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Trends in tobacco use initiation in Bangladesh, India and Pakistan: Birth Cohort Analyses using disaggregated data from Global Adult Tobacco Survey

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ABSTRACT

Objective: Tobacco use begins at an early age and leads to hard-to-quit tobacco addiction, often making its users life-long addicts. The age of initiation of both cigarette and non-cigarette tobacco products is not well studied in high burden regions such as South Asia.

Methods: Data from the nationally representative Global Adult Tobacco Surveys in India (2016-17), Bangladesh (2017-18) and Pakistan (2014-15), was utilised to examine patterns of initiation among ever daily smokers and users of smokeless tobacco. These datasets were disaggregated by sex and residential status and examined across five decades.

Results: In all, 94,651 individuals provided information on tobacco use wherein 13,396 reported being ever daily smokers and 17,684 reported being ever smokeless tobacco (SLT) users in the three countries surveyed. Among these users, the proportion of individuals initiating into tobacco use (smoking as well as smokeless tobacco) before the age of 15 is seen to increase with each progressive cohort. The relative increase in rates of SLT initiation among those aged 15-24 is drastically increasing in Bangladesh (by 7.8%) and Pakistan (by 37.7%) since 1983. Among males, a higher relative increase in SLT initiation among those <15 is seen in India and Bangladesh while initiation among Indian women is dispersed with an ever-increasing trajectory since the cohort of 1962-71.

Conclusion: Our findings suggest that youth aged <15 from urban household settings are a priority population for tobacco control interventions. Culturally acceptable and field-tested tobacco prevention interventions targeted towards these groups are crucial to reduce sustained tobacco use. Complementary strategies such as raising the legal age of tobacco sale and use to 21 years and vendor licensing (supply side restrictions) and price and tax measures to reduce demand, especially among youth, prevent underage use and lifelong addiction to tobacco products.

Key words: Smoking, smokeless tobacco, trends, south Asia

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INTRODUCTION

Tobacco use and its cessation to reduce dependence requires early intervention and support to avoid preventable diseases, disabilities and its associated deaths. Tobacco use often begins in adolescence or young adulthood, and has detrimental health, social and economic consequences.(1,2) It can also lead to dangerous substance use behaviours.(3) Effective prevention requires understanding reasons which underpin early initiation and onset behaviour of tobacco use and these inform to design strategies and allocation of resources that support deterrence among minors and youth, prevention and cessation among users. Monitoring of tobacco use and patterns among youth is crucial as the risks of health effects posed by tobacco are highest among those who start early and continue its use until later into adulthood as a lifelong addiction.(4) Understanding these dynamics can assist policymaking and identify priority populations for programmatic interventions and research.

Studies have reported the prevalence of tobacco use, (5,6) identified different subgroups with propensity to initiate tobacco use, viz. smoking and smokeless tobacco (SLT) with respect to onset and patterns of use over time. Various forms of smoked tobacco (ST) exist across the world, including, but not limited to cigarettes, cigars, pipes, bidis, etc(7). Whereas. Smokeless tobacco (SLT), which is prevalent in the Indian Subcontinent, includes many forms such as betel quid with tobacco, gutkha, khaini, etc(8). (9,10,19-28,11-18)These studies have been primary or secondary in nature, conducted across developed as well as developing nations, varied in terms of the populations, sample size, length of follow-up and constituted trajectories based on longitudinal as well cross-sectional datasets. Many of these studies have also utilized regional samples(24,27,28) and therefore, not truly nationally representative in nature and have limited generalizability.

Page 5 of 48

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These studies, limited to developed countries, indicate that peer use, higher depressive symptoms and maternal smoking are associated with initiation early at adolescence.(9,12,13,22,23) Further, individual and community-level factors, in addition to factors such as tobacco advertising, taxation, etc. have also been studied and found to be significant in influencing initiation patterns.(25,26) Most studies report a decrease in age of initiation, pointing towards an alarming global trend. Further, initiation patterns of SLT use remain understudied especially in South Asia which constitutes a disproportionately high percentage of the global smokeless tobacco use burden(11,21,29). India, Bangladesh and Pakistan have high rates of smoking and SLT use with low mean age of initiation found to be 17.8 in India, 18.7 in Pakistan and 18.8 in Bangladesh(5,30).

The present study builds upon extant literature and examines patterns of age at initiation of tobacco use, including smoking and smokeless tobacco use across five decades from early adolescence to late adulthood in India, Bangladesh and Pakistan using cohort analysis. This study utilises cross-sectional data from the Global Adult Tobacco Survey(31). This is a first-of-its-kind study on tobacco use initiation patterns across five decades and points partially to reasons for the inability to curb the tobacco epidemic. This is especially crucial as children and youth are vulnerable to sustained marketing strategies of tobacco companies aimed to increase and sustain consumption(26). In the studied nations, the proportion of the youth is high and these patterns point to a deeper concern of potentially increasing risk of non-communicable diseases and mortality. Further, in accordance to the WHO-Framework Convention on Tobacco Control (WHO-FCTC), this study offers a unique viewpoint, identifies priority populations and advocates for the development of tailored policies and targeted interventions to prevent exposure and initiation into tobacco use(32). Such practices need to be customised to local socio-cultural settings and adopted across all developing

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countries to prevent early initiation and reduce lifelong tobacco use which is recalcitrant tocessation.

METHODS

124 Study Design

This study utilised data from the latest rounds of Global Adult Tobacco Survey (GATS) conducted in India, Pakistan and Bangladesh. As part of the Global Tobacco Surveillance System (GTSS), GATS was launched to obtain nationally representative data in low-income and middle-income countries for tobacco use and associated behaviours, including initiation, in non-institutionalised individuals aged 15 years and older. GATS is considered to be the global standard for monitoring adult tobacco use and a standard protocol with respect to the questionnaire, sample size, data management and quality was used in participating countries.

A multistage, geographically clustered sampling survey, GATS has been conducted in two rounds in India, in 2009-10(33) and the latest round in 2016-17,(34). It was conducted in 2014-15 in Pakistan(35) and in 2017-18 in Bangladesh.(36) In India, the second round of GATS was carried out across six regions, comprising of 29 States and 3 Union Territories, translated and conducted in 19 local languages. In Pakistan, the survey was carried out in all urban and rural areas of Punjab, Sindh, Khyber Pakhtunkhwa and Baluchistan province. The sample size for India included 84,047 households with a response rate of 92.90% (N=74,037). Correspondingly, the sample size for Pakistan and Bangladesh was 9,856 and 14,880 households with response rates of 81.0% (N=7,831) and 90.8% (N=12,783) respectively. Further details GATS be found on can on https://www.who.int/tobacco/surveillance/guide/en/.

Page 7 of 48

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Our analysis utilised a participant-anonymous publicly available dataset and was therefore exempted from ethics review. We followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline for cross-sectional studies to guide our methodology and reporting. (37) Analyses of our combined sample of 94,651 participants included those who provided information on age at first use of tobacco smoking or smokeless tobacco (SLT). Using these data, cohort analysis of age at initiation of tobacco smoking and SLT use was conducted over five decades among ever daily users. We excluded participants with missing information.

151 Measures

We assessed two categories of tobacco products: tobacco smoking (includes smoking of any tobacco product, such as manufactured cigarettes, hand-rolled cigarettes, Bidis, cigar, cheroots, cigarillos, pipe-tobacco, and others) and SLT (includes any SLT product such as Betel Quid with Tobacco/zarda, zarda, zarda with supari, naswar, paan masala with tobacco, naas, snuff, mainpuri, khaini/tobacco lime mixture, gutkha, areca nut-tobacco lime mixture, mawa, mishri, gudakhu, gul, and others) use for ever daily users, that is individuals who currently use tobacco daily or former daily tobacco users. We defined initiation as first use of the product, for daily consumption, based on the following questions: 'How old were you when you first started smoking tobacco daily?', 'How many years ago did you first start smoking tobacco daily?', 'How old were you when you started using smokeless tobacco daily?', 'How many years ago did you first start using smokeless tobacco daily?' This definition of initiation covered users who were either only smokers or SLT users and also dual users wherein the event of initiation of smoking or SLT have been considered as separate events. Age at tobacco initiation was divided into five categories from <15, 15-17 18-19, 20-34 and \geq 35 years. The sample description is provided for tobacco smoking and

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SLT use in Table 1. Demographic characteristics included sex (male and female) and residence status (Urban/Rural). Current age was divided into 5 categories from 15-24 to \geq 55 in intervals of 10 years. These data were disaggregated and age of initiation across five decades was examined based on these indicators.

171 Analysis

For descriptive analyses, we calculated the distribution of reported age of initiation of first daily-use among ever daily smokers and SLT users by type of tobacco viz. smoking and SLT, weighted proportions and 95% Confidence Intervals (CIs), among all survey respondents. We further analysed compared age of initiation for each tobacco type by sex (male/female) and residential status (urban/rural).

In order to obtain birth cohorts, we generated a new variable which was created by subtracting the age of participants from the survey year. For instance, the first birth cohort of Pakistan was obtained by subtracting the current age of 55 from the year to survey, 2014, to obtain the year 1959. Hence, providing a cohort of individuals born before 1959. Similarly, the latest cohort was from Bangladesh obtained by subtracting the current age of 15-24 from the survey year of 2017 to those individuals born between 1993 and 2002. We also calculated the difference in initiation between subsequent age-cohorts. The analysis was carried out using STATATM 14 version.(38) The data were weighted to provide national estimates and we adjusted for non-response.

Patients and/or the participants were not involved in the development of research question, design, or conduct, or reporting, or dissemination plans of this research as this study involves secondary research of the data collected in the GATS. The information collected in the GATS was used primarily for research where the personal identifiers were not disclosed and informed consent was obtained before the conduction of the survey. The dataset used in this

study is also available in the public domain from the Global Tobacco Surveillance System
Data (<u>https://www.cdc.gov/tobacco/global/gtss/gtssdata/index.html</u>).

Patient and public involvement

194 No patients were involved in the development of the research question, the outcome measures195 or the design of the study.

RESULTS

In our sample of 94651 adults aged 15 years and above from India, Bangladesh and Pakistan, 13,396 individuals provided information on ever daily tobacco smoking and 17,684 provided this information for ever daily SLT users (**Table 1**). Among these, 12208 were male smokers and 1188 females reported to be smokers. Further, 10483 were male SLT users and 7201 were female SLT users. Among the urban population, 4308 were smokers and 4928 were SLT users. The corresponding figures for rural population were 9088 and 12756 respectively.

Table 1: Respondents providing information on age of initiation of tobacco smoking and smokeless tobacco (N)*

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	India	Bangladesh		Pakistan
Full Sample	74,037	12,783	5	7,831
Overall response rate	92.9%	90.8%		81.0%
Person-level response rate	96.0%	93.8%	3	91.2%
Tobacco Smoking				
Ever daily smokers	9,472	2,943		981
Male	8,448 (90.6%)	2,862 (96.6%)		898 (91.8%)
Female	1,024 (9.4%)	81 (3.4%)		83 (8.2%)
Urban	2,479 (26%)	1,416 (24.3%)		413 (32%)
Rural	6,993 (74%)	1,527 (75.7%)		568 (68.0%)
Smokeless Tobacco				

Ever daily smokeless tobacco users	14,006	3,018	660
Male	8,843 (70.1%)	1,131 (38.3%)	509 (76.9%)
Female	5,163 (29.9%)	1,887 (61.7%)	151 (23.1%)
Urban	3,294 (24.7%)	1,342 (18.8%)	292 (34.9%)
Rural	10,712 (75.3%)	1,676 (81.2%)	368 (65.1%)

 * Percentage is weighted

207 Tobacco Smoking initiation

Figure 1 and 2 present the distribution of the proportion of individuals who initiated smoking and smokeless tobacco use across the birth cohorts for India, Bangladesh and Pakistan before the age 15, between the ages of 15-17 and between the ages of 18-19; respectively. Marked crude decrease in age of initiation is evident among ever daily smokers as the proportion of individuals initiating smoking before the age of 15 is increasing with each progressive cohort among the three nations.

214 Figure 1. Initiation of Smoking across birth cohorts in India, Pakistan and Bangladesh

Figure 2. Initiation of Smokeless tobacco use across birth cohorts in India, Pakistan and Bangladesh

For instance, in India, 22.2% (95% CI 15.83% to 30.31%) of individuals aged 15-24 at the time of interview, initiated smoking before the age of 15; compared to 40.3% (95% CI 32.18% to 49.03%) and 19.6% (95% CI 14.28% to 26.23%) initiating smoking during ages 15-17 and 18-19, respectively. Similarly, in Bangladesh, 19.2%% (95% CI 12.3% to 28.8%) of individuals aged 15-24 at the time of interview, initiated smoking before the age of 15, whereas 28.7% (95% CI 16.44% to 45.16%) of such individuals initiated smoking in Pakistan. Page 11 of 48

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In Bangladesh and Pakistan, a slight decline in the proportion of individuals initiating smoking before 15 is observed among the earlier cohorts, however, there is a gradual increase among the Indian population. For instance, in India, among those born between 1982 and 1991, about 20.0% (95% CI 16.99% to 23.37%) initiated smoking during ages 15-17; however, among those born between 1992-2001, 40.3% (95% CI 32.18% to 49.03%), initiated daily smoking before reaching adulthood. However, the increase is the sharpest in Pakistan, wherein among the birth cohort of 1980-89 (16.5%, 95% CI 11.13% to 23.78%) and 1990-99 (44.2%, 95% CI 28.53% to 61.2%), there is an increase of 168% (95% CI 156.33% to 157.36%) in the proportion of individuals who initiated smoking between the ages 15-17; translating to a rate of increase by 16.8% per year. While the proportion of initiation of tobacco smoking during the ages 18-19 is observed to be increasing among the later cohorts in India and Bangladesh, in Pakistan a decline is observed as most of the initiation is occurring before individuals reach adulthood.

Among those individuals who initiated tobacco smoking in the ages of 20-34 and \geq 35 [see supplementary table 1], there is a reduction in the relative change in initiation in all three nations. With each progressive cohort, a lesser proportion of individuals initiate tobacco smoking in the ages of 20-34 and \geq 35. This points to a rapid decrease in the ag e of initiation of tobacco smoking, most initiating use before adulthood or in early adolescence.

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Age of initiation of tobacco smoking by sex

While in all three nations, an increase in the proportion of those initiating smoking at <15 is apparent, compared to males from India and Pakistan, a higher increase in this proportion was observed among males in Bangladesh [see supplementary table 2]. A relative increase of 164.7% (95% CI 153.09% to 168.16%) is observed in the proportion of individuals who initiated smoking before the age of 15 between 1983-1992 (7.3%, 95% CI 4.86% to 10.74%)

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and 1993-2002 (19.2%, 95% CI 12.3% to 28.8%) in Bangladesh. Further, among those Indian
women who smoke, a prominent proportion is initiating tobacco smoking before the age of
15 (32%, 95% CI 10.97% to 64.24%), whereas most Indian males are initiating smoking in
the ages of 15-17 (41.3%, 95% CI 32.94% to 50.27%).

Among earlier cohorts, the rates of initiation are high even among those in the ages of 18-34 and \geq 35, however, a drastic decline is observed in the most recent cohorts across the three countries as most initiation occurs by the age of 18 among both males and females in more recent decades.

In the ages of 20-34, a higher rate of initiation is observed among Indian females and Indian males among individuals of older cohorts while a drastic decrease is observed in the most recent cohort as most initiation is occurring before the age of 18. Further, among Indian females, a high proportion of initiation of tobacco smoking is occurring even at the ages of \geq 35 with an exceedingly higher proportion of Indian women initiating use compared to men.

The rates of initiation at the age of 20-34 among males born in 1980-89 from Pakistan has declined by 74.6% from 49.4% (95% CI 39.32% to 59.59%) to 12.6% (95% CI 5.43% to 263 26.47%) among those born in 1990-99, pointing to a downward shift in the age of initiation. Our results for tobacco smoking initiation among females in Bangladesh and Pakistan are inconclusive due to the limited sample size availability.

266 Age of initiation of smoking by residential status

The trend of smoking initiation before the age of 18 in urban and rural regions follows a similar pattern with an apparent increase in the latest cohort and a higher proportion of rural individuals engaging in early smoking initiation. Even though in the latest cohort of 1992-2001, 43.4% (95% CI 33.8% to 53.59%) rural Indians initiated smoking between the ages 15-17, a higher relative increase of 129.3% in smoking initiation among urban Indians is

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observed from 14.7% (95% CI 9.87% to 21.23%) in 1982-91 to 33.6% (95% CI 20.62% to 49.69%) in 1992-2001 [see supplementary table 3].

However, in Bangladesh and Pakistan, a reverse pattern is observed as most initiation of tobacco smoking is occurring up to the age of 34 and a higher relative increase in early initiation in lower ages among recent cohorts is occurring among rural households. Among urban households, a U-pattern is observable in rates of smoking initiation among rural households between the ages 20-34 as among earlier cohorts, such as those born before 1962, a low proportion of initiation is observed in this age group, and it steadily increases among those born between 1963-1983 and sharply decreases among those in the recent cohorts, pointing to earlier initiation.

Further, a higher proportion of individuals from urban Bangladesh initiated tobacco smoking before \geq 35 when compared to urban populations from India and Bangladesh and rural populations from all three nations.

A substantial decrease in smoking initiation is observed among urban and rural populations in all three countries in majority of cohorts in the proportion of individuals initiating use in the ages \geq 35; as most initiation is occurring in ages 15-17 and 20-34.

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Smokeless Tobacco Use initiation

Figure 1 and 2 depict the distribution of the percentage of individuals who initiated SLT use before the age of 15, between the ages 15-17 and between 18-19, respectively, across 15 birth cohorts for the three countries. A clear distinction in the rates of initiation among the latest cohort is evident as a higher proportion initiates SLT use at <18 with each progressive cohort. While there is subsequent increase in rates of initiation by each decade, most apparent in the recent cohort, SLT initiation across adolescence and adulthood is dispersed. For instance, in case of Pakistan, among those between 1990-99, 38.6% (95% CI 24.71% to 54.55%) initiated

SLT use before reaching the age of 15, 33.4% (95% CI 19.82% to 50.53%) initiated SLT use
in the ages 15-17, followed by a decline and only 12.8% (95% CI 7.02% to 29.88%) initiating
SLT in the ages of 18-19 [see supplementary table 4].

While the rates of SLT use initiation are comparable (or even lower as in the case of Bangladesh), to smoking initiation at age <15; the relative increase in rates of SLT initiation among those aged 15-24 is drastically increasing in Bangladesh and Pakistan. For instance, in Pakistan, among those in birth cohort of 1980-89 and 1990-99, smoking initiation increased by 97.9% while SLT initiation increased by 377.2% at an annualised rate of 37.7%. Further, in Bangladesh among those who initiated SLT use at 20-34, the relative decrease in initiation is -42.6% whereas the same for smoking initiation is a decrease at -66.8%.

306 Age of initiation of smokeless tobacco use by sex

 Among males, a higher relative increase in SLT initiation by <15 is seen in India and Bangladesh. For instance, in Bangladesh, between the birth cohorts of 1983-92 and 1993-2002, among males, an increase of 118.9% is observed from 6.2% (95% CI 2.56% to 14.07%) to 13.5% (95% CI 3.36% to 41.01%); whereas an increase of 58.0% is observed among females born in the same period. A similar trend is observed among females in India, and a drastic increase in SLT initiation is characteristic of females in the latest birth cohorts of 1982-91 and 1991-2001 in India [see supplementary table 5].

In addition to this, among males in India, most initiation occurs before the age of 34, whereas among females, initiation of 27.4% (95% CI 25.33% to 29.59%) occurred in the ages of \geq 35. Similar trends are observed among women from Bangladesh. Further, while there was a decrease in smoking initiation among Indian females in the earlier cohorts followed by a rapid increase in the latest cohort, SLT initiation among this population is on an ever-increasing trajectory since the cohort of 1962-71. Further, a greater proportion of females

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from India are initiating SLT use before the age 15 at 35.8% (95% CI 27.55% to 44.98%) as compared to smoking (32%, 95% CI 10.97% to 64.24%). When compared to smoking initiation, a greater decline in initiation in the ages 20-34 and \geq 35 is observed in SLT initiation in India as most initiation is occurring at lower ages.

Further, among those initiating SLT use in the ages 20-34 and \geq 35, there is a steep decline in the proportion of initiation among both males and females. For instance, in Bangladesh, the rates of initiation of SLT use at the age of \geq 35, among females, was found to be declining by -45.4%, from 51.5% (95% CI 44.73% to 58.14%) to 28.1% (95% CI 22.66% to 34.26%) from the birth cohorts 1963-72 to 1973-82 and declining by -50.1% (from 37.7%, 95% CI 29.58% to 46.49%) to 18.8% (95% CI 13.01% to 26.35%) among the male counterparts. Our results for SLT initiation among females in Pakistan are inconclusive due to limited sample size availability.

332 Age of initiation of smokeless tobacco by residential status

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SLT initiation among urban and rural populations in all three nations show a comparable upward trend with respect to the proportion of individuals engaging in initiation before the age of 15 [see supplementary table 6]. Among the latest cohorts, the rates of initiation in this age group are consistently high. Compared to smoking initiation, higher increase in the proportion of SLT initiation is observed in urban India, Bangladesh and Pakistan among those initiating SLT use before 15. Similar trends are observed in rural India and Pakistan as more individuals initiate SLT use before 15 as compared to smoking. Most of the initiation is occurring by the ages of 20-34 in urban and rural India, Bangladesh and Pakistan. However, in Bangladesh a significant proportion of SLT use initiation among rural populations is occurring even at the ages of \geq 35.

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In addition to this, when the pattern of initiation in the ages <15 and 15-17 is inspected, it is observed that among rural Bangladeshis, a decline in the initiation is observed among those born before 1962 and those born between 1963-72 as most initiation among those born before 1962 is occurring between the ages of 20-34 and \geq 35; whereas in the recent cohorts the age of initiation is lowered, especially in rural households.

Among those initiating use in the ages 18-19, a contrast in SLT initiation is observed in urban Pakistan as while in India and Bangladesh, the trend of initiation in this age group is upward, a decline is observed in Pakistan as initiation is dispersed across the age groups and continues till \geq 35. Also, in this age group, as Pakistan observes an increase in smoking initiation in the cohort born between 1980-89 and between 1990-99, a significant decrease of 69.6% from 11.9% (95% CI 3.46% to 33.63%) to 3.6% (95% CI 0.76% to 15.45%) is observed in SLT initiation during the same time period.

In India, an undulating pattern of initiation in the age before 15 is observed, whereas an increase is observed between ages 15-19; followed by a drastic increase in initiation during ages 20-34. For instance, a substantial decrease in SLT initiation in the ages 20-34 is observed in the recent birth cohorts in rural and urban India, with a sharp decrease from 51.8% (95% CI 48.76% to 54.89%) among those born between 1982-91 to 14.4% (95% CI 11.01% to 18.49%) in rural India. Initiation among SLT users at the age of \geq 35 in all three countries in almost all cohorts is decreasing as most initiation is occurring in adolescence and early adulthood.

365 Timeline of tobacco control policy in India, Bangladesh and 366 Pakistan

A timeline of major tobacco control legislation in India, Pakistan and Bangladesh is illustrated in the supplementary material. A common regulation were existing till 1947 in all three countries before the creation of independent nations, and Pakistan and Bangladesh (as East Pakistan) sharing shared and inherited legislation and policy till 1972. The earliest legislation in India, Bangladesh and Pakistan viewed tobacco as a viable source of revenue from taxes and exports and instituted laws on excise duties, conditions of employment and encouraged tobacco cropping with limited regulation and control.(39-47). The earliest legislation to tobacco control use focused primarily on smoked tobacco products (Bidi in Bangladesh(48) and Cigarettes and zarda in India(49) and cigarettes and bidi in Pakistan).(50) Bangladesh banned the manufacture of bidi and trade of tendu leaf used for making bidis in 1976, it thereby eliminated the single largest smoked product then in the country. India ushered text warnings for cigarettes and zarda in 1975 (see Appendix Figure 1).

Guidelines in India and Pakistan primarily required the display of health warning labels (HWLs) on packaging and had limited provisions due to several drawbacks, such as the exclusion of smokeless tobacco products and other regional variants. Several attempts to control tobacco were undertaken by India including the banning of smoking or spitting in a public vehicle in the years of 1988, 1989, (51,52) strengthening consumer rights' and instituting legislation on mandatory display of quality, content and manner of use of any products in 1986(53), banning sale of toothpastes and toothpowders containing tobacco (1940)(54) and regulating the depiction and display of tobacco products in media, including advertisements in years 1991 and 1994(55,56). Although primarily focused on cigarettes, the

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389 Government of Pakistan also developed strategies on tobacco control by printing HWLs and 390 advertisements in the early 2000s in the years 2002, 2003(57,58).

