms among patients diagnosed with oral cancer in China: a cross-sectional study. *BMC Psychiatry* 20, 394 (2020). <https://doi.org/10.1186/s12888-020-02796-6>

⁶⁴ Fife B, Wright E. The dimensionality of stigma: a comparison of its impact on the self of persons with HIV/AIDS and cancer. *J Health Soc Behav* 2000; 41: 51–67.

⁶⁵ Chapple A, Ziebland S, McPherson A: Stigma. (2004). Stigma, shame, and blame experienced by patients with lung cancer: qualitative study. *BMJ*. 328: 1470-1473. 10.1136/bmj.38111.639734.7C

⁶⁶ Rabari R, Purohit C. Stigma, shame, and blame experienced by patients with lung cancer: A qualitative study. *IP Indian J Immunol Respir Med* 2020;5(2):75-77.

⁶⁷ Rosman S. (2004). Cancer and stigma: experience of patients with chemotherapy-induced alopecia. *Patient Educ Couns*; 52: 333–9

⁶⁸ Rosman S. (2004). Cancer and stigma: experience of patients with chemotherapy-induced alopecia. *Patient Educ Couns*; 52: 333–9

⁶⁹ Kissane David W, Patel Snehal G, Baser Raymond E, Bell Rachel , Farberov Maria, OStroff Jamie S, Li Yuelin, Singh Bhuvanesh, Kraus Dennis H, Shah Jatin P. (2012). Preliminary evaluation of the reliability and validity of the Shame and Stigma Scale in head and neck cancer. *Journal of the sciences and specialties of the head and neck*. <https://doi.org/10.1002/hed.22943>

⁷⁰ Liu, H., Yang, Q., Narsavage, G.L. et al. Coping with stigma: the experiences of Chinese patients living with lung cancer. *SpringerPlus* 5, 1790 (2016). <https://doi.org/10.1186/s40064-016-3486-5>

⁷¹ Taranath Sapkota, Inge Houkes, Hans Bosma, Vicious cycle of chronic disease and poverty: a qualitative study in present day Nepal, *International Health*, ihaa016, <https://doi.org/10.1093/inthealth/ihaa016>

⁷² Baral, S.C., Karki, D.K. & Newell, J.N. (2007). Causes of stigma and discrimination associated with tuberculosis in Nepal: a qualitative study. *BMC Public Health* 7, 211 <https://doi.org/10.1186/1471-2458-7-211>

A Further Evidence Gap

Whilst there is international evidence on the non-financial impacts that tobacco related illness can have on patients and their families, evidence from Nepal is again limited. As with the evidence on financial impacts, the lack of disaggregated data in Nepal which directly includes tobacco use as a risk factor further limits our understanding of how tobacco related illnesses and their treatments can directly affect the mental and social well-being of patients. Studies which focus on how patients who have illnesses which can be attributed to their use of tobacco have been affected by these illnesses would significantly help to improve our understanding of the longer-term risks associated with tobacco use in Nepal.

Observations

As shown above, international evidence reveals that the huge cost of tobacco related illnesses is widespread around the world. Financial impacts of these illnesses for the wider economy are well-documented, but the financial impacts of tobacco related illness on individuals and their families can also be catastrophic: high out of pocket expenditure can push households into (or further into) poverty. Similarly, international evidence suggests that non-financial impacts of tobacco related illnesses can be significant for the patients and their families. Increased risk of anxiety, stress and depression is evidenced in numerous studies, as is the possibility of stigmatization and the related negative impacts associated with it.

Evidence specific to the Nepal context is limited, yet the importance of understanding and reacting to this evidence is crucial: tobacco use prevalence is high and is increasing in some forms (as shown by the NDRI NSEPT 2020) in Nepal, and tobacco related illnesses and deaths are also increasing. Impacts on individuals and their families are likely to be severe. The few reviewed studies have shown that Nepalis also witness the catastrophic health cost burden due to tobacco related illness affecting not only the patient but also the patient's family members. Due to the lack of health insurance policies / health care financing in Nepal, many patients used OOP funds (savings, loans, assets, etc.) to meet the cost of treatment, and expenditure in all cases exceeded income leading to financial devastation as well as negative psychological and social impacts. But the lack of existing evidence is restrictive, and coupled with the lack of hospital registry for NCDs based on its major risk factor like tobacco in Nepal, this suggests further research is required.

NDRI's report '*Impacts of Tobacco Use In Nepal: How the tobacco epidemic is increasing health costs and affecting the lives of tobacco users and their families*' (available at <https://www.ndri.org.np/publication/>) includes a number of case studies about patients suffering from tobacco-related cancers. These case studies shed light on the intensity of the impacts of tobacco related illness, specifically focusing on the impacts of cancer on the financial, socioeconomic and psychological well-being of patients, their families and their care givers in Nepal. The case studies seek to highlight the economic, social, psychological and other impacts cancer patients, survivors and their families in Nepal suffer from. Given their limited scope and restrictions faced due to the Covid-19 pandemic, the case studies do not seek to wholly address the evidence gap. However, after conducting focused and in-depth interviews the case studies instead highlight personal stories which bolster the need for further research to be conducted, whilst at the same time serving as evidence to help inform and influence tobacco control policies effectively in Nepal.