In 2003, the Indian Parliament passed the landmark bill 'Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Bill which formed the foundation of all future tobacco control action. This Bill became an Act in May 2003, whereas rules were enforced from 2004.(59) The Cigarettes Act of 1975 was repealed to bring forth this new and comprehensive law which included prohibitions on public smoking, restrictions on advertisement of cigarette and tobacco products; including at the point-of-sale(59), regulation on depiction in media(60), sale of tobacco products to and by a minor, ban on sale of tobacco products within 100 yards of all education institutions, and mandatory display of pictorial health warnings on tobacco product packaging(61,62). Since 2003-04, this Act has evolved, with several amendments and revisions in its regulations to strengthen tobacco control in India.

In 2004, India, Bangladesh and Pakistan ratified the WHO-FCTC, a global tobacco control
instrument of primary importance as it provides strategies and measures for reduction in
tobacco demand and supply; and enable effective tobacco control.(63)

As signatories to the WHO-FCTC, these countries have undertaken significant steps towards tobacco control, especially that of SLT by utilising existing laws and norms to implement bans such as the Food Safety and Standards (Prohibition and Restrictions on Sales) Regulations in India,(64) and by devising various sub-national policies and taxation laws to undertake robust tobacco control.(65–74)

DISCUSSION

The findings from this study reveal that there is an escalating decline in the age of initiation of smoking and SLT use as a substantial proportion of adults from India, Bangladesh and Pakistan, who have been ever-daily smokers or SLT users, male or female from urban or rural households, reported initiating daily use of the products before adulthood. Rates of SLT initiation are comparable to smoking initiation at age <15, however, a higher increase in rates of SLT initiation among the younger cohorts aged 15-24 is observed; especially in India and Pakistan. Males and females reported daily usage of tobacco products at similar ages, during adolescence and early adulthood whereas lower rates of decline in SLT initiation are observed among Indian females as compared to males. Populations from urban and rural households show similar trends in tobacco initiation, with higher increase in proportion of SLT initiation in urban Pakistan, urban India and urban Bangladesh among those initiating tobacco use before 15. Our findings are consistent with recent patterns of tobacco initiation as observed in longitudinal as well as cross-sectional studies across several nations, including in South-east Asia.(12,22,29,75,76)

Further, we discovered that SLT use initiation among women is scattered and a considerable proportion initiated use throughout life. We speculate that this behaviour could be due to increased stress and demand from various roles and responsibilities should red by women in early and middle adulthood such as child-rearing, farm labour, and familial responsibilities. Women may also initiate SLT use during pregnancy due to myths associated with the falsely ascribed positive health effects of SLT products.(77) Further, tobacco companies often market these substances as a 'torch of freedom' and as a symbol of an emancipated and a progressive woman(78,79). Women often opt for smokeless tobacco products as SLT enjoys a social sanction due to its ritualistic importance and perception of it being less harmful than

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> smoking; especially in South-East Asia.(80) It is especially crucial to understand tobacco use among women as it invariably affects the coming generations and may lead to morbidities and mortalities as maternal smoking has been identified as a significant predictor to smoking behaviours in the child(9). Further, to bolster the declarations and efforts by political leaders such as Sheikh Hasina towards achieving a tobacco-free Bangladesh by the year 2040 such understanding is essential(81).

Our findings suggest that youth aged <15 and between the ages 15-17 especially females, in addition to individuals from urban households are a priority population for tobacco prevention interventions. Delaying age of initiation is crucial to prevent long-term tobacco addiction, as exposure during adolescence and childhood may potentially lead to a lifetime of persistent tobacco use. Our brief policy review suggests that till the beginning of 21st century the tobacco control policies in all three countries did not even had restrictions on same to and by minors. The age cohort of 80s and 90s has also witnessed to the globalization that has glamourized tobacco use. Moreover, in the environment of widespread direct and indirect advertising of tobacco products and other violations of tobacco control laws due to lack of enforcement(82,83), contributed to early imitation of tobacco use among adolescent and young adults in the region. However, an important facet of tobacco use is its social and cultural impact which remains largely amiss from policy discourse. The social context built by tobacco use wherein an individual may be exposed to use during their formative years via parental consumption and the influence of their peers, may affect their sensitivity towards initiation and policies must focus on addressing familial and societal tobacco use when nudging an individual towards cessation. These triggers and milieu may hamper an individual's own choice in abstaining from tobacco use and may also prevent successful cessation.

Page 21 of 48

BMJ Open

460 It is essential to understand the historical career of a substance and that of the users, wherein 461 the social and cultural characteristics of a substance need to be understood in addition to the 462 societal position of an individual(84). There is a need to develop interventions to prevent and 463 enable cessation of tobacco use that understand substance use as a choice made by 464 autonomous individuals based on their socially constructed realities.

465 Our findings reinforce the importance of robust and comprehensive laws and frameworks to
466 reduce and regulate tobacco availability, affordability, advertisement and marketing, in
467 addition to increasing high-impact youth-centric tobacco education campaigns.

Further, the SARS-CoV-2 pandemic has brought to attention the importance of inspecting risk of non-communicable diseases, wherein tobacco use is a significant risk factor. In this backdrop, it is essential to explore substance use behaviours as studies had previously emerged claiming that tobacco use and smoking may provide protective effects against COVID-19 which were later retracted owing to tobacco industry interference.(85,86) Hence, patterns of initiation among the surge of misinformation are essential to be explored, especially among vulnerable populations and further research and data surveillance is warranted.

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This study is one of the first aimed to examine patterns of initiation across three nations of
India, Bangladesh and Pakistan for both smoking and smokeless tobacco initiation. However,
there are several limitations.

First, the dataset utilized for this study is the Global Adult Tobacco Survey, which is an excellent source of global data on adult tobacco use across many facets. However, especially vulnerable populations such as institutionalised individuals and crucial details as on migration status have not been included and thus, the study findings are not generalizable to those. Second, the survey collects self-reported data, subject to recall error and reporting bias.

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> Third, cross sectional data has been utilised and may not provide an accurate representation of initiation especially of later cohorts as prevalence may be reduced due to mortality or quitting and does not allow drawing inferences on causality. Fourth, the data may be subjected to phenomena such as age-heaping and socially desirable responses wherein an individual may conceal the true age of initiation and modified their answers in response to their impression management tendencies. We have not considered SES while analysing the trends across three countries which could be a potential area of future research.

Nevertheless, we have provided substantial detail on initiation patterns through cohort-analysis, and identified priority populations for tobacco control interventions. The strengths of the study include nationally representative estimates, a large sample size and cross-country examination. The current study examined smoked and smokeless tobacco use initiation, however, patterns of initiation dual use also need to be examined as quit intentions among dual-users are low(6). The detailed patterns of tobacco use can be identified and studied effectively by regular collection of data. These data remain to be incomplete or non-existent in many facets, and these may be under-estimated or inaccurate due to limitations of the existing surveillance systems. In order to enable the development of effective interventions, identification of vulnerable and at-risk population groups is critical for which routine surveillance data need to be strengthened.

Conflict of interest

503 On behalf of all authors, the corresponding author states that there is no conflict of interest.

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507 Data availability statement

508 Data are available in a public, open access repository. Data are available upon reasonable 509 request. Data used by the study are available by emailing prashants.geo@gmail.com

510 Ethics Approval

All rounds of Global Adult Tobacco Survey obtained ethical clearance from their respective implementation agencies in all three countries. No ethics clearance was required for this study, as we performed a secondary data analysis using publicly available data.

514 Contributors

LS, PKS conceived the study. LS and PJ performed the statistical analysis. PJ and LS analysed and interpreted the data. PJ, LS and PKS drafted the manuscript. CK, AS, PL, AY and SS provided comments and contributed to the development of the final draft of the manuscript. All authors have supervised and approved the manuscript

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Figure 1: Showing the initiation of smoking among male, female, urban and rural areas in

Figure 2: Showing the initiation of smokeless tobacco use among male, female, urban and

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FIGURES

India, Pakistan and Bangladesh

rural areas in India, Pakistan and Bangladesh

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1 2		
- 3 4 5	726	
5 6 7 8	727	Supporting Material
9 10 11	728	Supplementary Table 1. Initiation of smoking across different birth cohorts in Bangladesh,
12 13	729	India and Pakistan (overall)
14 15 16	730	Supplementary Table 2. Male-female difference in smoking initiation across different birth
17 18 19	731	cohorts in Bangladesh, India and Pakistan
20 21	732	Supplementary Table 3. Urban-rural difference in smoking initiation across different birth
22 23 24	733	cohorts in Bangladesh, India and Pakistan
25 26	734	Supplementary Table 4. Initiation of smokeless tobacco across different birth cohorts in
27 28 29	735	Bangladesh, India and Pakistan (overall)
30 31 32 33 34 35 36 37 38 39 40 41	736	Supplementary Table 5. Male-female difference in smokeless tobacco initiation across
	737	different birth cohorts in Bangladesh, India and Pakistan
	738	Supplementary Table 6. Urban-rural difference in smoking initiation across different birth
	739	cohorts in Bangladesh, India and Pakistan
	740	Appendix Figure 1: Showing policy progress in tobacco control
42 43 44	741	
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Bangladesh		1. Initiation		ing acro	55 uniciell	India	Daligia	uesii, illuid d			1411)	<u> </u>					
Year	Туре	Age at initiation	%	lb	ub	Year	Туре	Age at initiation	%	lb	ub	Yearo De	Туре	Age at initiation	%	lb	uł
Before 1962	All	<15	11.7	9.24	14.71	Before 1961	All	<15	7.69	6.44	9.17	Before 5959	All	<15	10.71	6.58	16
1963-1972	All	<15	9.09	6.53	12.52	1962-1971	All	<15	5.96	4.65	7.62	1960 - 80 - 80	All	<15	6.65	3.54	12
1973-1982	All	<15	5.4	3.69	7.82	1972-1981	All	<15	7.76	6.18	9.71	1970 a 978	All	<15	6.76	3.83	11
1983-1992	All	<15	7.3	4.9	10.76	1982-1991	All	<15	9.04	6.96	11.68	1980 ၌ 🖧 👳	All	<15	14.5	9.13	22
1993-2002	All	<15	19.24	12.3	28.8	1992-2001	All	<15	22.24	15.83	30.31	1990 A	All	<15	28.7	16.44	45
Before 1962	All	15-17	24.48	20.45	29.02	Before 1961	All	15-17	15.32	13.47	17.37	Before 1989	All	15-17	17.11	11.52	24
1963-1972	All	15-17	24.02	18.76	30.21	1962-1971	All	15-17	17.82	15.11	20.89	1960 ਜ 96	All	15-17	12.94	8.21	19
1973-1982	All	15-17	16.81	13.44	20.82	1972-1981	All	15-17	18.93	16.36	21.8	1970 - 1970	All	15-17	15.32	10.75	21
1983-1992	All	15-17	21.92	17.78	26.7	1982-1991	All	15-17	19.99	16.99	23.37	1980 <u>–</u>	All	15-17	16.51	11.13	23
1993-2002	All	15-17	37.31	26.65	49.37	1992-2001	All	15-17	40.32	32.18	49.03	1990 - 1 99 <mark>5</mark>	All	15-17	44.24	28.53	61
Before 1962	All	18-19	12.57	9.55	16.37	Before 1961	All	18-19	7.56	6.34	8.98	Before 1999	All	18-19	12.22	8.21	17
1963-1972	All	18-19	13.86	10.16	18.62	1962-1971	All	18-19	12.93	10.62	15.65	1960 a 96	All	18-19	11.6	7.28	17
1973-1982	All	18-19	16.53	13.08	20.68	1972-1981	All	18-19	11.78	9.94	13.92	1970 a 97 <mark>9</mark>	All	18-19	18.29	12.34	26
1983-1992	All	18-19	19.8	15.61	24.79	1982-1991	All	18-19	16.43	13.79	19.47	1980 9 98 <mark>9</mark>	All	18-19	18.86	12.59	27
1993-2002	All	18-19	26.53	18.97	35.78	1992-2001	All	18-19	19.57	14.28	26.23	1990 <u>ज</u>़ 99 <mark>8</mark>	All	18-19	14.99	7.31	28
Before 1962	All	20-34	46.31	41.49	51.21	Before 1961	All	20-34	51.35	48.7	54	Before 1959	All	20-34	47.74	39.76	55
1963-1972	All	20-34	49.65	43.72	55.59	1962-1971	All	20-34	53.9	50.39	57.38	1960 - 96 2	All	20-34	58.85	50.36	66
1973-1982	All	20-34	59.26	53.46	64.82	1972-1981	All	20-34	56.86	53.45	60.19	1970 - 19700 - 197	All	20-34	54.58	46.23	62
1983-1992	All	20-34	50.98	45.31	56.61	1982-1991	All	20-34	54.54	50.5	58.52	1980 ခ 98	All	20-34	50.14	40.39	59
1993-2002	All	20-34	16.92	10.17	26.79	1992-2001	All	20-34	17.88	12.05	25.7	1990 – 99 8	All	20-34	12.07	5.22	25
Before 1962	All	≥35	4.93	3.28	7.36	Before 1961	All	≥35	18.08	16.07	20.28	Before 19	All	≥35	12.22	7.92	18
1963-1972	All	≥35	3.37	1.93	5.82	1962-1971	All	≥35	9.39	7.4	11.83	1960-196	All	≥35	9.96	5.98	16
1973-1982	All	≥35	2	0.91	4.33	1972-1981	All	≥35	4.67	3.13	6.92	1970-197 8	All	≥35	5.05	2.49	10
1983-1992	All	≥35	0	0	0	1982-1991	All	≥35	0	0	0	1980-198 6	All	≥35	0	0	0
1993-2002	All	≥35	0	0	0	1992-2001	All	≥35	0	0	0	1990-199	All	≥35	0	0	0

Page	37	of 48	

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37 of 48								BMJ Open				njopen-2022-0 by copyright,					
Supplementary	Table 2. Ma	le-female dif	ference i	n smokir	ng initiation	n across different l	oirth cohor	ts in Banglad	esh, India	a and Pak	tistan	67875 o					
Bangladesh						India						Paki an S					
Year	Туре	Age at initiation	%	lb	ub	Year	Туре	Age at initiation	%	lb	ub	for Dec	Туре	Age at initiation	%	lb	uł
Before 1962	Male	<15	11.63	9.1	14.76	Before 1961	Male	<15	7.14	5.86	8.66	Before (95)	Male	<15	11.76	7.12	18
1963-1972	Male	<15	8.43	5.91	11.87	1962-1971	Male	<15	5.68	4.32	7.44	1960 at \$5	Male	<15	6.99	3.62	13
1973-1982	Male	<15	5.09	3.42	7.5	1972-1981	Male	<15	7.52	5.89	9.55	1970	Male	<15	7.07	4.01	12
1983-1992	Male	<15	7.27	4.86	10.74	1982-1991	Male	<15	8.89	6.76	11.6	1980 9	Male	<15	14.55	9.01	22
1993-2002	Male	<15	19.24	12.3	28.8	1992-2001	Male	<15	21.87	15.33	30.2	1990 21 (9)	Male	<15	29.9	17.14	46
Before 1962	Male	15-17	24.62	20.41	29.39	Before 1961	Male	15-17	15.58	13.61	17.78	Before 1989	Male	15-17	19.38	13.05	27
1963-1972	Male	15-17	24.06	18.71	30.37	1962-1971	Male	15-17	17.65	14.8	20.9	1960 ය ශිරී	Male	15-17	14.11	8.87	21
1973-1982	Male	15-17	16.86	13.46	20.91	1972-1981	Male	15-17	19.46	16.79	22.45	1970	Male	15-17	16.04	11.25	22
1983-1992	Male	15-17	21.88	17.74	26.68	1982-1991	Male	15-17	20.53	17.42	24.03	1980 2.005	Male	15-17	17.22	11.57	24
1993-2002	Male	15-17	37.31	26.65	49.37	1992-2001	Male	15-17	41.34	32.94	50.27	1990-1999	Male	15-17	41.92	26.12	59
Before 1962	Male	18-19	13.43	10.17	17.52	Before 1961	Male	18-19	8.35	6.98	9.96	Befor 19	Male	18-19	13.71	9.16	20
1963-1972	Male	18-19	14.22	10.43	19.1	1962-1971	Male	18-19	14.08	11.55	17.06	1960 - 96 - 96 - 96 - 96 - 96 - 96 - 96 -	Male	18-19	13	8.18	20
1973-1982	Male	18-19	16.71	13.22	20.9	1972-1981	Male	18-19	12.39	10.43	14.66	1970 97	Male	18-19	17.73	11.69	25
1983-1992	Male	18-19	19.84	15.64	24.84	1982-1991	Male	18-19	16.79	14.08	19.9	1980 9 98	Male	18-19	18.8	12.35	27
1993-2002	Male	18-19	26.53	18.97	35.78	1992-2001	Male	18-19	19.3	13.93	26.11	1990 <u>ø</u>199<mark>&</mark>	Male	18-19	15.61	7.61	29
Before 1962	Male	20-34	47.33	42.28	52.44	Before 1961	Male	20-34	54.91	52.07	57.72	Before 1929	Male	20-34	47.26	38.62	56
1963-1972	Male	20-34	49.96	43.92	56.01	1962-1971	Male	20-34	55.64	51.92	59.31	1960 - 962	Male	20-34	57.53	48.5	66
1973-1982	Male	20-34	59.72	53.9	65.28	1972-1981	Male	20-34	57.07	53.56	60.52	1970 1970 L	Male	20-34	54.93	46.33	63
1983-1992	Male	20-34	51.01	45.34	56.66	1982-1991	Male	20-34	53.79	49.67	57.87	1980 298 28	Male	20-34	49.43	39.32	59
1993-2002	Male	20-34	16.92	10.17	26.79	1992-2001	Male	20-34	17.49	11.58	25.53	1990 a 99 2	Male	20-34	12.57	5.43	26
Before 1962	Male	≥35	2.98	1.93	4.58	Before 1961	Male	≥35	14.02	12.08	16.22	Before 19	Male	≥35	7.88	4.47	13
1963-1972	Male	≥35	3.33	1.87	5.85	1962-1971	Male	≥35	6.95	5.2	9.23	1960-196 &	Male	≥35	8.37	4.6	14
1973-1982	Male	≥35	1.63	0.69	3.79	1972-1981	Male	≥35	3.56	2.2	5.69	1970-197 8	Male	≥35	4.23	1.86	9.
1983-1992	Male	≥35	0	0	0	1982-1991	Male	≥35	0	0	0	ው 1980-198 ም	Male	≥35	0	0	0
1993-2002	Male	≥35	0	0	0	1992-2001	Male	≥35	0	0	0	1990-199 5	Male	≥35	0	0	0
Before 1962	Female	<15	12.36	5.09	27.04	Before 1961	Female	<15	11.12	7.33	16.52	Before 1989	Female	<15	3.32	0.77	13
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1 2)22-067 ight, ir					
3	1963-1972	Female	<15	34.44	13.53	63.81	1962-1971	Female	<15	8.63	4.78	15.09	1960 a 96 %	Female	<15	3.78	0.49	23.81
4 5	1973-1982	Female	<15	34.8	8.55	75.29	1972-1981	Female	<15	10.99	5.75	20	1970 1979	Female	<15	0	0	0
6	1983-1992	Female	<15	26.75	4.47	74	1982-1991	Female	<15	12.63	5.19	27.63	1980 0 1980	Female	<15	13.27	3.01	43
7	1993-2002	Female	<15	0	0	0	1992-2001	Female	<15	31.99	10.97	64.24	1990 5 79 8	Female	<15	0	0	0
8 0	Before 1962	Female	15-17	0	0	0	Before 1961	Female	15-17	13.7	9.1	20.11	Before a go	Female	15-17	100	-	-
) 10	1963-1972	Female	15-17	39.73	5.73	87.73	1962-1971	Female	15-17	19.47	11.99	30.02	1960 a 26 2	Female	15-17	1.74	0.22	12.67
11	1973-1982	Female	15-17	12.35	1.47	57.09	1972-1981	Female	15-17	11.8	4.96	25.55	1970 G 27 %	Female	15-17	0	0	0
12	1983-1992	Female	15-17	22.65	5.59	59.16	1982-1991	Female	15-17	7.52	3.39	15.84		Female	15-17	3.28	0.43	21.21
13 14	1993-2002	Female	15-17	23.05	11.65	40.48	1992-2001	Female	15-17	12.94	3.98	34.8	1990	Female	15-17	1.2	0.16	8.56
15	Before 1962	Female	18-19	4.03	0.82	17.57	Before 1961	Female	18-19	2.67	1.25	5.59	Before B	Female	18-19	1.78	0.23	12.27
16	1963-1972	Female	18-19	0	0	0	1962-1971	Female	18-19	2.05	0.85	4.87	1960 a g 56 6	Female	18-19	0	0	0
17 19	1973-1982	Female	18-19	0	0	0	1972-1981	Female	18-19	3.64	1.15	10.88	1970 1 970 1 970	Female	18-19	30.19	8.88	65.73
10	1983-1992	Female	18-19	0	0	0	1982-1991	Female	18-19	8.08	1.43	34.78	1980] & 	Female	18-19	20.08	4.78	55.72
20	1993-2002	Female	18-19	0	0	0	1992-2001	Female	18-19	26.85	7.34	62.96	1990 1998	Female	18-19	0	0	0
21	Before 1962	Female	20-34	36.18	21.97	53.3	Before 1961	Female	20-34	29.38	23.18	36.47	Before 1939	Female	20-34	51.09	31.29	70.56
22 23	1963-1972	Female	20-34	37.91	13.95	69.69	1962-1971	Female	20-34	37.48	27.89	48.16	1960 a .96 <mark>%</mark>	Female	20-34	69.85	44.13	87.17
23 24	1973-1982	Female	20-34	16.02	2.53	58.33	1972-1981	Female	20-34	53.95	40.69	66.67	1970 - 978	Female	20-34	47.08	19.08	77.04
25	1983-1992	Female	20-34	33.53	4.34	84.86	1982-1991	Female	20-34	71.77	52.45	85.42	1980 a 98 <mark>9</mark> .	Female	20-34	64.9	33.86	86.98
26	1993-2002	Female	20-34	0	0	0	1992-2001	Female	20-34	28.21	7.6	65.26	1990 	Female	20-34	0	0	0
27 28	Before 1962	Female	≥35	24.38	12.04	43.15	Before 1961	Female	≥35	43.12	36.1	50.44	Before 1969	Female	≥35	42.62	23.75	63.91
29	1963-1972	Female	≥35	5	1.04	20.94	1962-1971	Female	≥35	32.37	22.33	44.35	1960 gt 969	Female	≥35	23.08	8.32	49.82
30	1973-1982	Female	≥35	36.84	6.14	83.86	1972-1981	Female	≥35	19.62	9.75	35.56	1970 - 97%	Female	≥35	22.73	5.59	59.4
31	1983-1992	Female	≥35				1982-1991	Female	≥35	0	0	0	1980 g 989	Female	≥35			
32 33	1993-2002	Female	≥35				1992-2001	Female	≥35	0	0	0	1990 8 998	Female	≥35			
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Page 38 of 48

Page	39	of 48	
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39 of 48								BMJ Oper				njopen-2022-(by copyright					
Supplementary	Table 3. Ur	ban-rural dif	ference in	n smokin	g initiation	across different bi	rth cohort	s in Banglade	sh, India	and Pak	istan	, includii					
Bangladesh		Age at				India		Age at				Pakigtan 5 9 9 9		Age at			
Year	Туре	initiation	%	lb	ub	Year	Туре	initiation	%	lb	ub	Year T	Туре	initiation	%	lb	
Before 1962	Urban	<15	7.1	4.46	11.13	Before 1961	Urban	<15	5.45	3.42	8.59	Befoie 0939	Urban	<15	6.56	3.01	
1963-1972	Urban	<15	6.28	3.07	12.43	1962-1971	Urban	<15	5.53	3.29	9.16	1960 a 5 2	Urban	<15	8.16	2.7	
1973-1982	Urban	<15	4.94	3.1	7.79	1972-1981	Urban	<15	10.3	6.81	15.28	1970 a 27	Urban	<15	4.58	1.81	
1983-1992	Urban	<15	5.75	3.65	8.96	1982-1991	Urban	<15	9.78	5.21	17.6	1980 -1980 -0 6 00	Urban	<15	9.25	3.7	
1993-2002	Urban	<15	17.01	8.46	31.24	1992-2001	Urban	<15	22.77	10.59	42.33	1990	Urban	<15	20.51	8.37	
Before 1962	Urban	15-17	19.12	13.31	26.67	Before 1961	Urban	15-17	12.63	9.12	17.24	Before #989	Urban	15-17	18.49	8.81	
1963-1972	Urban	15-17	19.82	14.06	27.19	1962-1971	Urban	15-17	16.97	11.73	23.9	1960 a 56 a	Urban	15-17	7.15	3.56	
1973-1982	Urban	15-17	16.86	10.87	25.22	1972-1981	Urban	15-17	17.33	13.17	22.47	1970 - 1 2 5	Urban	15-17	11.86	6.11	
1983-1992	Urban	15-17	22.11	15.72	30.18	1982-1991	Urban	15-17	14.66	9.87	21.23	1980 ၌ 365	Urban	15-17	15.19	7.73	
1993-2002	Urban	15-17	36.57	17.03	61.82	1992-2001	Urban	15-17	33.62	20.62	49.69	1990 - 1999	Urban	15-17	38.09	13.33	
Before 1962	Urban	18-19	14.86	8.94	23.68	Before 1961	Urban	18-19	8.91	5.97	13.1	Before 1959	Urban	18-19	9.4	4.56	
1963-1972	Urban	18-19	16.37	8.74	28.58	1962-1971	Urban	18-19	12.2	8.33	17.52	1960 a 96 8	Urban	18-19	14.16	7.01	
1973-1982	Urban	18-19	10.31	6.37	16.26	1972-1981	Urban	18-19	13.02	9.66	17.32	1970 3 197	Urban	18-19	15.36	7.87	
1983-1992	Urban	18-19	22.08	14.76	31.66	1982-1991	Urban	18-19	20.53	14.67	27.97	1980	Urban	18-19	15.01	7.23	
1993-2002	Urban	18-19	36.09	20.9	54.68	1992-2001	Urban	18-19	13.98	7.43	24.77	1990 <mark>%]</mark> 99 <mark>%</mark>	Urban	18-19	17.54	5.15	
Before 1962	Urban	20-34	55.52	46.26	64.4	Before 1961	Urban	20-34	54.76	48.76	60.62	Before 1959	Urban	20-34	50.09	35.21	
1963-1972	Urban	20-34	53.42	43.38	63.19	1962-1971	Urban	20-34	55.96	48.85	62.83	1960 1962	Urban	20-34	54.04	40.18	
1973-1982	Urban	20-34	66.99	55.12	77.03	1972-1981	Urban	20-34	56	49.82	61.99	1970 - 19700 - 197	Urban	20-34	65.27	52.51	
1983-1992	Urban	20-34	50.06	41.06	59.05	1982-1991	Urban	20-34	55.03	46.72	63.07	1980 8 98 %	Urban	20-34	60.55	43.53	
1993-2002	Urban	20-34	10.34	4.46	22.16	1992-2001	Urban	20-34	29.63	16.21	47.81	1990 6 199 8	Urban	20-34	23.85	8.79	
Before 1962	Urban	≥35	3.41	1.73	6.62	Before 1961	Urban	≥35	18.24	14.05	23.35	Before 1999	Urban	≥35	15.46	7.45	
1963-1972	Urban	≥35	4.1	2.06	7.99	1962-1971	Urban	≥35	9.34	5.48	15.49	1960-196	Urban	≥35	16.5	7.93	
1973-1982	Urban	≥35	0.9	0.3	2.66	1972-1981	Urban	≥35	3.36	1.68	6.61	1970-197 8 2	Urban	≥35	2.93	0.75	
1983-1992	Urban	≥35	0	0	0	1982-1991	Urban	≥35	0	0	0	1980-198	Urban	≥35	0	0	
1993-2002	Urban	≥35	0	0	0	1992-2001	Urban	≥35	0	0	0	1990-199 8	Urban	≥35	0	0	
Before 1962	Rural	<15	12.72	9.81	16.34	Before 1961	Rural	<15	8.34	6.88	10.07	Before 1989	Rural	<15	13.19	7.4	
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Page	40 c	of 48
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3	1963-1972	Rural	<15	9.8	6.78	13.96	1962-1971	Rural	<15	6.12	4.61	8.09	1960 E 96 %	Rural	<15	5.98	2.78	12.39
4 5	1973-1982	Rural	<15	5.57	3.43	8.93	1972-1981	Rural	<15	6.69	5.14	8.65	1970 2 197 9	Rural	<15	7.78	3.94	14.8
6	1983-1992	Rural	<15	7.93	4.81	12.81	1982-1991	Rural	<15	8.78	6.69	11.45	1980 ē 1989	Rural	<15	16.29	9.64	26.21
7	1993-2002	Rural	<15	20.33	11.56	33.27	1992-2001	Rural	<15	21.99	15.37	30.43	1990 61 99 88	Rural	<15	31.72	16.4	52.39
8 0	Before 1962	Rural	15-17	25.67	20.99	30.99	Before 1961	Rural	15-17	16.09	14	18.44	Before (90)	Rural	15-17	16.27	10.39	24.58
10	1963-1972	Rural	15-17	25.08	18.8	32.62	1962-1971	Rural	15-17	18.13	15.09	21.63	1960 au 26 %	Rural	15-17	15.5	9.13	25.08
11	1973-1982	Rural	15-17	16.79	12.91	21.55	1972-1981	Rural	15-17	19.61	16.49	23.15	1970 6	Rural	15-17	16.94	11.09	25.01
12	1983-1992	Rural	15-17	21.84	16.79	27.88	1982-1991	Rural	15-17	21.86	18.29	25.91	1980	Rural	15-17	16.95	10.53	26.15
13 14	1993-2002	Rural	15-17	37.68	26.05	50.92	1992-2001	Rural	15-17	43.43	33.8	53.59	1990	Rural	15-17	46.51	27.91	66.14
15	Before 1962	Rural	18-19	12.06	8.74	16.42	Before 1961	Rural	18-19	7.17	5.92	8.64	Before 5929	Rural	18-19	13.92	8.66	21.61
16	1963-1972	Rural	18-19	13.23	9.24	18.57	1962-1971	Rural	18-19	13.19	10.47	16.49	1960 an 56 6	Rural	18-19	10.48	5.63	18.67
17	1973-1982	Rural	18-19	18.98	14.71	24.14	1972-1981	Rural	18-19	11.26	9.14	13.8	1970 - 1970	Rural	18-19	19.66	12.1	30.3
18	1983-1992	Rural	18-19	18.89	14.04	24.93	1982-1991	Rural	18-19	14.99	12.22	18.26	1980	Rural	18-19	20.18	12.55	30.81
20	1993-2002	Rural	18-19	21.85	13.79	32.83	1992-2001	Rural	18-19	22.18	15.46	30.75	1990-199	Rural	18-19	14.04	5.71	30.6
21	Before 1962	Rural	20-34	20.14	11.15	33.64	Before 1961	Rural	20-34	12.4	7.7	19.37	Before 1959	Rural	20-34	7.72	1.81	27.5
22 22	1963-1972	Rural	20-34	51.35	44.3	58.34	1962-1971	Rural	20-34	54.36	49.74	58.92	1960 1968	Rural	20-34	46.58	35.19	58.33
23	1973-1982	Rural	20-34	56.23	50.04	62.22	1972-1981	Rural	20-34	57.22	53.13	61.21	1970 - 1978	Rural	20-34	49.57	39	60.18
25	1983-1992	Rural	20-34	48.71	41.76	55.7	1982-1991	Rural	20-34	53.16	49.1	57.17	1980 a 1989.	Rural	20-34	60.97	50.39	70.61
26	1993-2002	Rural	20-34	44.27	38.8	49.88	1992-2001	Rural	20-34	50.37	47.42	53.32	1990 2 199	Rural	20-34	46.33	37.46	55.44
27 28	Before 1962	Rural	≥35	5.27	3.34	8.24	Before 1961	Rural	≥35	18.03	15.8	20.51	Before 1959	Rural	≥35	10.29	6.14	16.74
29	1963-1972	Rural	≥35	3.19	1.58	6.34	1962-1971	Rural	≥35	9.4	7.24	12.11	1960	Rural	≥35	7.07	3.52	13.7
30	1973-1982	Rural	≥35	2.43	1.01	5.77	1972-1981	Rural	≥35	5.22	3.25	8.28	1970 - 1978	Rural	≥35	6.05	2.67	13.12
31	1983-1992	Rural	≥35	0	0	0	1982-1991	Rural	≥35	0	0	0	1980 0 989	Rural	≥35	0	0	0
32	1993-2002	Rural	<u>≥</u> 35	0	0	0	1992-2001	Rural	≥35	0	0	0	1990 0 99 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199 0 199	Rural	≥35	0	0	0
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e 41 of 48 Supplementa	ry Tabl	• 4. Initiation	a of smol	celess tob		ss different birth	cohorts	BMJ Oper	sh India	and Pak	istan (over:	njopen-2022-067875 o 1 by copyright, includi					
<u>India</u>			1 01 01101	101000 000		Pakistan	• • • • • • • •		,	unu i un		Bangaladesh					
Year	Туре	Age at initiation	%	lb	ub	Year	Туре	Age at initiation	%	lb	ub	Yeage	Туре	Age at initiation	%	lb	ub
Before 1961	All	<15	8.89	7.63	10.3 4	Before 1959	All	<15	6.28	3.14	12.1 5	s retain 1962	All	<15	4.97	3.49	7.04
1962-1971	All	<15	6.96	5.69	8.48	1960-1969	All	<15	5.96	2.65	12.8 8	19670 19672	All	<15	5.14	3.15	8.2
1972-1981	All	<15	8.31	7.04	9.8	1970-1979	All	<15	13.92	8.01	23.1 1	1978-0982	All	<15	3.95	2.7	5.7
1982-1991	All	<15	9.48	7.79	9 20.7	1980-1989	All	<15	8.08	4.51	14.0 4 54.5	1984 and 1986	All	<15	7.43	5.06	10. 8 27.
1992-2001	All	<15	25.22	21.15	29.7 8 12.4	1990-1999	All	<15	38.56	24.7 1 14.9	54.5 5 24.6	1993 - BB	All	<15	13.2 1	5.73	27.0 1
Before 1961	All	15-17	11.8	10.33	13.4 5 12.2	Before 1959	All	15-17	23.29	14.8 2	34.0	Befære 1962	All	15-17	6.95	4.87	9.8
1962-1971	All	15-17	11.43	9.74	13.3 6 18.2	1960-1969	All	15-17	11.94	6.62	20.6	1964 1952	All	15-17	6.05	4.26	8.5
1972-1981	All	15-17	15.98	13.93	18.2 6 22.5	1970-1979	All	15-17	10.81	6.31	17.9	197 3 -19 8 2	All	15-17	8.38	6.11	9 10.2
1982-1991	All	15-17	21.31	19.22	23.3 5 42.2	1980-1989	All	15-17	21.8	14.3	51.7 7 50.5	1988-1992	All	15-17	14.1 7 21.0	9.96	19. 7 45 (
1992-2001	All	15-17	37.7	33.23	42.5 9	1990-1999	All	15-17	33.44	19.8 2	30.5	199 3 -20 9 2	All	15-17	51.0 7	19.8 8	43. 1
Before 1961	All	18-19	5.02	4.04	6.24	Before 1959	All	18-19	2.63	1.1	6.12	Before 1962	All	18-19	3.02	1.87	4.8
1962-1971	All	18-19	8.93	7.43	10.7	1960-1969	All	18-19	3.98	1.57	9.74	1968-1952	All	18-19	4.79	2.71	8.3
1972-1981	All	18-19	9.99	8.62	6 18 1	1970-1979	All	18-19	16.51	9.6	20.9 1 18.0	197 9 -1982	All	18-19	4.3	2.41	7.5
1982-1991	All	18-19	16.15	14.31	10.1 8 26.0	1980-1989	All	18-19	10.32	5.69	18.0	1985-19 8 2	All	18-19	9.14	6.1	13.4 7 27
1992-2001	All	18-19	22.9	19.3	20.9 5 44.0	1990-1999	All	18-19	12.8	6.04	25.1	1993-20	All	18-19	16 25 5	8.78	27.: 7
Before 1961	All	20-34	41.6	39.16	44.0 7 50.4	Before 1959	All	20-34	35.48	24.1 7 42.2	48.7 65.7	Before 10062	All	20-34	9 9 27 7	2	40
1962-1971	All	20-34	47.57	44.71	50.4 5	1960-1969	All	20-34	54.74	45.2 8	1	1963-1982	All	20-34	<i>51.1</i> 8	32.7	43.1 5
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2 3						59.8						41.0	62.4	6787 incl				58.2	53 1	63.2
4	1972-1981	All	20-34	57.25	54.5	7 9	1970-1979	All	20-	34	51.84	1	9	1975-1982	2 All	20-3	4	8	6	3
5				53.06	50.3	2 55.7					59.8	48.3	70.3	ng f				69.2	63.0	74.8
6 7	1982-1991	All	20-34	00.00	00.0	- 8	1980-1989	All	20-	34	07.0	3	20.9	1980-1900	2 All	20-3	4	6 20.7	7	2
/ 8	1992-2001	All	20-34	14.18	11.2	$3 \frac{1}{5}$	1990-1999	A11	20-	34	15.2	7.02	29.8 8	2099-208	2 All	20-3	4	39.7	27.0	8
9	1772 2001		20 2 .	22 60	20.2	7 25 1			20	5.	22 22	22.4	44.0	s re		200		49.4	45.0	53.9
10	Before 1961	All	≥35	52.09	30.3	/ 55.1	Before 195	9 All	≥35	5	32.32	7	4	Befare	62 All	≥35		7	3	2
11	1062 1071	A 11	<u>\</u> 25	25.11	22.6	5 27.7	1060 1060	A 11	>24	-	23.38	14.6	35.1		N A 11	>25		46.2	40.9	51.6
12	1902-1971	All	<u>~</u> 33			4	1900-1909	All	≥3.	,		0	13.0	190 9-1 900	Z All	<i>2</i> 33		4 25.0	5 20.8	4 29.8
13 14	1972-1981	All	≥35	8.47	7.01	9	1970-1979	All	≥35	5	6.92	3.54	8	1973-69	2 All	≥35		9	5	7
15	1982-1991	All	≥35	0	0	0	1980-1989	All	≥35	5	0	0	0	1989-090	2 All	≥35		0	0	0
16	1992-2001	All	_ >35	0	0	0	1990-1999	All	>35	5	0	0	0	1998-2002	2 All	>35		0	0	0
17	Supplem	entary T	able 5. Ma	le-female	e differe	ence in smok	eless tobacco	initiatio	n across	differen	t birth c	ohorts ir	n Banglades	h Inda Strig	Pakistan					
18	Supplem	ientary r			uniter			iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii		uniteren	t onth c	onorts n	Banglad		1 uniotun					
20	India						Pakistan						sh							
21			Age at						Age at					Alt	Age at					
22	Year	Type	on	%	lb	ub	Year	Гуре	on	%	lb	ub	Year		initiati on	%	lb	ub		
23	Before	-) •		6.92	5.25	9.66	Before	- , r -	•	7.5.4	2.04	17.5	Before			2.15	1	4.57		
24 25	1961	Male	<15	0.82	5.55	8.00	1959 N	Male	<15	7.54	3.04	1	1962	Male	<15	2.15	1	4.57		
25 26	1962-	26.1	.1.5	5.46	4.07	7.28	1960-	r 1	.1.5	5.43	1.88	14.7	1963-	а. "с. 1	.1.5	3.55	1.4	8.7		
27	1971	Male	<15				1969 ľ	Viale	<15	12.1		1	1972		<15					
28	1972-	Male	<15	6.82	5.49	8.45	1970- 1979 N	Male	<15	2	6.93	23.4 6	1973-	Male,	<15	2.84	1.43	5.56		
29	1982-			0 57	6.62	11.0	1980-			0 0 2	1 97	15.4	1983-	Jun		6 1 5	256	14.07		
30	1991	Male	<15	8.37	0.05	2	1989 N	Male	<15	0.05	4.0/	7	1992	N ale [®]	<15	0.15	2.30	14.07		
31	1992-	Mala	<15	23.2	18.7	28.4	1990-		<15	33.2	19.5	50.6 2	1993-	log	<15	13.4	3.36	41.01		
2∠ 33	2001 Before	Male	<15	12.0	10.1	1 14 2	Before	viale	<15	/	I	3 13 7	2002 Before	s s	<15	6				
34	1961	Male	15-17	6	9	1	1959 N	Male	15-17	6.31	2.77	3	1962	Male⊾	15-17	4.69	2.35	9.13		
35	1962-			11.6	0 56	14.1	1960-			15.1	8 22	26.3	1963-	lge		5 9/	3 16	10.0		
36	1971	Male	15-17	7	9.50	7	1969 N	Male	15-17	7	0.22	3	1972	Male	15-17	5.94	5.10	10.9		
37	1972-	Mala	15 17	16.8	14.2	19.7	1970-		15 17	12.2	6.99	20.6	1973-	Mala ^B	15 17	3.04	1.47	6.16		
38	1981	Male	15-17	$\frac{2}{22.0}$	0 19.6	$\frac{2}{24.6}$	1979 I 1980-	viale	15-17	/ 22.1	14.0	5 33 0	1982	Maleo	15-17					
39 40	1982-	Male	15-17	22.0	17.0	3	1989 N	Male	15-17	1	4	4	1992	Malea	15-17	16.2	8.68	28.2		
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3	1992-			39.1	34.0	115	1990-			34.8	19.9	53.5	1993-	1011 1011		30.6	15.3	51 05
4	2001	Male	15-17	7	9	44.3	1999	Male	15-17	9	2	7	2002		15-17	6	6	31.83
5	Before			5 33	4 09	6.92	Before			4 83	1 97	11.3	Before	ר 19 f		2.69	1 26	5 68
6	1961	Male	18-19	0.00	1.09	0.72	1959	Male	18-19	1.05	1.97	6	1962	l⊈ale₽	18-19	2.09	1.20	2.00
/	1962-	M.1.	10.10	11.0	8.95	13.6	1960-	M.1.	10 10	5.37	2.12	12.9	1963-	Ĩ	10.10	8.72	4.13	17.47
8	1971	Male	18-19	8 11 5		3 12 5	1969	Male	18-19		11.2	/ 21.4	1972		18-19			
9	1972-	Mala	18 10	11.5 7	9.82	13.3	1970-	Mala	18 10	19.5	11.3	51.4 6	19/3-	elgier Ng gev	18 10	2.89	1.19	6.86
10	1981	Wale	10-19	171	15.0	o 19.5	1979	Wale	10-19	10.7	4	191	1982	Hec 202	10-19	10.8		
11	1991	Male	18-19	9	8	17.5	1989	Male	18-19	4	5.75	8	1992	Teren Teren	18-19	4	6.2	18.27
12	1992-	111010	10 17	23.2	10.0	27.9	1990-	111010	10 17	14.5	6 50	28.5	1993-	te so	10 19		- 01	
13	2001	Male	18-19	7	19.2	1	1999	Male	18-19	7	6.79	1	2002		18-19	18.6	7.91	37.79
15	Before			49.4	46.2	52.6	Before			47.4	30.3	65 2	Before	ind		41.1	34.5	10 00
16	1961	Male	20-34	3	2	5	1959	Male	20-34	9	8	03.2	1962	Ŋ ġ a∰e <u>@</u>	20-34	5	5	40.00
17	1962-			53.6	49.8	57.2	1960-			59.4	46.3	71.3	1963-	ta (Arc		44.1	35.5	53 12
18	1971	Male	20-34	60.1	9	7	1969	Male	20-34	4	5	2	1972	₩ Matters	20-34	3	1	00.12
19	1972-	M.1.	20.24	60.1	57.0	63.2	1970-	Male	20.24	53.1	41.0	64.8	1973-		20.24	72.4	64.5	79.15
20	1981	Male	20-34	8 52.2	1	0 55 2	1979	Male	20-34	1	3 15 0	4	1982		20-34	0	8 55 1	
21	1982-	Male	20-34	32.2 2	49.0 7	55.5 6	1980-	Male	20-34	20.5	43.8	09.8 5	1985-	r	20-34	00.8	0 0	76.69
22	1992-	whate	20-34	143	110	18.4	1990-	whate	20-34	$\frac{2}{172}$	1	337	1992		20-34	37.2	19.5	
23	2001	Male	20-34	6	4	7	1999	Male	20-34	7	7.89	2	2002		20-34	8	1	59.32
24	Before			26.3	23.6	29.2	Before			33.8	20.0	51.0	Before	a 5		49.3	42.6	56.00
25	1961	Male	<u>≥</u> 35	6	7	3	1959	Male	<u>≥</u> 35	4	3	9	1962		<u>≥</u> 35	2	4	56.03
26	1962-			18.1	15 /	21.3	1960-			14.5	7 13	27.5	1963-	sin on		37.6	29.5	16 10
27	1971	Male	≥35	9	13.4	5	1969	Male	≥35	9	1.15	4	1972	I∰ale_	≥35	6	8	40.49
28	1972-			4.61	3.59	5.9	1970-			1.99	0.63	6.09	1973-	rte J		18.7	13.0	26.35
29	1981	Male	<u>≥</u> 35		0.03	0.5	1979	Male	≥35	1.77	0.00	0.09	1982	Male	≥35	9	1	20.00
30 21	1982-	Mala	> 25	0	0	0	1980-	Mala	> 25				1983-		> 25			
27	1991	Male	≥33				1989	Male	≥33				1992	<u>g</u> ale 20	233			
32 33	2001	Male	>35	0	0	0	1990-	Male	>35				2002	Field Stale	>35			
34	Before	Fema		11.6		14 1	Before	Fema	<u>-</u> 55			13.1	Before	Fema	<u>-</u> 55			
35	1961	le	<15	8	9.58	7	1959	le	<15	4.78	1.63	9	1962	le g	<15	6.95	4.67	10.22
36	1962-	Fema		0 (7	7 26	12.6	1960-	Fema		7.40	2.2	22.5	1963-	Fema		6.1	2 42	10 (2
37	1971	le	<15	9.07	/.30	2	1969	le	<15	7.49	2.2	7	1972	le 🖬	<15	0.1	3.43	10.62
38	1972-	Fema		12.1	938	15.6	1970-	Fema		18.1	58	44.3	1973-	Fema		4 47	2 85	6.95
39	1981	le	<15	6	1.50	2	1979	le	<15	3	5.0	3	1982	le jog	<15	7.4/	2.05	0.75
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3	1982-	Fema		13.3	10.6	16.5	1980-	Fema		1.06	0.14	7 60	1983-			8 17	5 17	12.03
4	1991	le	<15	6	9	8	1989	le	<15	1.00	0.14	7.09	1992	l⊈in or	<15	0.17	J. 4 7	12.05
5	1992-	Fema		35.8	27.5	44.9	1990-	Fema		73.4	36.0	93.1	1993-	G ema	, ,	12.9	5.76	26.45
0 7	2001 Defere	le Estre	<15	11 /	5	8	1999 Defere	le Esmo	<15	3	7	2	2002 Deferre		<15	1		
/ 8	1961	Fema le	15-17	11.4 6	9.21	14.1 8	Before	Fema le	15-17	43.5	28.1 0	60.1 0	Before		15-17	8.53	5.63	12.72
0 0	1962-	Fema	13-17	10.9		8 14 2	1959	Fema	13-17	1	9	9 11.0	1962	ha sa Baguna Baguna	13-17			
10	1971	le	15-17	8	8.37	7	1969	le	15-17	2.65	0.59	4	1972		1 5-17	6.11	4.03	9.18
11	1972-	Fema	10 17	13.8	10.9	17.2	1970-	Fema	10 17	2.1	0.72	12.2	1973-			10.9		15.10
12	1981	le	15-17	2	6	9	1979	le	15-17	3.1	0.73	1	1982		1 5-17	3	1.15	15.18
13	1982-	Fema		18.2	147	22.5	1980-	Fema		18.8	7.01	41.7	1983-	₫. Ø		12.9	0 57	10.22
14	1991	le	15-17	8	14.7	22.3	1989	le	15-17	8	7.01	9	1992		15-17	9	0.37	19.22
15	1992-	Fema		30	22.3	38.9	1990-	Fema		23.9	5 58	62.5	1993-	Ē	-	31.5	17.6	49 84
16	2001	le	15-17	20	7	3	1999	le	15-17	1	0.00	5	2002	l⊈an ur ed	15-17	5	2	19.01
17	Before	Fema	10.10	4.6	3.15	6.68	Before	Fema	10.10	0	0	0	Before	laensa≓ ₁⊐ 00 0	10.10	3.24	1.76	5.91
18	1961	le Estres	18-19				1959	le Estre	18-19				1962		18-19			
19	1902-	rema le	18-10	5.05	3.62	7	1960-	le	18-10	0	0	0	1903-		18-10	2.41	1.15	4.96
20	1971	Fema	10-19				1970-	Fema	10-19				1972	in the matrix of the matrix o	10-19			
21	1981	le	18-19	5.92	4.2	8.28	1979	le	18-19	0.8	0.1	5.82	1982		18-19	4.98	2.47	9.79
22	1982-	Fema	10 17	11.7		16.1	1980-	Fema	10 17			34.8	1983-	je na l	10 17			
23	1991	le	18-19	3	8.4	6	1989	le	18-19	6.41	0.87	2	1992		18-19	8.15	4.57	14.15
24	1992-	Fema		20.9	14.7	28.8	1990-	Fema		1 1 2	0.12	0 01	1993-	B ema		12.8	5 00	25.04
25	2001	le	18-19	3	6	2	1999	le	18-19	1.12	0.15	0.01	2002		18-19	8	3.00	23.94
26	Before	Fema		31.0	27.6	34.7	Before	Fema		21.1	11.9	34.8	Before	Ľ∰⊊mag		31.7	26.5	37 36
27	1961	le	20-34	4	27.0	1	1959	le	20-34	9	1	4	1962	lite or	20-34	1	5	57.50
28	1962-	Fema	20.24	36.6	32.4	41.0	1960-	Fema	20.24	41.2	20.3	65.7	1963-	Fema		33.9	27.8	40.6
29	1971	le E	20-34	5	5	6 54 (1969	le E	20-34	l 45-1	9	2	1972		20-34	2	2	
21	1972-	rema	20.24	49.7	44./ 5	54.0 5	1970-	rema	20.24	45.1	23.3	08.0 6	1973-	o o	20.24	51.5 2	45.1 5	57.84
37	1982	Fema	20-34	56.6	515	5 61.6	1979	Fema	20-34	5 73.6	9 49 3	88.9	1982		20-34	∠ 70.6	5 63 4	
32	1902	le	20-34	3	1	1	1989	le	20-34	5	2	3	1992		20-34	8	2	77.02
34	1992-	Fema	20 5 .	13.2		20.4	1990-	Fema	20 5 1		-		1993-	Fema	2051	42.6	27.0	
35	2001	le	20-34	7	8.36	1	1999	le	20-34	1.55	0.26	8.62	2002	le g	20-34	5	5	59.86
36	Before	Fema		41.2	37.3	45.1	Before	Fema		30.5	17.9	46.8	Before	Fema		49.5	43.6	55 40
37	1961	le	≥35	1	5	9	1959	le	≥35	2	8	2	1962	le 🛱	≥35	7	7	55.49
38	1962-	Fema		37.6	333	42.2	1960-	Fema		48.6	26.3	71.5	1963-	Femæ		51.4	44.7	58 14
39	1971	le	≥35	5	55.5	1	1969	le	≥35	6	4	2	1972	le jog	≥35	6	3	50.14
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1972- 1981 1982- 1991 1992- 2001	Fema le Fema le Fema le	≥35 ≥35 ≥35	18.4 2 0 0 0 0	14.3 21 3 1 0 0 0 0	3.3	1970-Fen1979le1980-Fen1989le1990-Fen1999le	na ≥ 35 na ≥ 35 na ≥ 35	32.8 5	15.1 5	57.2 6	1973- 1982 1983- 1992 1993- 2002	.06787,5 റെയി Decemt ഇന്നു t, inബ്ലാ <u>പ്പ്</u> ന്റ്റ് ഇന് <u>മട്ടള</u> ം പ്	≥35 ≥35 ≥35	$\begin{array}{ccc} 28.1 & 22 \\ 6 \\ 0 & 0 \\ 0 & 0 \end{array}$.6 34.2 0 0	26	
Supplementary	y Table 6.	Urban-rural	differenc	e in smok	king initiat	ion across different	birth coh	orts in Bangla	adesh, Inc	lia and Pa	akistan	er 2023. Downloaded from signement Superieur (ABES related to text and data min					
						Pakistan						Bangaden					
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India Year	Туре	Age at initiation	%	lb	ub	Year	Туре	Age at initiation	%	lb	ub	Year	Туре	Age at initiation	%	lb	ub
Indía Year Before 1961	Type Urban	Age at initiation <15	% 5.03	lb 3.13	ub 7.97	Year Before 1959	Type Urban	Age at initiation <15	% 1.93	lb 0.26	ub 12.87	Year 1962	Type Urban	Age at initiation <15	% 3.51	lb 1.51	ub 7.95
India Year Before 1961 1962-1971	Type Urban Urban	Age at initiation <15 <15	% 5.03 3.83	lb 3.13 2.2	ub 7.97 6.61	Year Before 1959 1960-1969	Type Urban Urban	Age at initiation <15 <15	% 1.93 8.38	lb 0.26 2.3	ub 12.87 26.18	A Yeal: Before: 1962 196 30 196 30 1972	Type Urban Urban	Age at initiation <15 <15	% 3.51 6.19	lb 1.51 3.4	ub 7.95
India Year Before 1961 1962-1971 1972-1981	Type Urban Urban Urban	Age at initiation <15 <15 <15	% 5.03 3.83 8.65	Ib 3.13 2.2 5.94	ub 7.97 6.61 12.44	Year Before 1959 1960-1969 1970-1979	Type Urban Urban Urban	Age at initiation <15 <15 <15	% 1.93 8.38 13.18	Ib 0.26 2.3 4.97	ub 12.87 26.18 30.58	Year at 1962 Before 1962 1963 1972 1973 1982	Type Urban Urban Urban	Age at initiation <15 <15 <15	% 3.51 6.19 3.94	Ib 1.51 3.4 2.41	ub 7.95 11 6.39
India Year Before 1961 1962-1971 1972-1981 1982-1991	Type Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15	% 5.03 3.83 8.65 8.63	Ib 3.13 2.2 5.94 5.89	ub 7.97 6.61 12.44 12.46	Year Before 1959 1960-1969 1970-1979 1980-1989	Type Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15	% 1.93 8.38 13.18 7.42	Ib 0.26 2.3 4.97 2.81	ub 12.87 26.18 30.58 18.17	A Yeartaic 1962 Before 1962 1963, a1972 1973 a1982 1983 a1982	Type Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15	% 3.51 6.19 3.94 5.39	Ib 1.51 3.4 2.41 3.29	ub 7.93 11 6.39 8.72
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001	Type Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 <15	% 5.03 3.83 8.65 8.63 25.66	Ib 3.13 2.2 5.94 5.89 17.12	ub 7.97 6.61 12.44 12.46 36.58	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999	Type Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 <15	% 1.93 8.38 13.18 7.42 44.62	Ib 0.26 2.3 4.97 2.81 15.76	ub 12.87 26.18 30.58 18.17 77.63	Alfred Strength Stren	Type Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 <15	% 3.51 6.19 3.94 5.39 20.01	Ib 1.51 3.4 2.41 3.29 9.15	ub 7.95 11 6.39 8.72 38.3
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961	Type Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17	% 5.03 3.83 8.65 8.63 25.66 8.4	Ib 3.13 2.2 5.94 5.89 17.12 5.89	ub 7.97 6.61 12.44 12.46 36.58 11.84	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959	Type Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 <15 15-17	% 1.93 8.38 13.18 7.42 44.62 36.6	Ib 0.26 2.3 4.97 2.81 15.76 20.3	ub 12.87 26.18 30.58 18.17 77.63 56.68	A Yeartait 1962 1963, a1972 1973 a1982 1983 21992 1993 ar 1960 1993 ar 1960 Befoge 1962	Type Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17	% 3.51 6.19 3.94 5.39 20.01 4.48	Ib 1.51 3.4 2.41 3.29 9.15 2.67	ub 7.95 11 6.39 8.72 38.3 7.41
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971	Type Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969	Type Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83	Altra 1982 Performing 1977 Performing	Type Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28	ub 7.95 11 6.35 8.72 38.3 7.41 10.9
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1972-1981	Type Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979	Type Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1	Altrait 1962 Performed a series of the seri	Type Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1972-1981 1982-1991	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18	Alutinoise Yearai 1982 Before 1982 1962 1962 1973 al 988 1993 al 988 1993 ar 1962 1965 978 1965 978 1965 978 1965 978 1973 al 98 2006 00 1973 al 99 2006 00 1973 al 98 2006 00 1973 al 98 2006 00 1973 al 99 2006 00 1973 al 99 2006 00 1973 al 99 2007 al 98 2007 al 98	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1962-1971 1982-1991 1982-1991	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41 40.78	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86 30.64	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72 51.77	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 1960-1969 1970-1979 1980-1989 1990-1999	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54 29.72	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54 10.6	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18 60.14	Altraition Press and a second	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98 32.37	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84 17.41	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3 52.0
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 15-17 15-17	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41 40.78 4.89	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86 30.64 2.99	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72 51.77 7.88	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54 29.72 0.86	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54 10.6 0.2	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18 60.14 3.59	Alution of the second s	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 15-17 15-17	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98 32.37 3.21	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84 17.41 1.49	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3 52.0 6.77
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1982-1991 1982-1991 1992-2001 Before 1961 1962-1971	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41 40.78 4.89 8.9	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86 30.64 2.99 5.9	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72 51.77 7.88 13.21	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1980-1989 1990-1999 Before 1959 1990-1999 Before 1959 1960-1969	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54 29.72 0.86 0.89	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54 0.2 0.12	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18 60.14 3.59 6.26	A Yealtai Before 1962 1963, a1987 1973 1973 1983 1983 1993 1993 1993 1995 1983 1983 1983 1983 1983 1983 1983 1983	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98 32.37 3.21 3.61	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84 17.41 1.49 1.61	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3 52.0 6.77 7.92
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1982-1991 1982-2001 Before 1961 1962-1971 1962-1971 1972-1981	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41 40.78 4.89 8.9 12.12	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86 30.64 2.99 5.9 8.87	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72 51.77 7.88 13.21 16.35	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54 29.72 0.86 0.89 15.53	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54 10.6 0.2 0.12 5.47	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18 60.14 3.59 6.26 36.89	Alution Yearaic 1982 1963 1981 998 1973 1983 1983 1983 1993 1998 1993 1995 1962 1965 1962 1965 1962 1983 1997 88 1993 2005 1997 88 1993 2005 1998 1993 2005 1997 1997 1997 1997 1997 1997 1997 199	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 15-17 15-17 15-17 15-19 18-19 18-19	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98 32.37 3.61 4.34	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84 17.41 1.49 1.61 1.78	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3 52.0 6.77 7.92 10.1
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1972-1981 1992-2001 Before 1961 1962-1971 1962-1971 1962-1971 1962-1971 1962-1971 1962-1971	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19 18-19	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41 40.78 4.89 8.9 12.12 11.89	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86 30.64 2.99 5.9 8.87 8.7	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72 51.77 7.88 13.21 16.35 16.03	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1990-1999 Before 1959 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19 18-19	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54 29.72 0.86 0.89 15.53 11.87	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54 0.2 0.12 5.47 3.46	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18 60.14 3.59 6.26 36.89 33.63	A Yeartaic 1982 1963, 1975 1975 1975 1975 1975 1983 1983 1993 1993 1993 1995 1985 1995 1985 1995 1985 1995 1995	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19 18-19	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98 32.37 3.21 3.61 4.34 10.64	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84 17.41 1.49 1.61 1.78 6.03	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3 52.0 6.77 7.92 10.1 18.1
India Year Before 1961 1962-1971 1972-1981 1982-1991 1992-2001 Before 1961 1962-1971 1982-1991 1992-2001 Before 1961 1992-2001 Before 1961 1992-2001 Before 1961 1962-1971 1972-1981 1982-1991 1982-1991 1982-1991 1982-1991 1982-1991 1982-1991	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19 18-19 18-19	% 5.03 3.83 8.65 8.63 25.66 8.4 10.86 12.89 22.41 40.78 4.89 8.9 12.12 11.89 19.95	Ib 3.13 2.2 5.94 5.89 17.12 5.89 7.53 9.87 17.86 30.64 2.99 5.9 8.87 8.7 12.84	ub 7.97 6.61 12.44 12.46 36.58 11.84 15.42 16.68 27.72 51.77 7.88 13.21 16.35 16.03 29.66	Year Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999 Before 1959 1960-1969 1970-1979 1980-1989 1990-1999	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19 18-19 18-19	% 1.93 8.38 13.18 7.42 44.62 36.6 21.53 10.23 20.54 29.72 0.86 0.89 15.53 11.87 3.61	Ib 0.26 2.3 4.97 2.81 15.76 20.3 9.47 4.14 10.54 10.6 0.2 0.12 5.47 3.46 0.76	ub 12.87 26.18 30.58 18.17 77.63 56.68 41.83 23.1 36.18 60.14 3.59 6.26 36.89 33.63 15.45	Altraition of the second secon	Type Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban Urban	Age at initiation <15 <15 <15 <15 15-17 15-17 15-17 15-17 15-17 15-17 18-19 18-19 18-19 18-19 18-19	% 3.51 6.19 3.94 5.39 20.01 4.48 6.07 10.82 19.98 32.37 3.61 4.34 10.64 32.27	Ib 1.51 3.4 2.41 3.29 9.15 2.67 3.28 5.94 9.84 17.41 1.49 1.61 1.78 6.03 14.36	ub 7.95 11 6.39 8.72 38.3 7.41 10.9 18.8 36.3 52.0 6.77 7.92 10.1 18.1 57.5

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1 2													022-067 right, iı					
3	Before 1961	Urban	20-34	44.37	38.5	50.4	Before 1959	Urban	20-34	42.52	24.18	63.18	Before 1962	Urban	20-34	42.16	33.67	51.14
4 5	1962-1971	Urban	20-34	50.27	44.18	56.35	1960-1969	Urban	20-34	45.85	27.84	65.02	196321972	Urban	20-34	44.02	35.23	53.21
6	1972-1981	Urban	20-34	58.61	52.9	64.09	1970-1979	Urban	20-34	52.91	35.06	70.05	1973 ම 198	Urban	20-34	53.79	42.51	64.7
7	1982-1991	Urban	20-34	57.08	51.14	62.82	1980-1989	Urban	20-34	60.17	38.96	78.14	1983 5 1 9978	Urban	20-34	63.98	50.76	75.38
8	1992-2001	Urban	20-34	13.61	8.24	21.67	1990-1999	Urban	20-34	22.05	5.56	57.62	1993-2 60 0	Urban	20-34	15.35	5.42	36.47
9 10	Before 1961	Urban	≥35	37.32	31.83	43.15	Before 1959	Urban	≥35	18.09	8.52	34.38	Before 3%2	Urban	≥35	46.64	38.01	55.48
11	1962-1971	Urban	≥35	26.13	21.2	31.75	1960-1969	Urban	≥35	23.35	10.89	43.18	1963 01 1973	Urban	≥35	40.1	32.14	48.62
12	1972-1981	Urban	≥35	7.73	4.66	12.55	1970-1979	Urban	≥35	8.15	3.05	20.01	1973 178	Urban	≥35	27.11	18.19	38.36
13 14	1982-1991	Urban	≥35	0	0	0	1980-1989	Urban	≥35	0	0	0	1983	Urban	≥35	0	0	0
15	1992-2001	Urban	≥35	0	0	0	1990-1999	Urban	≥35	0	0	0	1993 62 60 02	Urban	≥35	0	0	0
16	Before 1961	Rural	<15	9.97	8.48	11.68	Before 1959	Rural	<15	9.68	4.63	19.15	Before 1992	Rural	<15	5.27	3.58	7.69
17	1962-1971	Rural	<15	8.08	6.52	9.98	1960-1969	Rural	<15	4.85	1.7	13.09	1963 5 1 6 7 6	Rural	<15	4.9	2.67	8.82
18 19	1972-1981	Rural	<15	8.18	6.85	9.73	1970-1979	Rural	<15	14.49	7.44	26.33	1973	Rural	<15	3.95	2.5	6.17
20	1982-1991	Rural	<15	9.74	7.76	12.16	1980-1989	Rural	<15	8.4	4.06	16.56	1983-199	Rural	<15	8.04	5.13	12.4
21	1992-2001	Rural	<15	25.09	20.61	30.17	1990-1999	Rural	<15	37.45	22.63	55.07	1993 200 2	Rural	<15	11.54	3.62	31.21
22	Before 1961	Rural	15-17	12.75	11.05	14.67	Before 1959	Rural	15-17	12.85	6.67	23.32	Before 1982	Rural	15-17	7.45	5.03	10.9
23 24	1962-1971	Rural	15-17	11.63	9.75	13.81	1960-1969	Rural	15-17	7.55	3.31	16.31	1963 197	Rural	15-17	6.04	4.02	8.99
25	1972-1981	Rural	15-17	17.22	14.7	20.07	1970-1979	Rural	15-17	11.25	5.73	20.91	1973 a 198 <mark>2</mark> .	Rural	15-17	7.8	5.38	11.2
26	1982-1991	Rural	15-17	20.97	18.68	23.46	1980-1989	Rural	15-17	22.42	13.06	35.71	1983 4 199	Rural	15-17	12.42	8.39	18.02
27 20	1992-2001	Rural	15-17	36.77	31.92	41.91	1990-1999	Rural	15-17	34.12	18.89	53.53	1993 200 2	Rural	15-17	30.75	17.78	47.69
28 29	Before 1961	Rural	18-19	5.06	3.96	6.44	Before 1959	Rural	18-19	4.01	1.5	10.32	Before 1962	Rural	18-19	2.98	1.7	5.15
30	1962-1971	Rural	18-19	8.95	7.3	10.91	1960-1969	Rural	18-19	5.4	2	13.79	1963 2197 2	Rural	18-19	5.06	2.65	9.48
31	1972-1981	Rural	18-19	9.14	7.83	10.65	1970-1979	Rural	18-19	17.27	9.52	29.28	1973 81982	Rural	18-19	4.3	2.15	8.39
32	1982-1991	Rural	18-19	17.45	15.31	19.82	1980-1989	Rural	18-19	9.56	5.15	17.07	1983 - 1998 - 1998 - 1983	Rural	18-19	8.69	5.19	14.19
34	1992-2001	Rural	18-19	23.78	19.76	28.33	1990-1999	Rural	18-19	14.47	6.58	28.89	1993-200	Rural	18-19	11.99	5.41	24.52
35	Before 1961	Rural	20-34	40.83	38.2	43.5	Before 1959	Rural	20-34	29.97	17.33	46.62	Before 1982	Rural	20-34	34.27	29.6	39.26
36	1962-1971	Rural	20-34	46.6	43.39	49.83	1960-1969	Rural	20-34	58.8	44.54	71.73	1963-197 6	Rural	20-34	36.35	30.53	42.61
37 29	1972-1981	Rural	20-34	56.71	53.72	59.65	1970-1979	Rural	20-34	51.01	37.94	63.95	1973-198 5	Rural	20-34	59.34	53.57	64.86
30 39	1982-1991	Rural	20-34	51.84	48.76	54.89	1980-1989	Rural	20-34	59.63	46.02	71.89	1983-199	Rural	20-34	70.85	63.84	76.99
40	1992-2001	Rural	20-34	14.35	11.01	18.49	1990-1999	Rural	20-34	13.96	5.52	31.05	1993-200 8	Rural	20-34	45.72	30.19	62.13
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STROBE Statement—	-Checklist of items	s that should be include	ed in reports of <i>cross-s</i>	sectional studies
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	Item No	Recommendation	Page No
Title and abstract	1	(<i>a</i>) Indicate the study's design with a commonly used term in the title or the abstract	1
		(<i>b</i>) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(<i>a</i>) Give the eligibility criteria, and the sources and methods of selection of participants	5-6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5
Bias	9	Describe any efforts to address potential sources of bias	7
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6
Statistical methods	12	(<i>a</i>) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	7
		(c) Explain how missing data were addressed	7
		(<i>d</i>) If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8
		(b) Give reasons for non-participation at each stage(c) Consider use of a flow diagram	
Descriptive data	14*	 (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) L is the state of the state	8
		(b) mulcate number of participants with missing data for each variable of interest	
Outcome data	15*	Report numbers of outcome events or summary measures	<u> </u>
Main results	16	(<i>a</i>) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9-17

		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute	
		risk for a meaningful time period	
Other analyses	17	Report other analyses done-eg analyses of subgroups and interactions, and	
		sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	18
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias	20
		or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives,	18-
		limitations, multiplicity of analyses, results from similar studies, and other	20
		relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study	
		and, if applicable, for the original study on which the present article is based	

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

Trends in tobacco use initiation in Bangladesh, India and Pakistan: An age-period-cohort analysis based on crosssectional nationally representative survey

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Keywords:	PREVENTIVE MEDICINE, PUBLIC HEALTH, TOXICOLOGY

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ABSTRACT

Objective: Tobacco use begins at an early age and typically leads to long-term addiction.
Age at initiation of smoked and smokeless tobacco is not well studied in south Asia, wherein
22% of global tobacco smokers and 81% of smokeless tobacco users reside.

Methods: Data from the nationally representative Global Adult Tobacco Surveys in India, 52 Bangladesh and Pakistan was utilised to examine patterns of initiation among smokers and 53 smokeless tobacco users.

Results: In all, 94,651 individuals provided information on tobacco use wherein 13,396 reported being ever daily smokers and 17,684 reported being ever smokeless tobacco (SLT) users. Among these users, the proportion of individuals initiating tobacco use (smoking as well as SLT) before the age of 15 is seen to increase over time. The rates of SLT initiation among those aged 15-24 are drastically increased in Bangladesh (by 7.8%) and Pakistan (by 37.7%) since 1983. Among males, a higher relative increase in SLT initiation among those <15, as compared to other age groups, is seen in India and Bangladesh. Compared to initiation of tobacco smoking, a greater increase in the proportion of SLT is observed in urban India, Bangladesh, and Pakistan among those initiating SLT use before age 15.

Conclusion: Our findings revealed that proportion of youth initiating tobacco (both smoking 64 and smokeless) before age 15 years has increased over time in all three countries. Moreover, 65 variations in age at initiation of tobacco across countries and by urban and rural areas were 66 noticeable. Youth aged <15 from urban household settings are a priority population for 67 tobacco control interventions. Strategies such as raising the legal age of tobacco sale and use 68 to 21 years and other measures under WHO FCTC may prevent underage use and avert 69 lifelong addiction to tobacco products.

- 70 Key words: Smoking, smokeless tobacco, trends, South Asia

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74	Strength and limitations
75	• This is the first comparative study on age at initiation of smoked and smokeless
76	tobacco in Bangladesh, India and Pakistan based on nationally representative datasets.
77	• Findings showed that proportion of tobacco initiation before age 15 years has
78	increased over time in all three countries. This increase was evident in both smoked
79	and smokeless tobacco products.
80	• The increase in proportion of people initiated smokeless tobacco before age 15 years
81	was highest in urban areas in all three countries signifies the importance of
82	accelerating tobacco control efforts in urban areas.
83	• Study do not examined the trends by other socioeconomic categories due to limited
84	sample size, thus findings may differ in specific sub-population groups.
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INTRODUCTION

Preventing tobacco initiation and promoting cessation requires early intervention and support to avoid preventable diseases, disabilities, and its associated deaths. Tobacco use often begins in adolescence or young adulthood, and has detrimental health, social and economic consequences(1-3). Effective prevention requires understanding underlying early initiation causes and onset behaviour of tobacco use. Understanding these can aid and inform development of effective counter strategies and allocation of resources that support deterrence among minors and youth as well as prevention and cessation among users. Monitoring of tobacco use and patterns among youth is crucial as the risks of health effects posed by tobacco are highest among those who start early and continue its use until later into adulthood, leading to a lifelong addiction.(4) Understanding these dynamics can assist policymaking and identify priority populations for programmatic interventions(5).

Studies have reported the prevalence of tobacco use,(6,7) identified different subgroups with propensity to initiate tobacco use, namely smoking and smokeless tobacco (SLT) with respect to onset and patterns of use over time. Various forms of smoked tobacco (ST) exist across the world, including, but not limited to cigarettes, cigars, pipes, bidis, etc(8). Whereas, Smokeless tobacco (SLT), which is prevalent in the Indian Subcontinent, includes many forms such as betel quid with tobacco, gutkha, khaini, etc.(9) Studies conducted across developed as well as developing nations, varied in terms of the populations, sample size, length of follow-up and constituted trajectories based on longitudinal as well cross-sectional datasets(10-24). Many of these studies have also utilized regional samples(22,25,26) and therefore, not truly nationally representative in nature and have limited generalizability.

These studies, limited to developed countries, indicate that peer use, higher depressive symptoms maternal smoking associated with initiation early and at are

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adolescence.(10,20,21,24,27) Further, individual and community-level factors, in addition to factors such as tobacco advertising, taxation, etc. have also been found to be significant in influencing initiation patterns.(28,29) Most studies report a decrease in age of initiation, pointing towards an alarming global trend. Further, initiation patterns of SLT use remain understudied especially in South Asia which constitutes a disproportionately high percentage of the global smokeless tobacco use burden(1,19,23). India, Bangladesh and Pakistan have high rates of smoking and SLT use with low mean age of initiation found to be 17.8 years in India, 18.7 years in Pakistan and 18.8 years in Bangladesh(6,30).

The research questions that present study attempts to examine are: (i) what is the trend of age at initiation of tobacco use in Bangladesh, India and Pakistan? (ii) how the pattern of tobacco use initiation varies between smoking and smokeless tobacco, (iii) how the trends and patterns of tobacco use initiation varies between men and women and between rural and urban areas, separately for smoking and smokeless tobacco. This is especially crucial as children and youth are vulnerable to ever-evolving marketing strategies of tobacco companies aimed to increase and sustain consumption(29). In the studied nations, the proportion of the youth who use tobacco is high, and these patterns point to a deeper concern of potentially increasing risk of non-communicable diseases and mortality. Further, in accordance to the WHO-Framework Convention on Tobacco Control (WHO-FCTC), this study offers a unique viewpoint, identifies priority populations and advocates for the development of tailored policies and targeted interventions to prevent exposure and initiation into tobacco use(31). Such practices need to be customised to local socio-cultural settings and adopted across all developing countries to prevent early initiation and reduce lifelong tobacco use which is recalcitrant to cessation.

METHODS

142 Study Design

This study utilised data from the latest rounds of Global Adult Tobacco Survey (GATS) conducted in India, Pakistan, and Bangladesh. As part of the Global Tobacco Surveillance System (GTSS), GATS was launched to obtain nationally representative data in low-income and middle-income countries for tobacco use and associated behaviours, including initiation, in non-institutionalised individuals aged 15 years and older. GATS is considered to be the global standard for monitoring adult tobacco use and a standard protocol with respect to the questionnaire, sample size, data management and quality was used in participating countries.

A multistage, geographically clustered sampling survey, GATS has been conducted in two rounds in India, in 2009-10(32) and the latest round in 2016-17,(33). It was conducted in 2014-15 in Pakistan(34) and in 2017-18 in Bangladesh.(35) In India, the first round was carried out in 29 States and two union territories of Chandigarh and Puducherry, while the second round of GATS was carried out across six regions, comprising of 29 States and 3 Union Territories, translated and conducted in 19 local languages. In Bangladesh, the survey captured information from all eight administrative units. In Pakistan, the survey was carried out in all urban and rural areas of Punjab, Sindh, Khyber Pakhtunkhwa, and Baluchistan province. The sample size for India included 84,047 households with a response rate of 92.90% (N=74,037). Correspondingly, the sample size for Pakistan and Bangladesh was 9,856 and 14,880 households with response rates of 81.0% (N=7,831) and 90.8% (N=12,783) respectively. details GATS Further on can be found on https://www.who.int/tobacco/surveillance/guide/en/.

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Our analysis utilised a participant-anonymous publicly available dataset and was therefore
 exempted from an institutional ethics review. We followed the Strengthening the Reporting
 of Observational Studies in Epidemiology (STROBE) reporting guideline for cross-sectional

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studies to guide our methodology and reporting. (36) Analyses of our combined sample of 94,651 participants included those who provided information on age at first use of smoked tobacco or smokeless tobacco (SLT). Using these data, cohort analysis of age at initiation of smoked tobacco and SLT use was conducted over five decades among ever daily users. The missing information of age at initiation of tobacco use (both smoking and smokeless tobacco) was 6.2% (n=138) in Bangladesh, 7.5% (n=561) in India and 6.6% (n=76) in Pakistan. We excluded participants with missing information.

173 Measures

We assessed two categories of tobacco products: smoked tobacco (includes smoking of any tobacco product, such as manufactured cigarettes, hand-rolled cigarettes, Bidis, cigar, cheroots, cigarillos, pipe-tobacco, and others) and SLT (includes any SLT product such as Betel Quid with Tobacco/zarda, zarda, zarda with supari, naswar, paan masala with tobacco, naas, snuff, mainpuri, khaini/tobacco lime mixture, gutkha, areca nut-tobacco lime mixture, mawa, mishri, gudakhu, gul, and others) use for ever daily users, that is individuals who currently use tobacco daily or former daily tobacco users. We defined initiation as first use of the product, for daily consumption, based on the following questions: 'How old were you when you first started smoking tobacco daily?', 'How many years ago did you first start smoking tobacco daily?', 'How old were you when you started using smokeless tobacco daily?', 'How many years ago did you first start using smokeless tobacco daily?' This definition of initiation covered users who were either only smokers or SLT users and dual users wherein the event of initiation of smoking or SLT have been considered as separate events. Age at tobacco initiation was divided into five categories from <15, 15-17 18-19, 20-34 and \geq 35 years. The sample description is provided for smoked tobacco and SLT use in Table 1. Demographic characteristics included sex (male and female) and residence status

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190 (Urban/Rural). Current age was divided into 5 categories from 15-24 to \geq 55 in intervals of 10 191 years. These data were disaggregated and age of initiation across five decades was examined 192 based on these indicators.

193 Analysis

For descriptive analyses, we calculated the distribution of reported age of initiation of first daily-use among ever daily smokers and SLT users by type of tobacco namely smoking and SLT, weighted proportions and 95% Confidence Intervals (CIs), among all survey respondents. We further analysed compared age of initiation for each tobacco type by sex (male/female) and residential status (urban/rural).

In order to obtain birth cohorts, we generated a new variable which was created by subtracting the age of participants from the survey year. For instance, the first birth cohort of Pakistan was obtained by subtracting the current age of 55 from the year to survey, 2014, to obtain the year 1959. Hence, providing a cohort of individuals born before 1959. Similarly, the latest cohort was from Bangladesh obtained by subtracting the current age of 15-24 from the survey year of 2017 to those individuals born between 1993 and 2002. We also calculated the difference in initiation between subsequent age-cohorts. The analysis was carried out using STATATM 14 version.(37) The data were weighted to provide national estimates and we adjusted for non-response.

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Patients and/or the participants were not involved in the development of research question,
design, or conduct, or reporting, or dissemination plans of this research as this study involves
secondary research of the data collected in the GATS. The information collected in the GATS
was used primarily for research where the personal identifiers were not disclosed and
informed consent was obtained before the survey was carried out. The dataset used in this

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or the design of the study.

LTS

ple of 94,651 adults aged 15 years and above from India, Bangladesh and Pakistan, lividuals provided information on ever daily tobacco smoking and 17,684 provided nation for ever daily SLT users (Table 1). Among these, 12,208 were male smokers females reported to be smokers. Further, 10,483 were male SLT users and 7,201 le SLT users. Among the urban population, 4,308 were smokers and 4,928 were s. The corresponding figures for rural population were 9,088 and 12,756 ly.

Respondents providing information on age of initiation of tobacco smoking and

tobacco use (N)*

	India	Bangladesh	Pakistan
Full Sample	74,037	12,783	7,831
Overall response rate	92.9%	90.8%	81.0%
Person-level response rate	96.0%	93.8%	91.2%
Smoked tobacco			
Ever daily smokers	9,472	2,943	981
Male	8,448 (90.6%)	2,862 (96.6%)	898 (91.8%)
Female	1,024 (9.4%)	81 (3.4%)	83 (8.2%)
Urban	2,479 (26%)	1,416 (24.3%)	413 (32%)
Rural	6,993 (74%)	1,527 (75.7%)	568 (68.0%)

Smokeless Tobacco			
Ever daily smokeless	14,006	3,018	660
tobacco users	,	,	
Mala	<u> </u>	1 121 (29 20/)	500 (76 09/)
Iviaie	0,045 (70.170)	1,131 (38.370)	309 (70.976)
Female	5.163 (29.9%)	1.887 (61.7%)	151 (23.1%)
	-, ()	<u> </u>	
Urban	3,294 (24,7%)	1,342 (18.8%)	292 (34.9%)
	, , , , , , ,		× /
Rural	10,712 (75.3%)	1,676 (81.2%)	368 (65.1%)
	, ()	, ()	

* Percentage is weighted

Tobacco Smoking initiation

Figures 1 and 2 present the distribution of the proportion of individuals who initiated smoking and smokeless tobacco use across the birth cohorts for India, Bangladesh and Pakistan before the age 15, between the ages of 15-17 and between the ages of 18-19; respectively. Marked crude decrease in age of initiation is evident among ever daily smokers as the proportion of individuals initiating smoking before the age of 15 is increasing with each progressive cohort among the three nations.

Figure 1. Initiation of Smoking across birth cohorts in India, Pakistan and Bangladesh
Figure 2. Initiation of Smokeless tobacco use across birth cohorts in India, Pakistan,

and Bangladesh

For instance, in India, 22.2% (95% CI 15.83% to 30.31%) of individuals aged 15-24 at the time of interview, initiated smoking before the age of 15. Similarly, in Bangladesh, 19.2%% (95% CI 12.3% to 28.8%) of individuals aged 15-24 at the time of interview, initiated smoking before the age of 15, whereas 28.7% (95% CI 16.44% to 45.16%) of such individuals initiated smoking in Pakistan.

Page 12 of 40

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In Bangladesh and Pakistan, a slight decline in the proportion of individuals initiating smoking before 15 is observed among the earlier cohorts, however, there is a gradual increase among the Indian population. For instance, in India, among those born between 1982 and 1991, about 20.0% (95% CI 16.99% to 23.37%) initiated smoking during ages 15-17; however, among those born between 1992-2001, 40.3% (95% CI 32.18% to 49.03%), initiated daily smoking before reaching adulthood. However, the increase is the sharpest in Pakistan, wherein among the birth cohort of 1980-89 (16.5%, 95% CI 11.13% to 23.78%) and 1990-99 (44.2%, 95% CI 28.53% to 61.2%), there is an increase of 168% in the proportion of individuals who initiated smoking between the ages 15-17.

Among those individuals who initiated tobacco smoking in the ages of 20-34 and \geq 35 [see supplementary table 1], there is a reduction in the relative change in initiation in all three nations. With each progressive cohort, a lesser proportion of individuals initiate tobacco smoking in the ages of 20-34 and \geq 35. This points to a rapid decrease in the age of initiation of tobacco smoking, most initiating use before adulthood or in early adolescence.

259 Age of initiation of tobacco smoking by sex

While in all three nations, an increase in the proportion of those initiating smoking at <15 is apparent, compared to males from India and Pakistan, a higher increase in this proportion was observed among males in Bangladesh [see supplementary table 2]. A relative increase of 164.7% is observed in the proportion of individuals who initiated smoking before the age of 15 between 1983-1992 (7.3%, 95% CI 4.86% to 10.74%) and 1993-2002 (19.2%, 95% CI 12.3% to 28.8%) in Bangladesh. Further, among those Indian women who smoke, a prominent proportion is initiating tobacco smoking before the age of 15 (32%, 95% CI 10.97% to 64.24%), whereas most Indian males are initiating smoking in the ages of 15-17 (41.3%, 95% CI 32.94% to 50.27%).

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Among earlier cohorts, the rates of initiation are high even among those in the ages of 18-34 and \geq 35, however, a drastic decline is observed in the most recent cohorts across the three countries as most initiation occurs by the age of 18 among both males and females in more recent decades.

Age of initiation of smoking by residential status

The trend of smoking initiation before the age of 18 in urban and rural regions follows a similar pattern with an apparent increase in the latest cohort and a higher proportion of rural individuals engaging in early smoking initiation. Even though in the latest cohort of 1992-2001, 43.4% (95% CI 33.8% to 53.59%) rural Indians initiated smoking between the ages 15-17, a higher relative increase of 129.3% in smoking initiation among urban Indians is observed from 14.7% (95% CI 9.87% to 21.23%) in 1982-91 to 33.6% (95% CI 20.62% to 49.69%) in 1992-2001 [see supplementary table 3]. Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

However, in Bangladesh and Pakistan, a reverse pattern is observed as most initiation of tobacco smoking is occurring up to the age of 34 and a higher relative increase in early initiation in lower ages among recent cohorts is occurring among rural households. Among urban households, a U-pattern is observable in rates of smoking initiation among rural households between the ages 20-34 as among earlier cohorts, such as those born before 1962, a low proportion of initiation is observed in this age group, and it steadily increases among those born between 1963-1983 and sharply decreases among those in the recent cohorts, pointing to earlier initiation.

Further, a higher proportion of individuals from urban Bangladesh initiated tobacco smoking
before ≥35 when compared to urban populations from India and Bangladesh and rural
populations from all three nations.

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292 Smokeless Tobacco Use initiation

Figure 1 and 2 depict the distribution of the percentage of individuals who initiated SLT use before the age of 15, between the ages 15-17 and between 18-19, respectively, across 15 birth cohorts for the three countries. A clear distinction in the rates of initiation among the latest cohort is evident as a higher proportion initiates SLT use at <18 with each progressive cohort. While there is subsequent increase in rates of initiation by each decade, most apparent in the recent cohort, SLT initiation across adolescence and adulthood is dispersed across age groups. For instance, in case of Pakistan, among those between 1990-99, 38.6% (95% CI 24.71% to 54.55%) initiated SLT use before reaching the age of 15, 33.4% (95% CI 19.82% to 50.53%) initiated SLT use in the ages 15-17, followed by a decline and only 12.8% (95%) CI 7.02% to 29.88%) initiating SLT in the ages of 18-19 [see supplementary table 4].

While the rates of SLT use initiation are comparable (or even lower as in the case of Bangladesh), to smoking initiation at age <15; the relative increase in rates of SLT initiation among those aged 15-24 is drastically increasing in Bangladesh and Pakistan. For instance, in Pakistan, among those in birth cohort of 1980-89 and 1990-99, smoking initiation increased by 97.9% while SLT initiation increased by 377.2% at an annualised rate of 37.7%. Further, in Bangladesh among those who initiated SLT use at 20-34, the relative decrease in initiation is -42.6% whereas the same for smoking initiation is a decrease at -66.8%.

Age of initiation of smokeless tobacco use by sex

Among males, a higher relative increase in SLT initiation by <15 is seen in India and Bangladesh. For instance, in Bangladesh, between the birth cohorts of 1983-92 and 1993-2002, among males, an increase of 118.9% is observed from 6.2% (95% CI 2.56% to 14.07%) to 13.5% (95% CI 3.36% to 41.01%); whereas an increase of 58.0% is observed

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among females born in the same period. A similar trend is observed among females in India, and a drastic increase in SLT initiation is characteristic of females in the latest birth cohorts of 1982-91 and 1991-2001 in India [see supplementary table 5]. Further, a greater proportion of females from India are initiating SLT use before the age 15 at 35.8% (95% CI 27.55% to 44.98%) as compared to smoking (32%, 95% CI 10.97% to 64.24%). When compared to smoking initiation, a greater decline in initiation in the ages 20-34 and \geq 35 is observed in SLT initiation in India as most initiation is occurring at lower ages.

Further, among those initiating SLT use in the ages 20-34 and \geq 35, there is a steep decline in the proportion of initiation among both males and females. For instance, in Bangladesh, the rates of initiation of SLT use at the age of \geq 35, among females, was found to be declining by -45.4%, from 51.5% (95% CI 44.73% to 58.14%) to 28.1% (95% CI 22.66% to 34.26%) from the birth cohorts 1963-72 to 1973-82 and declining by -50.1% (from 37.7%, 95% CI 29.58% to 46.49%) to 18.8% (95% CI 13.01% to 26.35%) among the male counterparts. Our results for SLT initiation among females in Pakistan are inconclusive due to limited sample size availability.

330 Age of initiation of smokeless tobacco by residential status

SLT initiation among urban and rural populations in all three nations show a comparable upward trend with respect to the proportion of individuals engaging in initiation before the age of 15 [see supplementary table 6]. Among the latest cohorts, the rates of initiation in this age group are consistently high. Compared to smoking initiation, higher increase in the proportion of SLT initiation is observed in urban India, Bangladesh, and Pakistan among those initiating SLT use before 15. Similar trends are observed in rural India and Pakistan as more individuals initiate SLT use before 15 as compared to smoking. Most of the initiation is occurring by the ages of 20-34 in urban and rural India, Bangladesh, and Pakistan. However,

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in Bangladesh a significant proportion of SLT use initiation among rural populations is occurring even at the ages of \geq 35.

In addition to this, when the pattern of initiation in the ages <15 and 15-17 is inspected, it is observed that among rural Bangladeshis, a decline in the initiation is observed among those born before 1962 and those born between 1963-72 as most initiation among those born before 1962 is occurring between the ages of 20-34 and \geq 35; whereas in the recent cohorts the age of initiation is lowered, especially in rural households.

Among those initiating use in the ages 18-19, a contrast in SLT initiation is observed in urban Pakistan as while in India and Bangladesh, the trend of initiation in this age group is upward, a decline is observed in Pakistan as initiation is dispersed across the age groups and continues till \geq 35. Also, in this age group, as Pakistan observes an increase in smoking initiation in the cohort born between 1980-89 and between 1990-99, a significant decrease of 69.6% from 11.9% (95% CI 3.46% to 33.63%) to 3.6% (95% CI 0.76% to 15.45%) is observed in SLT initiation during the same time period.

In India, an undulating pattern of initiation in the age before 15 is observed, whereas an increase is observed between ages 15-19; followed by a drastic increase in initiation during ages 20-34. For instance, a substantial decrease in SLT initiation in the ages 20-34 is observed in the recent birth cohorts in rural and urban India, with a sharp decrease from 51.8% (95% CI 48.76% to 54.89%) among those born between 1982-91 to 14.4% (95% CI 11.01% to 18.49%) in rural India. Initiation among SLT users at the age of \geq 35 in all three countries in almost all cohorts is decreasing as most initiation is occurring in adolescence and early adulthood.

DISCUSSION

Page 17 of 40

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The findings from this study reveal that there is an escalating decline in the age of initiation of smoking and SLT use as a substantial proportion of adults from India, Bangladesh, and Pakistan, who have been ever-daily smokers or SLT users, male or female from urban or rural households, reported initiating daily use of the products before adulthood. Rates of SLT initiation are comparable to smoking initiation at age <15, however, a higher increase in rates of SLT initiation among the younger cohorts aged 15-24 is observed, especially in India and Pakistan. Males and females reported daily usage of tobacco products at similar ages, during adolescence and early adulthood whereas lower rates of decline in SLT initiation is observed among Indian females as compared to males. Populations from urban and rural households show similar trends in tobacco initiation, with higher increase in proportion of SLT initiation in urban Pakistan, urban India, and urban Bangladesh among those initiating tobacco uses before 15. Our findings are consistent with recent patterns of tobacco initiation as observed in longitudinal as well as cross-sectional studies across several nations, including in South-east Asia.(1,20,24,38,39)

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Further, we discovered that SLT use initiation among women is scattered and a considerable proportion initiated use throughout life. We speculate that this behaviour could be due to increased stress and demand from various roles and responsibilities shouldered by women in early and middle adulthood such as child-rearing, farm labour, and familial responsibilities(40,41). Women may also initiate SLT use during pregnancy due to myths associated with the falsely ascribed positive health effects of SLT products.(42) Further, tobacco companies often market these substances as a 'torch of freedom' and as a symbol of an emancipated and a progressive woman(43,44). Women often opt for smokeless tobacco products as SLT enjoys a social sanction due to its ritualistic importance and perception of it being less harmful than smoking; especially in South-East Asia.(45) It is especially crucial to understand tobacco use among women as it invariably affects the coming generations and

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may lead to morbidities and mortalities as maternal smoking has been identified as a significant predictor to smoking behaviours in the child(10). Further, to bolster the efforts towards tobacco control, including declarations by political leaders such as Sheikh Hasina towards achieving a tobacco-free Bangladesh by the year 2040, an in-depth understanding of factors associated with tobacco use initiation is essential(46).

Our findings suggest that youth aged <15 and between the ages 15-17 especially females, in addition to individuals from urban households are a priority population for tobacco prevention interventions. Delaying age of initiation is crucial to prevent long-term tobacco addiction, as exposure during adolescence and childhood may potentially lead to a lifetime of persistent tobacco use. Till the beginning of 21st century, tobacco control policies were limited and did not enforce restrictions on sale to and by minors. The recent age cohorts have also witnessed marketing strategies aimed at glamourizing tobacco use due to globalization and increased internet usage. Moreover, the environment of widespread direct and indirect advertising of tobacco products and other violations of tobacco control laws (47,48), contributed to early initiation of tobacco use among adolescent and young adults in the region. However, an important facet of tobacco use is its social and cultural impact which remains largely amiss from policy discourse. The social context built by tobacco use wherein an individual may be exposed to use during their formative years via parental consumption and the influence of their peers, may affect their sensitivity towards initiation and policies must focus on addressing familial and societal tobacco use when nudging an individual towards cessation. These triggers and milieu may hamper an individual's own choice in abstaining from tobacco use and may also prevent successful cessation(49,50).

409 It is essential to understand the historical career of a substance and that of the users, wherein 410 the social and cultural characteristics of a substance need to be understood in addition to the 411 societal position of an individual(51). There is a need to develop interventions to prevent and

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412 enable cessation of tobacco use that understand substance use as a choice made by413 autonomous individuals based on their socially constructed realities.

414 Our findings reinforce the importance of robust and comprehensive laws and frameworks to 415 reduce and regulate tobacco availability, affordability, advertisement and marketing, in 416 addition to increasing high-impact youth-centric tobacco education campaigns.

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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422 Data availability statement

Data are available in a public, open access repository. Data are available upon reasonable
request. Data used by the study are available by emailing prashants.geo@gmail.com

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Ethics Approval

All rounds of Global Adult Tobacco Survey obtained ethical clearance from their respective
implementation agencies in all three countries. No ethics clearance was required for this
study, as we performed a secondary data analysis using publicly available data.

Contributors

LS, PKS conceived the study. LS and PJ performed the statistical analysis. PJ and LS
analysed and interpreted the data. PJ, LS and PKS drafted the manuscript. CK, AS, PL, AY

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and SS provided comments and contributed to the development of the final draft of themanuscript. All authors have supervised and approved the manuscript.

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32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	505 506 507 508 509 510 511 512 513 514	 25. 26. 27. 28. 29. 	 Abroms L, Simons-Morton B, Haynie DL, Chen R. Psychosocial predictors of smoking trajectories during middle and high school. Addiction. 2005; L. C, C.C. P, S.C. P, S.J. S. The natural history of cigarette smoking from adolescence to adulthood in a midwestern community sample: Multiple trajectories and their psychosocial correlates. Heal Psychol. 2000; Ali MM, Dwyer DS. Estimating Peer Effects in Adolescent Smoking Behavior: A Longitudinal Analysis. J Adolesc Heal. 2009; Liang L, Chaloupka FJ. Differential effects of cigarette price on youth smoking intensity. Nicotine Tob Res. 2002; Sargent JD, Dalton M, Beach M, Bernhardt A, Heatherton T, Stevens M. Effect of
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Page 23 of 40

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5 6 7	578	FIGURES
8 9 10	579	Figure 1: Showing the initiation of smoking among male, female, urban and rural areas in
11 12 13	580	India, Pakistan, and Bangladesh
13 14 15	581	Figure 2: Showing the initiation of smokeless tobacco use among male, female, urban and
16 17 18	582	rural areas in India, Pakistan, and Bangladesh
19 20 21	583	
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597 Supporting Material

Supplementary Table 1. Initiation of smoking across different birth cohorts in Bangladesh,
India, and Pakistan (overall)

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Supplementary Table 2. Male-female difference in smoking initiation across different birth

601 cohorts in Bangladesh, India, and Pakistan

Supplementary Table 3. Urban-rural difference in smoking initiation across different birth
 cohorts in Bangladesh, India, and Pakistan

Supplementary Table 4. Initiation of smokeless tobacco across different birth cohorts in

605 Bangladesh, India, and Pakistan (overall)

606 Supplementary Table 5. Male-female difference in smokeless tobacco initiation across
 607 different birth cohorts in Bangladesh, India, and Pakistan

608 Supplementary Table 6. Urban-rural difference in smoking initiation across different birth

609 cohorts in Bangladesh, India, and Pakistan

610 Appendix Figure 1: Showing policy progress in tobacco control









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Bangladesh	iy fuble	1. Initiation	or smok	ing uero	ss anteren	India	Dungiu	desii, india u			iuii)	Pakistang					
Year	Туре	Age at initiation	%	95%C	I	Year	Туре	Age at initiation	%	95%C	I	Year Dec	Туре	Age at initiation	%	95%C	I
Before 1962	All	<15	11.7	9.24	14.71	Before 1961	All	<15	7.69	6.44	9.17	Before 2939	All	<15	10.71	6.58	1
1963-1972	All	<15	9.09	6.53	12.52	1962-1971	All	<15	5.96	4.65	7.62	1960 - 1960	All	<15	6.65	3.54	1
1973-1982	All	<15	5.4	3.69	7.82	1972-1981	All	<15	7.76	6.18	9.71	1970 8 978	All	<15	6.76	3.83	1
1983-1992	All	<15	7.3	4.9	10.76	1982-1991	All	<15	9.04	6.96	11.68	1980 9 980	All	<15	14.5	9.13	2
1993-2002	All	<15	19.24	12.3	28.8	1992-2001	All	<15	22.24	15.83	30.31	1990 A 99 A	All	<15	28.7	16.44	4
Before 1962	All	15-17	24.48	20.45	29.02	Before 1961	All	15-17	15.32	13.47	17.37	Before 1959	All	15-17	17.11	11.52	2
1963-1972	All	15-17	24.02	18.76	30.21	1962-1971	All	15-17	17.82	15.11	20.89	1960 සු 968	All	15-17	12.94	8.21	1
1973-1982	All	15-17	16.81	13.44	20.82	1972-1981	All	15-17	18.93	16.36	21.8	1970 - 1970	All	15-17	15.32	10.75	2
1983-1992	All	15-17	21.92	17.78	26.7	1982-1991	All	15-17	19.99	16.99	23.37	1980 <u>–</u>	All	15-17	16.51	11.13	2
1993-2002	All	15-17	37.31	26.65	49.37	1992-2001	All	15-17	40.32	32.18	49.03	1990 -1 99	All	15-17	44.24	28.53	6
Before 1962	All	18-19	12.57	9.55	16.37	Before 1961	All	18-19	7.56	6.34	8.98	Before 1999	All	18-19	12.22	8.21	1
1963-1972	All	18-19	13.86	10.16	18.62	1962-1971	All	18-19	12.93	10.62	15.65	1960 ခ္ 96	All	18-19	11.6	7.28	1
1973-1982	All	18-19	16.53	13.08	20.68	1972-1981	All	18-19	11.78	9.94	13.92	1970 3 97 <mark>9</mark>	All	18-19	18.29	12.34	2
1983-1992	All	18-19	19.8	15.61	24.79	1982-1991	All	18-19	16.43	13.79	19.47	1980 ម្នី 98 <mark>ទ</mark> ្ធ័	All	18-19	18.86	12.59	2
1993-2002	All	18-19	26.53	18.97	35.78	1992-2001	All	18-19	19.57	14.28	26.23	1990 5 199 <mark>8</mark>	All	18-19	14.99	7.31	2
Before 1962	All	20-34	46.31	41.49	51.21	Before 1961	All	20-34	51.35	48.7	54	Before 1959	All	20-34	47.74	39.76	5
1963-1972	All	20-34	49.65	43.72	55.59	1962-1971	All	20-34	53.9	50.39	57.38	1960 - 1962	All	20-34	58.85	50.36	6
1973-1982	All	20-34	59.26	53.46	64.82	1972-1981	All	20-34	56.86	53.45	60.19	1970 3 97 5	All	20-34	54.58	46.23	6
1983-1992	All	20-34	50.98	45.31	56.61	1982-1991	All	20-34	54.54	50.5	58.52	1980 989	All	20-34	50.14	40.39	5
1993-2002	All	20-34	16.92	10.17	26.79	1992-2001	All	20-34	17.88	12.05	25.7	1990 9 99 8	All	20-34	12.07	5.22	2
Before 1962	All	≥35	4.93	3.28	7.36	Before 1961	All	≥35	18.08	16.07	20.28	Before 1999	All	≥35	12.22	7.92	1
1963-1972	All	≥35	3.37	1.93	5.82	1962-1971	All	≥35	9.39	7.4	11.83	1960-196	All	≥35	9.96	5.98	1
1973-1982	All	≥35	2	0.91	4.33	1972-1981	All	≥35	4.67	3.13	6.92	1970-197 8	All	≥35	5.05	2.49	1
1983-1992	All	≥35	0	0	0	1982-1991	All	≥35	0	0	0	1980-198	All	≥35	0	0	0
1993-2002	All	≥35	0	0	0	1992-2001	All	≥35	0	0	0	1990-199 8	All	≥35	0	0	0

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Supplementary	Table 2. Ma	ıle-female dif	ference	in smokiı	ng initiatio	n across different	birth cohor	ts in Banglad	esh, Indi	a and Pal	cistan	includin					
Dangiauesii		Age at				muta		Age at			<u> </u>			Age at			
Year	Туре	initiation	%	95%(Year	Туре	initiation	%	95%(<u>Year</u> ⊊ m ^o	Туре	initiation	%	95%(<u>. I</u>
Before 1962	Male	<15	11.63	9.1	14.76	Before 1961	Male	<15	7.14	5.86	8.66	Before to B	Male	<15	11.76	7.12	18.8
1963-1972	Male	<15	8.43	5.91	11.87	1962-1971	Male	<15	5.68	4.32	7.44	1960 a 5 5	Male	<15	6.99	3.62	13.0
1973-1982	Male	<15	5.09	3.42	7.5	1972-1981	Male	<15	7.52	5.89	9.55	1970 a a	Male	<15	7.07	4.01	12.1
1983-1992	Male	<15	7.27	4.86	10.74	1982-1991	Male	<15	8.89	6.76	11.6	1980 9 98 90	Male	<15	14.55	9.01	22.66
1993-2002	Male	<15	19.24	12.3	28.8	1992-2001	Male	<15	21.87	15.33	30.2	1990	Male	<15	29.9	17.14	46.78
Before 1962	Male	15-17	24.62	20.41	29.39	Before 1961	Male	15-17	15.58	13.61	17.78	Before B	Male	15-17	19.38	13.05	27.79
1963-1972	Male	15-17	24.06	18.71	30.37	1962-1971	Male	15-17	17.65	14.8	20.9	1960 ය 558	Male	15-17	14.11	8.87	21.69
1973-1982	Male	15-17	16.86	13.46	20.91	1972-1981	Male	15-17	19.46	16.79	22.45	1970 a b b c c	Male	15-17	16.04	11.25	22.35
1983-1992	Male	15-17	21.88	17.74	26.68	1982-1991	Male	15-17	20.53	17.42	24.03	1980 ፰	Male	15-17	17.22	11.57	24.84
1993-2002	Male	15-17	37.31	26.65	49.37	1992-2001	Male	15-17	41.34	32.94	50.27	1990 ૡ	Male	15-17	41.92	26.12	59.58
Before 1962	Male	18-19	13.43	10.17	17.52	Before 1961	Male	18-19	8.35	6.98	9.96	Before 19	Male	18-19	13.71	9.16	20.03
1963-1972	Male	18-19	14.22	10.43	19.1	1962-1971	Male	18-19	14.08	11.55	17.06	1960 3 96	Male	18-19	13	8.18	20.05
1973-1982	Male	18-19	16.71	13.22	20.9	1972-1981	Male	18-19	12.39	10.43	14.66	1970 3 97 97	Male	18-19	17.73	11.69	25.97
1983-1992	Male	18-19	19.84	15.64	24.84	1982-1991	Male	18-19	16.79	14.08	19.9	1980 월 98 <mark>월</mark>	Male	18-19	18.8	12.35	27.55
1993-2002	Male	18-19	26.53	18.97	35.78	1992-2001	Male	18-19	19.3	13.93	26.11	1990 4 .99 &	Male	18-19	15.61	7.61	29.34
Before 1962	Male	20-34	47.33	42.28	52.44	Before 1961	Male	20-34	54.91	52.07	57.72	Before 1959	Male	20-34	47.26	38.62	56.07
1963-1972	Male	20-34	49.96	43.92	56.01	1962-1971	Male	20-34	55.64	51.92	59.31	1960 - 969	Male	20-34	57.53	48.5	66.08
1973-1982	Male	20-34	59.72	53.9	65.28	1972-1981	Male	20-34	57.07	53.56	60.52	1970 - 97%	Male	20-34	54.93	46.33	63.24
1983-1992	Male	20-34	51.01	45.34	56.66	1982-1991	Male	20-34	53.79	49.67	57.87	1980 9 989	Male	20-34	49.43	39.32	59.59
1993-2002	Male	20-34	16.92	10.17	26.79	1992-2001	Male	20-34	17.49	11.58	25.53	1990 a 999 x	Male	20-34	12.57	5.43	26.47
Before 1962	Male	≥35	2.98	1.93	4.58	Before 1961	Male	≥35	14.02	12.08	16.22	Before 19	Male	≥35	7.88	4.47	13.54
1963-1972	Male	≥35	3.33	1.87	5.85	1962-1971	Male	≥35	6.95	5.2	9.23	1960-196 6	Male	≥35	8.37	4.6	14.75
1973-1982	Male	≥35	1.63	0.69	3.79	1972-1981	Male	≥35	3.56	2.2	5.69	1970-197 8 2	Male	≥35	4.23	1.86	9.31
1983-1992	Male	≥35	0	0	0	1982-1991	Male	≥35	0	0	0	1980-1989 <u>9</u>	Male	≥35	0	0	0
1993-2002	Male	≥35	0	0	0	1992-2001	Male	≥35	0	0	0	1990-199 5	Male	≥35	0	0	0
Before 1962	Female	<15	12.36	5.09	27.04	Before 1961	Female	<15	11.12	7.33	16.52	Before 1989 Before 1989 Before 1989	Female	<15	3.32	0.77	13.12
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4	1903-1972	Female	<15	34.8	8.55	75.29	1902-1971	Female	<15	10.99	5.75	20		Female	<15	0	0.49	0
5 6	1983-1992	Female	<15	26.75	4.47	74	1982-1991	Female	<15	12.63	5.19	27.63	1980 ਰ 98 9	Female	<15	13.27	3.01	43
7	1993-2002	Female	<15	0	0	0	1992-2001	Female	<15	31.99	10.97	64.24	1990 🛱 👾 🛠	Female	<15	0	0	0
8	Before 1962	Female	15-17	0	0	0	Before 1961	Female	15-17	13.7	9.1	20.11	Before \$95	Female	15-17	100	-	-
9 10	1963-1972	Female	15-17	39.73	5.73	87.73	1962-1971	Female	15-17	19.47	11.99	30.02	1960ar 25%	Female	15-17	1.74	0.22	12.67
11	1973-1982	Female	15-17	12.35	1.47	57.09	1972-1981	Female	15-17	11.8	4.96	25.55	1970 G 9792	Female	15-17	0	0	0
12	1983-1992	Female	15-17	22.65	5.59	59.16	1982-1991	Female	15-17	7.52	3.39	15.84	1980	Female	15-17	3.28	0.43	21.21
13	1993-2002	Female	15-17	23.05	11.65	40.48	1992-2001	Female	15-17	12.94	3.98	34.8	e S ¥ 1990 ዓ.	Female	15-17	1.2	0.16	8.56
14 15	Before 1962	Female	18-19	4.03	0.82	17.57	Before 1961	Female	18-19	2.67	1.25	5.59	Before 20	Female	18-19	1.78	0.23	12.27
16	1963-1972	Female	18-19	0	0	0	1962-1971	Female	18-19	2.05	0.85	4.87	1960 au 20 90	Female	18-19	0	0	0
17	1973-1982	Female	18-19	0	0	0	1972-1981	Female	18-19	3.64	1.15	10.88	a A f 1970 ⊒ 9792	Female	18-19	30.19	8.88	65.73
18 10	1983-1992	Female	18-19	0	0	0	1982-1991	Female	18-19	8.08	1.43	34.78	1980 3 48 92	Female	18-19	20.08	4.78	55.72
20	1993-2002	Female	18-19	0	0	0	1992-2001	Female	18-19	26.85	7.34	62.96	1990 1998	Female	18-19	0	0	0
21	Before 1962	Female	20-34	36.18	21.97	53.3	Before 1961	Female	20-34	29.38	23.18	36.47	Before 1959	Female	20-34	51.09	31.29	70.56
22	1963-1972	Female	20-34	37.91	13.95	69.69	1962-1971	Female	20-34	37.48	27.89	48.16	1960 a .96	Female	20-34	69.85	44.13	87.17
23 24	1973-1982	Female	20-34	16.02	2.53	58.33	1972-1981	Female	20-34	53.95	40.69	66.67	1970 g 97 8	Female	20-34	47.08	19.08	77.04
25	1983-1992	Female	20-34	33.53	4.34	84.86	1982-1991	Female	20-34	71.77	52.45	85.42	1980 a 98 a .	Female	20-34	64.9	33.86	86.98
26	1993-2002	Female	20-34	0	0	0	1992-2001	Female	20-34	28.21	7.6	65.26	1990 ຊ .99 ຊິ	Female	20-34	0	0	0
27	Before 1962	Female	≥35	24.38	12.04	43.15	Before 1961	Female	≥35	43.12	36.1	50.44	Befor 1989	Female	≥35	42.62	23.75	63.91
28 29	1963-1972	Female	≥35	5	1.04	20.94	1962-1971	Female	≥35	32.37	22.33	44.35	1960 - 969 -	Female	≥35	23.08	8.32	49.82
30	1973-1982	Female	≥35	36.84	6.14	83.86	1972-1981	Female	≥35	19.62	9.75	35.56	1970 397%	Female	≥35	22.73	5.59	59.4
31	1983-1992	Female	≥35				1982-1991	Female	≥35	0	0	0	1980 g 989	Female	≥35			
32	1993-2002	Female	≥35				1992-2001	Female	≥35	0	0	0	1990 ਰੋ 999	Female	≥35			
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Supplementary	Table 3. Ur	ban-rural dif	ference in	n smokin	g initiation a	cross different bi	irth cohort	s in Banglade	esh, India	and Pak	istan	22-067875 o ght, includi					
Bangladesh					<u> </u>	India						Pakistan 5					
Year	Туре	Age at initiation	%	95%0	I	Year	Туре	Age at initiation	%	95%C	I	Year C	Туре	Age at initiation	%	95%0	I
Before 1962	Urban	<15	7.1	4.46	11.13	Before 1961	Urban	<15	5.45	3.42	8.59	Before 0939	Urban	<15	6.56	3.01	1
1963-1972	Urban	<15	6.28	3.07	12.43	1962-1971	Urban	<15	5.53	3.29	9.16	1960 a 95 2	Urban	<15	8.16	2.7	2
1973-1982	Urban	<15	4.94	3.1	7.79	1972-1981	Urban	<15	10.3	6.81	15.28	1970 61 97%	Urban	<15	4.58	1.81	1
1983-1992	Urban	<15	5.75	3.65	8.96	1982-1991	Urban	<15	9.78	5.21	17.6	1980 9	Urban	<15	9.25	3.7	2
1993-2002	Urban	<15	17.01	8.46	31.24	1992-2001	Urban	<15	22.77	10.59	42.33	1990 ≊ ⊈	Urban	<15	20.51	8.37	4
Before 1962	Urban	15-17	19.12	13.31	26.67	Before 1961	Urban	15-17	12.63	9.12	17.24	Before 1989	Urban	15-17	18.49	8.81	Э
1963-1972	Urban	15-17	19.82	14.06	27.19	1962-1971	Urban	15-17	16.97	11.73	23.9	1960 a 56	Urban	15-17	7.15	3.56	1
1973-1982	Urban	15-17	16.86	10.87	25.22	1972-1981	Urban	15-17	17.33	13.17	22.47	1970 a	Urban	15-17	11.86	6.11	2
1983-1992	Urban	15-17	22.11	15.72	30.18	1982-1991	Urban	15-17	14.66	9.87	21.23	1980 2 98 5	Urban	15-17	15.19	7.73	2
1993-2002	Urban	15-17	36.57	17.03	61.82	1992-2001	Urban	15-17	33.62	20.62	49.69	1990-199	Urban	15-17	38.09	13.33	7
Before 1962	Urban	18-19	14.86	8.94	23.68	Before 1961	Urban	18-19	8.91	5.97	13.1	Before 19	Urban	18-19	9.4	4.56	-
1963-1972	Urban	18-19	16.37	8.74	28.58	1962-1971	Urban	18-19	12.2	8.33	17.52	1960 3 96	Urban	18-19	14.16	7.01	2
1973-1982	Urban	18-19	10.31	6.37	16.26	1972-1981	Urban	18-19	13.02	9.66	17.32	1970 97	Urban	18-19	15.36	7.87	2
1983-1992	Urban	18-19	22.08	14.76	31.66	1982-1991	Urban	18-19	20.53	14.67	27.97	1980	Urban	18-19	15.01	7.23	2
1993-2002	Urban	18-19	36.09	20.9	54.68	1992-2001	Urban	18-19	13.98	7.43	24.77	1990 <u>v1</u> 99 <mark>8</mark>	Urban	18-19	17.54	5.15	2
Before 1962	Urban	20-34	55.52	46.26	64.4	Before 1961	Urban	20-34	54.76	48.76	60.62	Before 1959	Urban	20-34	50.09	35.21	e
1963-1972	Urban	20-34	53.42	43.38	63.19	1962-1971	Urban	20-34	55.96	48.85	62.83	1960 1962	Urban	20-34	54.04	40.18	6
1973-1982	Urban	20-34	66.99	55.12	77.03	1972-1981	Urban	20-34	56	49.82	61.99	1970 - 19700 - 19	Urban	20-34	65.27	52.51	7
1983-1992	Urban	20-34	50.06	41.06	59.05	1982-1991	Urban	20-34	55.03	46.72	63.07	1980 989	Urban	20-34	60.55	43.53	7
1993-2002	Urban	20-34	10.34	4.46	22.16	1992-2001	Urban	20-34	29.63	16.21	47.81	1990 6 999	Urban	20-34	23.85	8.79	5
Before 1962	Urban	≥35	3.41	1.73	6.62	Before 1961	Urban	≥35	18.24	14.05	23.35	Before 19	Urban	≥35	15.46	7.45	2
1963-1972	Urban	≥35	4.1	2.06	7.99	1962-1971	Urban	≥35	9.34	5.48	15.49	1960-196	Urban	≥35	16.5	7.93	3
1973-1982	Urban	≥35	0.9	0.3	2.66	1972-1981	Urban	≥35	3.36	1.68	6.61	1970-197	Urban	≥35	2.93	0.75	1
1983-1992	Urban	≥35	0	0	0	1982-1991	Urban	≥35	0	0	0	1980-198 9	Urban	≥35	0	0	(
1993-2002	Urban	≥35	0	0	0	1992-2001	Urban	≥35	0	0	0	1990-199 5	Urban	≥35	0	0	(
Before 1962	Rural	<15	12.72	9.81	16.34	Before 1961	Rural	<15	8.34	6.88	10.07	Before 19	Rural	<15	13.19	7.4	2
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3	1063 1072	Dural	~15	9.8	6.78	13.96	1062 1071	Durol	~15	6.12	4.61	8.09		Durol	<15	5.98	2.78	12.39
4	1903-1972	Rural	<15	5.57	3.43	8.93	1972-1981	Rural	<15	6.69	5.14	8.65	1970 1 97 6	Rural	<15	7.78	3.94	14.8
5 6	1983-1992	Rural	<15	7.93	4.81	12.81	1982-1991	Rural	<15	8.78	6.69	11.45	1980 គឺ 98 9	Rural	<15	16.29	9.64	26.21
7	1993-2002	Rural	<15	20.33	11.56	33.27	1992-2001	Rural	<15	21.99	15.37	30.43	1990	Rural	<15	31.72	16.4	52.39
8	Before 1962	Rural	15-17	25.67	20.99	30.99	Before 1961	Rural	15-17	16.09	14	18.44	Before \$959	Rural	15-17	16.27	10.39	24.58
9 10	1963-1972	Rural	15-17	25.08	18.8	32.62	1962-1971	Rural	15-17	18.13	15.09	21.63	1960	Rural	15-17	15.5	9.13	25.08
10	1973-1982	Rural	15-17	16.79	12.91	21.55	1972-1981	Rural	15-17	19.61	16.49	23.15	1970 0	Rural	15-17	16.94	11.09	25.01
12	1983-1992	Rural	15-17	21.84	16.79	27.88	1982-1991	Rural	15-17	21.86	18.29	25.91	1980	Rural	15-17	16.95	10.53	26.15
13	1993-2002	Rural	15-17	37.68	26.05	50.92	1992-2001	Rural	15-17	43.43	33.8	53.59		Rural	15-17	46.51	27.91	66.14
14 15	Before 1962	Rural	18-19	12.06	8.74	16.42	Before 1961	Rural	18-19	7.17	5.92	8.64	Before and	Rural	18-19	13.92	8.66	21.61
16	1963-1972	Rural	18-19	13.23	9.24	18.57	1962-1971	Rural	18-19	13.19	10.47	16.49	1960 au 20 90	Rural	18-19	10.48	5.63	18.67
17	1973-1982	Rural	18-19	18.98	14.71	24.14	1972-1981	Rural	18-19	11.26	9.14	13.8	ai (A) fr 1970⊒1 97792	Rural	18-19	19.66	12.1	30.3
18	1983-1992	Rural	18-19	18.89	14.04	24.93	1982-1991	Rural	18-19	14.99	12.22	18.26	1980	Rural	18-19	20.18	12.55	30.81
20	1993-2002	Rural	18-19	21.85	13.79	32.83	1992-2001	Rural	18-19	22.18	15.46	30.75	1990-199	Rural	18-19	14.04	5.71	30.6
21	Before 1962	Rural	20-34	20.14	11.15	33.64	Before 1961	Rural	20-34	12.4	7.7	19.37	Before 1959	Rural	20-34	7.72	1.81	27.5
22	1963-1972	Rural	20-34	51.35	44.3	58.34	1962-1971	Rural	20-34	54.36	49.74	58.92	1960 a 96	Rural	20-34	46.58	35.19	58.33
23 24	1973-1982	Rural	20-34	56.23	50.04	62.22	1972-1981	Rural	20-34	57.22	53.13	61.21	1970 0 197	Rural	20-34	49.57	39	60.18
25	1983-1992	Rural	20-34	48.71	41.76	55.7	1982-1991	Rural	20-34	53.16	49.1	57.17	1980 a 98 a .	Rural	20-34	60.97	50.39	70.61
26	1993-2002	Rural	20-34	44.27	38.8	49.88	1992-2001	Rural	20-34	50.37	47.42	53.32	1990 2 99 2	Rural	20-34	46.33	37.46	55.44
27	Before 1962	Rural	≥35	5.27	3.34	8.24	Before 1961	Rural	≥35	18.03	15.8	20.51	Befor 1969	Rural	≥35	10.29	6.14	16.74
28 29	1963-1972	Rural	≥35	3.19	1.58	6.34	1962-1971	Rural	≥35	9.4	7.24	12.11	1960 - 1969	Rural	≥35	7.07	3.52	13.7
30	1973-1982	Rural	≥35	2.43	1.01	5.77	1972-1981	Rural	≥35	5.22	3.25	8.28	1970 - 978	Rural	≥35	6.05	2.67	13.12
31	1983-1992	Rural	≥35	0	0	0	1982-1991	Rural	≥35	0	0	0	1980 0 98 2	Rural	≥35	0	0	0
32	1993-2002	Rural	≥35	0	0	0	1992-2001	Rural	≥35	0	0	0	1990 ឆ្លី 99 %	Rural	≥35	0	0	0
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Supplement	ary Tab	le 4. Initiati	ion of sn	nokeless	tobacco a	cross different b	irth coh	orts in Bangl	adesh, Iı	ndia and	Pakistan (overallin Bar@lades					
India						Pakistan						h Q					
Vear	Typ	Age at initiatio n	0/0	95%C	'n	Vear	Typ	Age at initiatio n	0/0	95%(ľ	uses reei Veas reei	Typ	Age at initiatio n	0/0	95%(ст
Before	Ľ	п	8.89	7.63	10.3	Before	t	n	6.28	3 14	12.1	Beforen 2	Ľ		4 97	3 49	7
1961	All	<15	0.07	1.05	4	1959	All	<15	0.20	5.14	5 12.8	1962 d nen 3	All	<15	ч.97	5.47	
1962-1971	All	<15	6.96	5.69	8.48	1960-1969	All	<15	5.96	2.65	8	1963 1963 1963 1963 1963 1963 1963 1963	All	<15	5.14	3.15	8
1072 1001	A 11	-15	8.31	7.04	9.8	1070-1070	A 11	-15	13.9	8.01	23.1		A 11	-15	3.95	2.7	5
1972-1981	All	<13	0.10		11.4	1970-1979	All	<13	2		1 14.0	19/32.00%62 da 4r d	All	<15			1
1982-1991	All	<15	9.48	7.79	9	1980-1989	All	<15	8.08	4.51	4	1983 2 2 2 2 2	All	<15	7.43	5.06	8
1992_2001	Δ11	~15	25.2 2	21.1 5	29.7 8	1990 1990	Δ11	<15	38.5 6	24.7 1	54.5 5		Δ11	~15	13.2	5.73	2
Before	All	<15	ے 110	10.3	13.4	Before	All	<15	23.2	14.8	34.6	Before	All	<15	1	4.07	1
1961	All	15-17	11.8	3	5	1959	All	15-17	9	2	3	1962 B	All	15-17	6.95	4.87	9
1962-1971	A11	15-17	11.4 3	9.74	13.3 6	1960-1969	A11	15-17	11.9 4	6.62	20.6		A11	15-17	6.05	4.26	8
1702 1771	4 111	10 17	15.9	13.9	18.2	1700 1707	4 111	15 17	10.8	6.21	17.0	g, g, b	4 111	15 17	8 20	6 1 1	1
1972-1981	All	15-17	8	3	6 22 5	1970-1979	All	15-17	1	0.51	21.7	1973	All	15-17	0.30	0.11	9
1982-1991	All	15-17	21.5 1	19.2 2	23.5 5	1980-1989	All	15-17	21.8	14.3	31.7 7	1985 1992	All	15-17	14.1 7	9.96	1
			377	33.2	42.3				33.4	19.8	50.5	hilar			31.0	19.8	4
1992-2001 Before	All	15-17	51.1	3	9	1990-1999 Before	All	15-17	4	2	3	1993-2002 Before 5	All	15-17	7	8	1
1961	All	18-19	5.02	4.04	6.24	1959	All	18-19	2.63	1.1	6.12	1962 8	All	18-19	3.02	1.87	4
1962-1971	All	18-19	8.93	7.43	10.7	1960-1969	All	18-19	3.98	1.57	9.74	19661918	All	18-19	4.79	2.71	8
1072 1001	A 11	19 10	0.00	8.62	11.5	1070 1070	A 11	19 10	16.5	9.6	26.9	072 1000	A 11	10 10	4.3	2.41	7
1772-1981	All	10-19	9.99 16.1	14.3	0 18.1	19/0-19/9	All	10-19	1 10.3	F (0)	1 18.0	19/3-1962 C	All	10-19	0.14	C 1	1
1982-1991	All	18-19	5	1	8	1980-1989	All	18-19	2	5.69	1	1983-19 💆	All	18-19	9.14	6.1	7
1992-2001	A11	18-19	22.9	19.3	26.9 5	1990-1999	A11	18-19	12.8	6.04	25.1	ö 1993_200∰	A11	18-19	16	8.78	2' 7
Before	4 111	10 17	11.6	39.1	44.0	Before	4 111	10 17	35.4	24.1	187	Before b	4 111	10 17	35.5	31.4	, 1
1961	All	20-34	41.0	6	7	1959	All	20-34	8	7	40./	1962 uğ	All	20-34	9	2	4

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2 3 4 5	1962-1971	All	20-34	47.5 7 57.2	44.7 1	50.4 5	1960-1969	All	20-34	54.7 4 51.8	43.2 8	65.7 1	, including	All	20-34	37.7 8 58 2	32.7	43.1 5	
6	1972-1981	All	20-34	57.2 5	54.5 7	9 55 7	1970-1979	All	20-34	4	41.0 1 48.2	02.4 9	1973 5 198	All	20-34	8 60.2	6 6	03.2 3 74.9	
8	1982-1991	All	20-34	55.0 6	2 11.2	8 17.7	1980-1989	All	20-34	59.8	48.5 3	70.3	1983 6 199	All	20-34	6 20.7	03.0 7 27.0	2 52 0	
9 10	1992-2001	All	20-34	14.1 8	11.2 3	5	1990-1999	All	20-34	15.2	7.02	29.8 8	e jo 1993 2000	All	20-34	3	27.0	33.9 8 52.0	
11 12	Before 1961	All	≥35	32.6 9	30.3 7	35.1	1959	All	≥35	32.3 2	22.4 7	44.0 4	19620 to 100	All	≥35	49.4 7	45.0 3	53.9 2	
13 14	1962-1971	All	≥35	25.1 1	22.6 5	27.7	1960-1969	All	≥35	23.3 8	14.6 8	35.1	ext 1963 ar	All	≥35	46.2 4	40.9 3	51.6 4	
15 16	1972-1981	All	≥35	8.47	7.01	10.1 9	1970-1979	All	≥35	6.92	3.54	13.0 8	nd ad 1973தில் 1973தில்	All	≥35	25.0 9	20.8 5	29.8 7	
17	1982-1991	All	≥35	0	0	0	1980-1989	All	≥35	0	0	0	198 9 198 9	All	≥35	0	0	0	
18 19	1992-2001	All	≥35	0	0	0	1990-1999	All	≥35	0	0	0	199352602	All	≥35	0	0	0	
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43						For peer	review only - I	http://b	omjopen.bn	nj.com/sit	e/about	c/guidelines	/bmjopen.bmj.com/ on June 8, 2025 at Agence Bibliographique de Al training, and similar technologies.						
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3 4 5	Supplem	entary T	able 5. Male-	-female o	lifferenc	e in smoke	eless tobacco ini	tiation ac	ross different	birth col	horts in]	Bangladesh	, Indiana ana Paki	stan				
6 7	Illula		Age at				Pakistali		Age at						Age at			
8	Year	Туре	initiation	<u>%</u>	<u>95%C</u>	<u> </u>	Year	Туре	initiation	<u>%</u> 754	<u>95%C</u>	17.51		Туре	initiation	<u>%</u>	<u>95%C</u>	<u>I</u> 4.57
9	Before 1961	Male	<15	0.82 5.46	5.55 4.07	8.00 7.28	Before 1959	Male	<15	7.54 5.42	5.04 1.99	17.51		Male	<15	2.15	1	4.57 97
10 11	1962-1971	Male	<15	5.40 6.82	4.07	1.28 8 15	1960-1969	Male	<15	5.45 12.12	1.00	14.71	1968 - 1982 - 2	Male	<15	5.55 2.84	1.4	0.1 5.56
12	1972-1981	Male	<15	0.62 8 57	5.49 6.63	0.4J	19/0-19/9	Male	<15	8.83	4.87	25.40		Male	<15	2.04 6.15	2.56	14.07
13	1982-1991	Male	<15	23.2	18.7	28.41	1980-1989	Male	<15	33 27	4.07 19 51	50.63		Male	<15	13.46	3.36	41.07
14	1992-2001 Defere 1061	Male	<15	12.06	10.7	14 21	1990-1999 Refere 1050	Male	<15	6 31	2 77	13 73		Male	<13	4 69	2 35	913
15 16	1062 1071	Male	15-17	11.67	9 56	14.17	1060 1060	Mala	15-17	15 17	8.22	26.33		Mala	15-17	5.94	3.16	10.9
7	1902-1971	Male	15-17	16.82	14.26	19.72	1900-1909	Male	15-17	12.27	6.99	20.65	1940,1972 a A T 107800082	Male	15-17	3.04	1.47	6.16
8	1972-1981	Male	15-17	22.02	19.61	24.63	1980-1989	Male	15-17	22.11	14.04	33.04		Male	15-17	16.2	8.68	28.2
9	1992-2001	Male	15-17	39.17	34.09	44.5	1990-1999	Male	15-17	34.89	19.92	53.57	1993-2002	Male	15-17	30.66	15.36	51.85
1	Before 1961	Male	18-19	5.33	4.09	6.92	Before 1959	Male	18-19	4.83	1.97	11.36	Beføre ₽ 962	Male	18-19	2.69	1.26	5.68
22	1962-1971	Male	18-19	11.08	8.95	13.63	1960-1969	Male	18-19	5.37	2.12	12.97	1963-1972	Male	18-19	8.72	4.13	17.47
3	1972-1981	Male	18-19	11.57	9.82	13.58	1970-1979	Male	18-19	19.5	11.34	31.46	19 9 3-1 9 82	Male	18-19	2.89	1.19	6.86
.4 25	1982-1991	Male	18-19	17.19	15.08	19.51	1980-1989	Male	18-19	10.74	5.75	19.18	1988-1992	Male	18-19	10.84	6.2	18.27
6	1992-2001	Male	18-19	23.27	19.2	27.91	1990-1999	Male	18-19	14.57	6.79	28.51	19\$-2902	Male	18-19	18.6	7.91	37.79
7	Before 1961	Male	20-34	49.43	46.22	52.65	Before 1959	Male	20-34	47.49	30.38	65.2	Be b ire 0 962	Male	20-34	41.15	34.55	48.08
8 9	1962-1971	Male	20-34	53.6	49.89	57.27	1960-1969	Male	20-34	59.44	46.35	71.32	19 6 3-1 % 72	Male	20-34	44.13	35.51	53.12
0	1972-1981	Male	20-34	60.18	57.01	63.26	1970-1979	Male	20-34	53.11	41.03	64.84	1983-1982	Male	20-34	72.46	64.58	79.15
1	1982-1991	Male	20-34	52.22	49.07	55.36	1980-1989	Male	20-34	58.32	45.81	69.85	1988-1992	Male	20-34	66.81	55.19	76.69
2	1992-2001	Male	20-34	14.36	11.04	18.47	1990-1999	Male	20-34	17.27	7.89	33.72	19 9	Male	20-34	37.28	19.51	59.32
3 4	Before 1961	Male	≥35	26.36	23.67	29.23	Before 1959	Male	≥35	33.84	20.03	51.09	Before 2 962	Male	≥35	49.32	42.64	56.03
35	1962-1971	Male	≥35	18.19	15.4	21.35	1960-1969	Male	≥35	14.59	7.13	27.54	1963-1% 72	Male	≥35	37.66	29.58	46.49
86	1972-1981	Male	≥35	4.61	3.59	5.9	1970-1979	Male	≥35	1.99	0.63	6.09	1973-1 8 82	Male	≥35	18.79	13.01	26.35
57 18	1982-1991	Male	≥35	0	0	0	1980-1989	Male	≥35				1983-1 🛱 2	Male	≥35			
39 40 41 42	1992-2001	Male	≥35	0	0	0	1990-1999	Male	≥35				1993-2@graphique	Male	≥35			
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4	Before 1961	Female	<15	11.68	9.58	14.17	Before 1959	Female	<15	4.78	1.63	13.19	Before 2962	Female	<15	6.95	4.67	10.22
5	1962-1971	Female	<15	9.67	7.36	12.62	1960-1969	Female	<15	7.49	2.2	22.57	19 6 3-1 9 72	Female	<15	6.1	3.43	10.62
6	1972-1981	Female	<15	12.16	9.38	15.62	1970-1979	Female	<15	18.13	5.8	44.33	19 2	Female	<15	4.47	2.85	6.95
/ 8	1982-1991	Female	<15	13.36	10.69	16.58	1980-1989	Female	<15	1.06	0.14	7.69	19 65 – 19	Female	<15	8.17	5.47	12.03
9	1992-2001	Female	<15	35.8	27.55	44.98	1990-1999	Female	<15	73.43	36.07	93.12	1993 2 60 2	Female	<15	12.91	5.76	26.45
10	Before 1961	Female	15-17	11.46	9.21	14.18	Before 1959	Female	15-17	43.51	28.19	60.19	Be	Female	15-17	8.53	5.63	12.72
11	1962-1971	Female	15-17	10.98	8.37	14.27	1960-1969	Female	15-17	2.65	0.59	11.04	19 ఴౢఀౢఀౢఀ ౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢౢ	Female	15-17	6.11	4.03	9.18
12	1972-1981	Female	15-17	13.82	10.96	17.29	1970-1979	Female	15-17	3.1	0.73	12.21	1923 -7 982	Female	15-17	10.93	7.75	15.18
13 14	1982-1991	Female	15-17	18.28	14.7	22.5	1980-1989	Female	15-17	18.88	7.01	41.79	19 8 9 9 2	Female	15-17	12.99	8.57	19.22
15	1992-2001	Female	15-17	30	22.37	38.93	1990-1999	Female	15-17	23.91	5.58	62.55	19 ૹ૽૿ૼૼૼૼૢૻૼૼૢૻ ૼૼ ૡ૾ૻ 02	Female	15-17	31.55	17.62	49.84
16	Before 1961	Female	18-19	4.6	3.15	6.68	Before 1959	Female	18-19	0	0	0	Beb 2 62	Female	18-19	3.24	1.76	5.91
17	1962-1971	Female	18-19	5.05	3.62	7	1960-1969	Female	18-19	0	0	0	1966 5 5 5 7 2	Female	18-19	2.41	1.15	4.96
18	1972-1981	Female	18-19	5.92	4.2	8.28	1970-1979	Female	18-19	0.8	0.1	5.82	19 2 9 9 2	Female	18-19	4.98	2.47	9.79
20	1982-1991	Female	18-19	11.73	8.4	16.16	1980-1989	Female	18-19	6.41	0.87	34.82	1983-1992	Female	18-19	8.15	4.57	14.15
21	1992-2001	Female	18-19	20.93	14.76	28.82	1990-1999	Female	18-19	1.12	0.13	8.81	19🙀-2🔂2	Female	18-19	12.88	5.88	25.94
22	Before 1961	Female	20-34	31.04	27.6	34.71	Before 1959	Female	20-34	21.19	11.91	34.84	Be b ire - 962	Female	20-34	31.71	26.55	37.36
23	1962-1971	Female	20-34	36.65	32.45	41.06	1960-1969	Female	20-34	41.21	20.39	65.72	19 6 8-1972	Female	20-34	33.92	27.82	40.6
24 25	1972-1981	Female	20-34	49.7	44.75	54.65	1970-1979	Female	20-34	45.13	23.59	68.66	19 2 -1982	Female	20-34	51.52	45.15	57.84
26	1982-1991	Female	20-34	56.63	51.51	61.61	1980-1989	Female	20-34	73.65	49.32	88.93	19 86 -1 9 2	Female	20-34	70.68	63.42	77.02
27	1992-2001	Female	20-34	13.27	8.36	20.41	1990-1999	Female	20-34	1.55	0.26	8.62	19 🗱 - 2002	Female	20-34	42.65	27.05	59.86
28	Before 1961	Female	≥35	41.21	37.35	45.19	Before 1959	Female	≥35	30.52	17.98	46.82	Before 1962	Female	≥35	49.57	43.67	55.49
29 30	1962-1971	Female	≥35	37.65	33.3	42.21	1960-1969	Female	≥35	48.66	26.34	71.52	1983-1872	Female	≥35	51.46	44.73	58.14
31	1972-1981	Female	≥35	18.4	14.33	23.31	1970-1979	Female	≥35	32.85	15.15	57.26	19 5 -1982	Female	≥35	28.1	22.66	34.26
32	1982-1991	Female	≥35	0	0	0	1980-1989	Female	≥35				19 8 8-1 99 2	Female	≥35	0	0	0
33	1992-2001	Female	≥35	0	0	0	1990-1999	Female	≥35				1993-2002	Female	≥35	0	0	0
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Supplementar	y Table 6.	Urban-rural o	difference	e in smok	ing initiation	n across different	birth coh	orts in Bangla	desh, Inc	lia and Pa	akistan	g 9 for Det Bandadeth					
Year	Туре	Age at initiation	%	95%0		Year	Туре	Age at initiation	%	95%0		Years C. O	Туре	Age at initiation	%	95%(CI
Before 1961	Urban	<15	5.03	3.13	7.97	Before 1959	Urban	<15	1.93	0.26	12.87	Before a 982	Urban	<15	3.51	1.51	7.95
1962-1971	Urban	<15	3.83	2.2	6.61	1960-1969	Urban	<15	8.38	2.3	26.18	1963 1 963 1 967 2	Urban	<15	6.19	3.4	11
1972-1981	Urban	<15	8.65	5.94	12.44	1970-1979	Urban	<15	13.18	4.97	30.58	1973 616682	Urban	<15	3.94	2.41	6.39
1982-1991	Urban	<15	8.63	5.89	12.46	1980-1989	Urban	<15	7.42	2.81	18.17	1983 1983	Urban	<15	5.39	3.29	8.72
1992-2001	Urban	<15	25.66	17.12	36.58	1990-1999	Urban	<15	44.62	15.76	77.63	1993 22 00 0	Urban	<15	20.01	9.15	38.3
Before 1961	Urban	15-17	8.4	5.89	11.84	Before 1959	Urban	15-17	36.6	20.3	56.68	Before 1962	Urban	15-17	4.48	2.67	7.41
1962-1971	Urban	15-17	10.86	7.53	15.42	1960-1969	Urban	15-17	21.53	9.47	41.83	1963	Urban	15-17	6.07	3.28	10.9
1972-1981	Urban	15-17	12.89	9.87	16.68	1970-1979	Urban	15-17	10.23	4.14	23.1	1973	Urban	15-17	10.82	5.94	18.8
1982-1991	Urban	15-17	22.41	17.86	27.72	1980-1989	Urban	15-17	20.54	10.54	36.18	1983	Urban	15-17	19.98	9.84	36.3
1992-2001	Urban	15-17	40.78	30.64	51.77	1990-1999	Urban	15-17	29.72	10.6	60.14	1993 200 2	Urban	15-17	32.37	17.41	52.0
Before 1961	Urban	18-19	4.89	2.99	7.88	Before 1959	Urban	18-19	0.86	0.2	3.59	Before 1982	Urban	18-19	3.21	1.49	6.77
1962-1971	Urban	18-19	8.9	5.9	13.21	1960-1969	Urban	18-19	0.89	0.12	6.26	1963-197	Urban	18-19	3.61	1.61	7.92
1972-1981	Urban	18-19	12.12	8.87	16.35	1970-1979	Urban	18-19	15.53	5.47	36.89	1973 1982	Urban	18-19	4.34	1.78	10.1
1982-1991	Urban	18-19	11.89	8.7	16.03	1980-1989	Urban	18-19	11.87	3.46	33.63	1983 5 199 <mark>3</mark>	Urban	18-19	10.64	6.03	18.1
1992-2001	Urban	18-19	19.95	12.84	29.66	1990-1999	Urban	18-19	3.61	0.76	15.45	1993 2002	Urban	18-19	32.27	14.36	57.5
Before 1961	Urban	20-34	44.37	38.5	50.4	Before 1959	Urban	20-34	42.52	24.18	63.18	Before 1952	Urban	20-34	42.16	33.67	51.1
1962-1971	Urban	20-34	50.27	44.18	56.35	1960-1969	Urban	20-34	45.85	27.84	65.02	1963 1972	Urban	20-34	44.02	35.23	53.2
1972-1981	Urban	20-34	58.61	52.9	64.09	1970-1979	Urban	20-34	52.91	35.06	70.05	197321988	Urban	20-34	53.79	42.51	64.7
1982-1991	Urban	20-34	57.08	51.14	62.82	1980-1989	Urban	20-34	60.17	38.96	78.14	1983	Urban	20-34	63.98	50.76	75.3
1992-2001	Urban	20-34	13.61	8.24	21.67	1990-1999	Urban	20-34	22.05	5.56	57.62	1993-200	Urban	20-34	15.35	5.42	36.4
Before 1961	Urban	≥35	37.32	31.83	43.15	Before 1959	Urban	≥35	18.09	8.52	34.38	Before 1992	Urban	≥35	46.64	38.01	55.4
1962-1971	Urban	≥35	26.13	21.2	31.75	1960-1969	Urban	≥35	23.35	10.89	43.18	1963-197	Urban	≥35	40.1	32.14	48.6
1972-1981	Urban	≥35	7.73	4.66	12.55	1970-1979	Urban	≥35	8.15	3.05	20.01	1973-198	Urban	≥35	27.11	18.19	38.3
1982-1991	Urban	≥35	0	0	0	1980-1989	Urban	≥35	0	0	0	1983-199 0 гар	Urban	≥35	0	0	0
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3	1992-2001	Urban	≥35	0	0	0	1990-1999	Urban	≥35	0	0	0	1993 2 200 25	Urban	≥35	0	0	0
4 5	Before 1961	Rural	<15	9.97	8.48	11.68	Before 1959	Rural	<15	9.68	4.63	19.15	Before 1962	Rural	<15	5.27	3.58	7.69
6	1962-1971	Rural	<15	8.08	6.52	9.98	1960-1969	Rural	<15	4.85	1.7	13.09	1963 6 197	Rural	<15	4.9	2.67	8.82
7	1972-1981	Rural	<15	8.18	6.85	9.73	1970-1979	Rural	<15	14.49	7.44	26.33	1973 5 1 A8	Rural	<15	3.95	2.5	6.17
8	1982-1991	Rural	<15	9.74	7.76	12.16	1980-1989	Rural	<15	8.4	4.06	16.56	1983 <u>-</u> 1989	Rural	<15	8.04	5.13	12.4
9 10	1992-2001	Rural	<15	25.09	20.61	30.17	1990-1999	Rural	<15	37.45	22.63	55.07	1993	Rural	<15	11.54	3.62	31.21
11	Before 1961	Rural	15-17	12.75	11.05	14.67	Before 1959	Rural	15-17	12.85	6.67	23.32	Before 7962	Rural	15-17	7.45	5.03	10.9
12	1962-1971	Rural	15-17	11.63	9.75	13.81	1960-1969	Rural	15-17	7.55	3.31	16.31	1963 1978	Rural	15-17	6.04	4.02	8.99
13 14	1972-1981	Rural	15-17	17.22	14.7	20.07	1970-1979	Rural	15-17	11.25	5.73	20.91	1973 158 5	Rural	15-17	7.8	5.38	11.2
15	1982-1991	Rural	15-17	20.97	18.68	23.46	1980-1989	Rural	15-17	22.42	13.06	35.71	1983 61 8986	Rural	15-17	12.42	8.39	18.02
16	1992-2001	Rural	15-17	36.77	31.92	41.91	1990-1999	Rural	15-17	34.12	18.89	53.53	1993 200 -	Rural	15-17	30.75	17.78	47.69
17	Before 1961	Rural	18-19	5.06	3.96	6.44	Before 1959	Rural	18-19	4.01	1.5	10.32	Beforge 00992	Rural	18-19	2.98	1.7	5.15
18 19	1962-1971	Rural	18-19	8.95	7.3	10.91	1960-1969	Rural	18-19	5.4	2	13.79	1963	Rural	18-19	5.06	2.65	9.48
20	1972-1981	Rural	18-19	9.14	7.83	10.65	1970-1979	Rural	18-19	17.27	9.52	29.28	1973-198	Rural	18-19	4.3	2.15	8.39
21	1982-1991	Rural	18-19	17.45	15.31	19.82	1980-1989	Rural	18-19	9.56	5.15	17.07	1983-1992	Rural	18-19	8.69	5.19	14.19
22	1992-2001	Rural	18-19	23.78	19.76	28.33	1990-1999	Rural	18-19	14.47	6.58	28.89	19935200	Rural	18-19	11.99	5.41	24.52
23 24	Before 1961	Rural	20-34	40.83	38.2	43.5	Before 1959	Rural	20-34	29.97	17.33	46.62	Bef 🙀 1962	Rural	20-34	34.27	29.6	39.26
25	1962-1971	Rural	20-34	46.6	43.39	49.83	1960-1969	Rural	20-34	58.8	44.54	71.73	1963 8 197 <mark>2</mark> .	Rural	20-34	36.35	30.53	42.61
26	1972-1981	Rural	20-34	56.71	53.72	59.65	1970-1979	Rural	20-34	51.01	37.94	63.95	1973 4 198	Rural	20-34	59.34	53.57	64.86
27	1982-1991	Rural	20-34	51.84	48.76	54.89	1980-1989	Rural	20-34	59.63	46.02	71.89	1983 1992	Rural	20-34	70.85	63.84	76.99
28 29	1992-2001	Rural	20-34	14.35	11.01	18.49	1990-1999	Rural	20-34	13.96	5.52	31.05	1993 200 2	Rural	20-34	45.72	30.19	62.13
30	Before 1961	Rural	≥35	31.4	28.88	34.04	Before 1959	Rural	≥35	43.49	29.49	58.61	Before 1962	Rural	≥35	50.04	45	55.08
31	1962-1971	Rural	≥35	24.74	21.96	27.75	1960-1969	Rural	≥35	23.39	12.89	38.65	1963 1972	Rural	≥35	47.64	41.41	53.95
32	1972-1981	Rural	≥35	8.76	7.29	10.5	1970-1979	Rural	≥35	5.98	2.36	14.34	1973 5198 5	Rural	≥35	24.61	19.93	29.99
33 34	1982-1991	Rural	≥35	0	0	0	1980-1989	Rural	≥35	0	0	0	1983-199	Rural	≥35	0	0	0
35	1992-2001	Rural	≥35	0	0	0	1990-1999	Rural	≥35	0	0	0	1993-200	Rural	≥35	0	0	0
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STROBE Statement-	-Checklist of items	that should be incl	uded in reports of <i>c</i>	cross-sectional studies

	Item No	Recommendation	Page
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the	1
	1	abstract	1
		(b) Provide in the abstract an informative and balanced summary of what	2
		was done and what was found	
Introduction			1
Background/rationale	2	Explain the scientific background and rationale for the investigation being	3
		reported	
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			I.
Study design	4	Present key elements of study design early in the paper	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of	5
		recruitment, exposure, follow-up, and data collection	
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of	5-6
1		participants	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders,	6
		and effect modifiers. Give diagnostic criteria, if applicable	
Data sources/	8*	For each variable of interest, give sources of data and details of methods of	5
measurement		assessment (measurement). Describe comparability of assessment methods if	
		there is more than one group	
Bias	9	Describe any efforts to address potential sources of bias	7
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If	6
		applicable, describe which groupings were chosen and why	
Statistical methods	12	(a) Describe all statistical methods, including those used to control for	7
		confounding	
		(b) Describe any methods used to examine subgroups and interactions	7
		(c) Explain how missing data were addressed	7
		(<i>d</i>) If applicable, describe analytical methods taking account of sampling	
		strategy	
		(e) Describe any sensitivity analyses	
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers	8
-		potentially eligible, examined for eligibility, confirmed eligible, included in	
		the study, completing follow-up, and analysed	
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical,	8
		social) and information on exposures and potential confounders	
		(b) Indicate number of participants with missing data for each variable of	
		interest	
Outcome data	15*	Report numbers of outcome events or summary measures	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted	9-17
		estimates and their precision (eg, 95% confidence interval). Make clear	
		which confounders were adjusted for and why they were included	

		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute	
		risk for a meaningful time period	
Other analyses	17	Report other analyses done-eg analyses of subgroups and interactions, and	
		sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	18
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias	20
		or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives,	18-
		limitations, multiplicity of analyses, results from similar studies, and other	20
		relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study	
		and, if applicable, for the original study on which the present article is based	

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

Trends in age of tobacco use initiation over time in Bangladesh, India, and Pakistan: analysis of cross-sectional nationally representative surveys

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48 ABSTRACT

49 Objective: Tobacco use begins at an early age and typically leads to a long-term addiction. 50 The age of initiation for tobacco use is not well studied in South Asia, where 22% of tobacco 51 smokers and 81% of smokeless tobacco users reside.

Methods: Data from the nationally representative Global Adult Tobacco Surveys in India,
Bangladesh and Pakistan was analysed to examine patterns of initiation among smokers and
smokeless tobacco users.

Results: Data on 94,651 individuals was analysed, of which 13,396 reported were ever daily smokers and 17,684 were ever smokeless tobacco (SLT) users. The proportion of individuals initiating tobacco use before the age of 15 has increased over time. The rates of SLT initiation among those aged 15-24 increased markedly in Bangladesh (by 7.8%) and Pakistan (by 37.7%) between 1983 and 1999-2000. Among males, the increase in SLT initiation was higher in individuals aged below 15 compared to other age groups in India and Bangladesh. Smoking initiation among females aged below 15 has also significantly increased in India over time. Compared to the initiation of tobacco smoking before the age of 15 years, a greater increase in the proportion of SLT was observed in urban areas.

Conclusion: Our findings indicate that the proportion of youth initiating tobacco (both smoking and smokeless) before the age of 15 years has increased over time in all three countries. Moreover, variations in age at initiation for different types of tobacco products across countries, and by rurality, were noticeable. Younger youths (aged up to 15 years) should therefore be a priority population for tobacco control interventions. Strategies such as raising the legal age of tobacco sale and use to 21 years, and, other measures under WHO Framework Convention on Tobacco Control (FCTC), may prevent underage use and avert lifelong addiction to tobacco products.

72 Key words: Smoking, smokeless tobacco, trends, South Asia

1 2 3	75	STRENGTHS AND LIMITATIONS OF THIS STUDY
4 5	15	
6 7	76	• This is the first comparative study on the age of initiation for smoking and smokeless
8	77	tobacco in Bangladesh, India and Pakistan based on nationally representative datasets.
9 10	78	• Findings showed that the proportion of tobacco initiation before the age of 15 years
11 12	79	has increased over time in all three countries. This increase was evident in both
13	80	smoking and smokeless tobacco products.
14 15	81	• The increase in the proportion of people who initiated smokeless tobacco before the
16 17	82	age of 15 years was higher in urban areas in all three countries. This signifies the
18	83	importance of accelerating tobacco control efforts in urban areas.
19 20	84	• This study does not examine the trends in tobacco initiation by socioeconomic
21 22	85	categories due to the limited sample size. The age of initiation may differ in specific
23	86	population subgroups.
24 25 26 27 28	87	
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Preventing tobacco initiation and promoting cessation requires timely interventions to avoid preventable diseases, disabilities, and its associated deaths. Tobacco use often begins in adolescence or young adulthood, and has long-term detrimental health, social and economic consequences (1-3). Effective prevention of tobacco use requires a better understanding of the patterns of tobacco initiation and its causes. Understanding these can inform the development of effective counter strategies and allocation of resources that support tobacco deterrence in minors and youths, and promote cessation among users. Monitoring of tobacco use and patterns among youths is crucial as the risks of health effects posed by tobacco are highest among those who start early and continue its use until later into adulthood, leading to lifelong addiction. (4) Understanding these dynamics can assist policymakers and identify priority populations for interventions (5).

Studies have reported the prevalence of tobacco use,(6,7) identified different subgroups with propensity to initiate tobacco use, namely smoking and smokeless tobacco (SLT) with respect to onset and patterns of use over time. Various forms of smoking tobacco (ST) exist across the world, including, but not limited to cigarettes, cigars, pipes, bidis, etc (8). Whereas, the SLT, which is prevalent in the Indian subcontinent, includes many forms such as betel quid with tobacco, gutkha, khaini, etc.(9) Studies conducted across developed as well as developing nations, vary in terms of the populations, sample size, length of follow-up and constituted trajectories based on longitudinal as well cross-sectional datasets(10-24). Many of these studies have also utilized study samples(16,25,26) at regional level and therefore, those estimates are not truly nationally representative and have limited generalizability.

57 116 Studies indicate that peer use(10,13), higher depressive symptoms(13,22,23) and maternal 58 117 smoking(23,27) are associated with initiation at early adolescence. Other individual and

Page 6 of 42

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> community-level factors, in addition to factors such as tobacco advertising, taxation, etc. also influence initiation patterns.(28,29) Most studies report a declining age of initiation, pointing towards an alarming global trend. Further, initiation patterns of SLT use remain understudied in South Asia which constitutes a disproportionately higher percentage of the global SLT use burden (1,13,17). India, Pakistan and Bangladesh have higher rates of smoking and SLT use with lower mean age of initiation accounting 17.8 years, 18.7 years and 18.8 years, respectively (6,30).

The research questions that present study examines are: (i) what is the trend of age at initiation of tobacco use in Bangladesh, India and Pakistan? (ii) how the pattern of tobacco use initiation varies between smoking and smokeless tobacco, and (iii) how the trends and patterns of tobacco use initiation varies between men and women, and between rural and urban areas, separately for smoking and smokeless tobacco? This is crucial as children and youths are vulnerable to ever-evolving marketing strategies of tobacco companies aimed to increase and sustain tobacco consumption(29). In India, Bangladesh and Pakistan, the proportion of the youth who use tobacco is higher, and these patterns point to a deeper concern of potentially increasing risk of non-communicable diseases and mortality in future. In accordance to the WHO-Framework Convention on Tobacco Control (WHO-FCTC), this study offers a unique viewpoint, by identifying the priority populations and advocates for the development of tailored policies and targeted interventions to prevent exposure and initiation of tobacco use (31). Such practices need to be customised to local socio-cultural settings and adopted across all developing countries to prevent early initiation and reduce lifespan of tobacco use among users who are recalcitrant to cessation.

- **METHODS**
- 141 Study design

Page 7 of 42

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This study utilised data from the Global Adult Tobacco Survey (GATS) conducted in India, Pakistan, and Bangladesh. As part of the Global Tobacco Surveillance System (GTSS), GATS was launched to obtain nationally representative data in low-income and middleincome countries for tobacco use and associated behaviours, including initiation, in non-institutionalised individuals aged 15 years and older. GATS is considered to be the global standard for monitoring adult tobacco use and a standard protocol with respect to the questionnaire, sample size, data management and quality is applied in all participating countries.

A multistage, geographically clustered sampling survey, GATS has been conducted in two rounds in India, in 2009-10(32) and in 2016-17,(33). It was conducted in 2014-15 in Pakistan(34) and in 2017-18 in Bangladesh (35). In India, both rounds of GATS were carried out in all states and union territories (except one in GATS 20019-10). In Bangladesh, the survey captured information from all eight administrative units. In Pakistan, the survey was carried out in all urban and rural areas of Punjab, Sindh, Khyber Pakhtunkhwa, and Baluchistan provinces. The sample size for India included 84,047 households with a response rate of 92.90% (n=74,037). Correspondingly, the sample size for Pakistan and Bangladesh was 9,856 and 14,880 households with response rates of 81.0% (n=7,831) and 90.8% (n=12,783),respectively. Further details GATS on can be found on https://www.who.int/tobacco/surveillance/guide/en/.

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This study utilised an anonymised publicly available dataset and was therefore exempted from an institutional ethics review. We followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline for cross-sectional studies to guide our methodology and reporting. (36) The present study examined a combined sample of 94,651 participants who provided information on age at first use of smoking tobacco or SLT. Using these data, cohort analysis of age at initiation of smoking and SLT use was

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167 conducted over five decades among ever daily users. The missing information of age at 168 initiation of tobacco use (both smoking and smokeless tobacco) was 6.2% (*n*=138) in 169 Bangladesh, 7.5% (*n*=561) in India and 6.6% (*n*=76) in Pakistan. We excluded participants 170 with missing information.

171 Measures

We assessed two categories of tobacco products: smoking tobacco (includes smoking of any tobacco product, such as manufactured cigarettes, hand-rolled cigarettes, Bidis, cigar, cheroots, cigarillos, pipe-tobacco, and others) and SLT (includes any SLT product such as Betel Quid with Tobacco/zarda, zarda, zarda with supari, naswar, paan masala with tobacco, naas, snuff, mainpuri, khaini/tobacco lime mixture, gutkha, areca nut-tobacco lime mixture, mawa, mishri, gudakhu, gul, and others) use for ever daily users, that is individuals who currently use tobacco daily or former daily tobacco users. We defined initiation as first use of the product, for daily consumption, based on the following questions: 'How old were you when you first started smoking tobacco daily?', 'How many years ago did you first start smoking tobacco daily?', 'How old were you when you started using smokeless tobacco daily?', 'How many years ago did you first start using smokeless tobacco daily?' This definition of initiation covered users who were either only smokers or SLT users and dual users wherein the event of initiation of smoking or SLT have been considered as separate events. Age at tobacco initiation was divided into five categories from less than 15, 15-17, 18-19, 20-34 and \geq 35 years. The sample description is provided for smoking and SLT use in Table 1. Demographic characteristics included sex (male and female) and residence status (Urban/Rural). Current age was divided into 5 categories from 15-24 to \geq 55 in intervals of 10 years. These data were disaggregated and age of initiation across five decades was examined based on these indicators.

191 Data analysis

We assessed the distribution of reported age of initiation of first daily-use among ever daily smokers and SLT users by type of tobacco namely smoking and SLT, estimating weighted proportions with 95% Confidence Intervals (CIs). We also estimated the proportion of ever daily smokers and SLT users for different age of initiation across birth cohorts for each tobacco type by sex (male/female) and residential status (urban/rural).

In order to obtain birth cohorts, we generated a new variable which was created by subtracting the age of participants from the survey year. For instance, the first birth cohort of Pakistan was obtained by subtracting the current age of 55 from the year to survey, 2014, to obtain the year 1959, indicating a cohort of individuals born before 1959. Similarly, the latest cohort was from Bangladesh obtained by subtracting the current age of 15-24 from the survey year of 2017 to those individuals born between 1993 and 2002. We also calculated the difference in initiation between subsequent age-cohorts. The data were weighted to provide national estimates considering the survey design. All analyses were carried out using STATATM 14 version (37).

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Patients and/or the participants were not involved in the development of research question, design, or conduct, or reporting, or dissemination plans of this research as this study involves secondary analysis of the data collected in the GATS. The information collected in the GATS was used primarily for research where the personal identifiers were not disclosed and informed consent was obtained before the survey was carried out. The datasets used in this study are also available in the public domain from the Global Tobacco Surveillance System Data (https://www.cdc.gov/tobacco/global/gtss/gtssdata/index.html).

RESULTS

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214	In a total sample of 94,651 adults aged 15 years and above from India, Bangladesh and
215	Pakistan, 14.1% (13,396) and 18.7% (17,684) individuals reported being daily smokers and
216	daily SLT users ever, respectively, and provided information on age at initiation (Table 1).
217	Among these, 91.1% (12,208) were male smokers and 8.9% (1,188) females reported to be
218	smokers. Further, 59.3% (10,483) were male SLT users and 40.7% (7,201) were female SLT
219	users. Among the urban population, 32.2% (4,308) were smokers and 27.9% (4,928) were
220	SLT users. The corresponding figures for rural population were 67.8% (9,088) and 72.1%
221	(12,756), respectively.

Table 1: Respondents providing information on age of initiation of tobacco smoking and

smokeless tobacco use

	Bangladesh	India	Pakistan
Full Sample	12,783	74,037	7,831
Overall response rate	90.8%	92.9%	81.0%
Person-level response rate	93.8%	96.0%	91.2%
Smoking			
Ever daily smokers	2,943	9,472	981
Male	2,862 (96.6%)	8,448 (90.6%)	898 (91.8%)
Female	81 (3.4%)	1,024 (9.4%)	83 (8.2%)
Urban	1,416 (24.3%)	2,479 (26%)	413 (32%)
Rural	1,527 (75.7%)	6,993 (74%)	568 (68.0%)
SLT Use			
Ever daily SLT users	3,018	14,006	660
Male	1,131 (38.3%)	8,843 (70.1%)	509 (76.9%)
Female	1,887 (61.7%)	5,163 (29.9%)	151 (23.1%)
Urban	1,342 (18.8%)	3,294 (24.7%)	292 (34.9%)
Rural	1,676 (81.2%)	10,712 (75.3%)	368 (65.1%)
Note: Weighted percentage is sh	hown in the parentheses.		

Initiation of tobacco smoking

Figure 1 presents the distribution of the proportion of individuals who initiated smoking at different ages (including Below 15, 15-17, 18-19, 20-34, >34) across birth cohorts in Bangladesh, India, and Pakistan. Marked crude decline in the age of initiation is evident among ever daily smokers as the proportion of individuals initiating smoking before the age of 15 is increasing with each progressive birth cohort across the three South Asian countries.

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Figure 1. Initiation of smoking among population by sex and place of residence in India, Pakistan, and Bangladesh

Nearly 28.7% (95% CI 16.4 to 45.2) of individuals aged 15-24 at the time of the survey, in Pakistan, 22.2% (15.8 to 30.3) in India, and 19.2% (12.3 to 28.8) in Bangladesh, initiated smoking before the age of 15 years. In Bangladesh and Pakistan, a slight decline in the proportion of individuals initiating smoking before 15 was observed among the earlier cohorts, however, there has been a gradual increase among the Indian population. For instance, in India, among those born between 1982 and 1991, about 20.0% (17.0 to 23.4) initiated smoking during ages 15-17; however, among those born between 1992 and 2001, 40.3% (32.2 to 49.0), initiated daily smoking before reaching adulthood. However, such change in the proportion was observed the sharpest in Pakistan, wherein between the birth cohort of 1980-89 (16.5% (11.1 to 23.8)) and 1990-99 (44.2%, (28.5 to 61.2)), there was an increase of 168% in the proportion of individuals who initiated smoking between the ages 15-17.

Among those individuals who initiated smoking in the ages of 20-34 and \geq 35 [Supplementary Table S1], there was a reduction in the relative change in initiation in all three countries. With each progressive cohort, a lesser proportion of individuals initiated smoking in the ages of 20-34 and \geq 35. This points to a rapid decline in the age of initiation of tobacco smoking, mostly initiated before adulthood or in early adolescence. Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

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Initiation of tobacco smoking by sex

While an increase in the proportion of those initiated smoking before the age of 15 years is apparent in all the three countries; the increase in proportion among males of recent birth cohorts in Bangladesh was higher compared to males of recent birth cohorts in India and Pakistan [Supplementary Table S2]. A relative increase of 164.7% was observed in the

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proportion of male individuals who initiated smoking before the age of 15 years between the cohort of 1983-1992 (7.3%, (4.9 to 10.7)) and 1993-2002 (19.2% (12.3 to 28.8)) in Bangladesh. Among those Indian women who reported smoking, a prominent proportion of them initiated smoking before the age of 15 years (32% (11.0 to 64.2), whereas most Indian males initiated smoking in the ages 15-17 years (41.3% (32.9 to 50.3).

Among earlier cohorts, the rates of initiation were higher even among those in the ages of 18-34 and \geq 35 years, however, a drastic decline was observed in the most recent cohorts across the three countries as most initiation occurred by the age of 18 among both males and females.

265 Initiation of smoking by residential status

The trend of smoking initiation before the age of 18 in urban and rural regions followed a similar pattern with an apparent increase in the latest cohort and a higher proportion of rural individuals engaged in early smoking initiation. Even though in the latest cohort of 1992-2001, 43.4% (33.8 to 53.6) rural Indians initiated smoking between the ages 15-17, a higher relative increase of 129.3% in smoking initiation among urban Indians was observed from 14.7% (9.9 to 21.2) in 1982-91 to 33.6% (20.6 to 49.7) in 1992-2001 [Supplementary Table S3].

However, in Bangladesh and Pakistan, a reverse pattern was observed as most initiation of tobacco smoking was found to be occurred up to the age of 34 and a higher relative increase in early initiation in lower ages among recent cohorts was found among rural households. A reverse U-shaped pattern was observed in rates of smoking initiation among rural households between the ages 20-34. Among earlier cohorts, such as those born before 1962, a lower proportion of initiation was observed in this age group, and it steadily increased among those

born between 1963-1983 and then sharply declined among those in the recent cohorts,indicating earlier initiation.

Further, a higher proportion of individuals from urban Bangladesh initiated smoking before the age of 35 years compared to urban populations from India and Pakistan and rural populations from all three countries.

4 Initiation of smokeless tobacco use

Figure 2 illustrates the distribution of the proportion of individuals who initiated SLT use at different ages (including Below 15, 15-17, 18-19, 20-34, >34) across birth cohorts in Bangladesh, India, and Pakistan. A clear distinction in the rates of initiation among the latest cohort is evident with higher proportion of SLT use initiation below the age of 18 years. While there is subsequent increase in rates of initiation by each decade of birth cohorts, most apparent in the recent cohort, initiation of SLT use was mainly dispersed across adolescence and adulthood. For instance, in case of Pakistan, among those born between 1990 and 1999, 38.6% (95% CI 24.7 to 54.6) initiated SLT use before reaching the age of 15, 33.4% (19.8 to 50.5) initiated SLT use in the ages 15-17, followed by 12.8% (7.0 to 29.9) initiating in the ages of 18-19 [Supplementary Table S4].

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Figure 2. Initiation of smokeless tobacco use among population by sex and place of residence in India, Pakistan, and Bangladesh

In contrast to Bangladesh, the proportion of SLT use initiation compared to smoking initiation at age below 15 was considerably higher among the population of recent birth cohort in Pakistan. The proportional increase in initiating SLT use before the age of 15 among population of recent two birth cohorts was three times higher compared to those initiating smoking below the age of 15 in Pakistan, while it was half in the case of Bangladesh, and not of much difference in Indian context.

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303 Initiation of smokeless tobacco use by sex

Among males, a higher relative increase in SLT use initiation before the age of 15 has been observed in India and Bangladesh. For instance, between the male birth cohorts of 1983-92 and 1993-2002 in Bangladesh who initiated SLT use before the age of 15, an increase of 118.9% was observed from 6.2% (2.6 to 14.1) to 13.5% (3.4 to 41.0); compared to an increase of 58.0% between the female birth cohorts of the same periods [Supplementary Table S5]. However, a tremendous increase in the proportion of recent female birth cohorts has been observed in Pakistan who initiated the SLT use below the age of 15, far more than that observed between recent male birth cohorts. In Indian context such gender disparity was not evident, although the proportion of females born between 1992 and 2001 who initiated SLT use (35.8% (27.6 to 45.0)) before the age of 15, was relatively higher than their male counterparts (23.2% (18.7 to 28.4)).

There has been a sharp decline in the proportion of population who initiated SLT use in the ages 20-34 and \geq 35, between the recent birth cohorts of both males and females. For instance, the prevalence of females initiating SLT use at or after the age of 35 in Bangladesh declined by 45.4% (from 51.5% (44.7 to 58.1) to 28.1% (22.7 to 34.3)) between the birth cohort 1963-72 and 1973-82, and it declined by 50.1% (from 37.7% (29.6 to 46.5) to 18.8% (13.0 to 26.4)) among their male counterparts.

321 Initiation of smokeless tobacco use by residential status

322 SLT initiation among urban and rural populations in all three countries show a comparable 323 upward trend with respect to the proportion of individuals initiating SLT use before the age 324 of 15 [Supplementary Table S6]. Among the recent cohorts, the rates of SLT use initiation 325 before the age of 15 have been consistently higher in both urban and rural areas across all
Page 15 of 42

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three South Asian countries. Compared to the smoking initiation, higher increase in the proportion of population initiating SLT use before the age of 15 between the recent birth cohorts was observed in urban Pakistan, Bangladesh, and India. Similar trends were observed in rural India (25.1% (20.6 to 30.2)) and Pakistan (37.5% (22.6 to 55.1)) among the recent birth cohorts where higher proportion of populations initiated SLT use before the age of 15 compared to smoking. Majority of the population among the recent birth cohort was found initiating SLT use during the ages 15-17 in both urban and rural India, while during the ages 20-34 in urban and rural Bangladesh.

A contrasting shift in the proportion of population initiating SLT use in the ages 18-19 in recent birth cohort was observed in urban Pakistan compared to the patterns observed in India and Bangladesh. The trend of SLT use initiation in the ages 18-19 was upward between two recent birth cohorts in Bangladesh (10.6% to 32.3%) and India (11.9% to 20.0%), while a decline was observed in Pakistan (11.9% to 3.6%). However, the proportion of population born between 1980-89 and between 1990-99 who initiated smoking in the ages 18-19 in urban Pakistan recorded a marginal increase of 17% [Supplementary Table S3]. Enseignement Superieur (ABES) . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

DISCUSSION

This study suggests that age of tobacco initiation has declined in all three South Asian countries (Bangladesh, India, and Pakistan) for both smoking and SLT use among recent birth cohorts compared to the older cohorts. Decline in the age at initiation of tobacco use was evident for both men and women and in urban and rural areas across all three South Asian countries. This is clearly evident from the analyses that there was absence of gender disparity in the initiation of SLT use at early age (during adolescence and early adulthood, age up to 19 years) among the recent birth cohorts across all three South Asian countries. In contrast, higher proportions of recent cohorts of male in Pakistan and Bangladesh reported initiating smoking during adolescence and early adulthood, compared to their female

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counterparts. Urban and rural areas show similar trends in the proportion of population of recent birth cohorts initiating tobacco use during early adulthood in all three South Asian countries, with slightly higher proportion of SLT users initiating before age 15 in urban Pakistan, and urban Bangladesh, compared to their rural counterparts. Our findings are consistent with recent patterns of tobacco use initiation as observed in longitudinal as well as cross-sectional studies across several countries, including countries in South-East Asia.(1,14,18,38,39)

This study presents that the initiation of SLT use among recent female cohorts was dispersed across the ages up to mid-adulthood, especially in Bangladesh and India. We speculate that this behaviour could be due to increased stress and demand from various roles and responsibilities shouldered by women in early and middle adulthood such as child-rearing, farm labour, and familial responsibilities (40,41). Women may also initiate SLT use during pregnancy due to myths associated with the falsely ascribed positive health effects of SLT products (42) probably due to the reason they have been perceived addressing constipation. On the other hand, tobacco companies often market these substances as a 'torch of freedom' and as a symbol of an emancipated and a progressive woman (43,44). Women often opt for smokeless tobacco products as SLT enjoys a social sanction due to its ritualistic importance and perception of it being less harmful than smoking; especially in South-East Asia.(45) It is especially crucial to understand tobacco use among women as it invariably affects the coming generations and may lead to morbidities and mortalities as maternal smoking has been identified as a significant predictor to tobacco use in the child(10). To bolster the efforts towards tobacco control, including declarations by political leaders such as Sheikh Hasina towards achieving a tobacco-free Bangladesh by the year 2040, an in-depth understanding of factors associated with tobacco use initiation is essential (46). Our findings suggest that youth aged below 15 and between the ages 15-17, especially females, in addition to individuals

Page 17 of 42

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from urban households are a priority population for tobacco prevention interventions. Delaying age of initiation is crucial to prevent long-term tobacco addiction, as exposure during adolescence and childhood may potentially lead to a lifetime of persistent tobacco use.

A timeline of major tobacco control legislation in India, Pakistan and Bangladesh is illustrated in figure 3. Till 1947, common regulations were there in all three countries before the creation of independent nations. The earliest legislation in all three countries viewed tobacco as a viable source of revenue from taxes and exports and instituted laws on excise duties, conditions of employment and encouraged tobacco cultivation with limited regulation and control (47-55). Early tobacco control efforts, however, focused primarily on smoking tobacco products (*Bidi* in Bangladesh, (56) cigarettes and *zarda* in India, (57) and cigarettes and *bidi* in Pakistan) (58). Bangladesh banned the manufacture of *bidi* and trade of *tendu* leaves used for making bidis in 1976, eliminating the single largest smoking product then in the country. India ushered text warnings for cigarettes and zarda in 1975. Several attempts were undertaken in India including the strengthening consumer rights' and instituting legislation on mandatory display of quality, content and manner of use of any products in 1986 (59), the banning of smoking or spitting in a public vehicle in the 1988 and 1989, (60,61) and regulating the depiction and display of tobacco products in media, including advertisements in 1991 and 1994. (62,63) In 2003, the Indian Parliament passed a landmark bill, namely 'Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Bill', which formed the foundation of all future tobacco control actions. Pakistan also developed strategies on tobacco control by printing Health Warning Labels (HWLs) and advertisements in the early 2000s. (64,65)

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In 2004, India, Bangladesh and Pakistan ratified the WHO-FCTC, a global tobacco control instrument of primary importance as it provides strategies and measures for reduction in

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tobacco demand and supply; and enables effective tobacco control. (66) As signatories to the
WHO-FCTC, these countries have undertaken significant steps towards tobacco control,
especially for SLT by utilising existing laws and norms to implement bans such as the Food
Safety and Standards (Prohibition and Restrictions on Sales) Regulations in India,(67) and by
devising various sub-national policies and taxation laws to undertake robust tobacco control.
(68–77)

Till the beginning of the 21st century, tobacco control policies were limited and did not enforce restrictions on sale to and by minors. The recent age cohorts have also witnessed marketing strategies aimed at glamourizing tobacco use due to globalization and increased internet usage. Moreover, the environment of widespread direct and indirect advertising of tobacco products and other violations of tobacco control laws, (78,79) appears to contribute to early initiation of tobacco use among adolescents and young adults in the region. However, an important facet of tobacco use is its social and cultural impact which remains largely amiss from policy discourse. The social context built by tobacco use wherein an individual may be exposed to use during their formative years via parental consumption and the influence of their peers, may affect their sensitivity towards initiation. Policies must focus on addressing familial and societal tobacco use when nudging an individual towards cessation.

418 It is pertinent to understand the history of substance use and that of the users, wherein the 419 social and cultural characteristics of a substance need to be understood in addition to the 420 societal position of an individual.(80)

421 Our findings reinforce the importance of robust and comprehensive laws and frameworks to
422 reduce and regulate tobacco availability, affordability, advertisement, and marketing, in
423 addition to strengthening high-impact youth-centric tobacco education campaigns.

424 Acknowledgments

Page 19 of 42

 BMJ Open

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Contributors

LS, PKS conceived the study. LS, PJ and CK performed the statistical analysis. PJ, LS and
CK analysed and interpreted the data. PJ, LS and PKS drafted the manuscript. CK, AS, PL,
AY and SS provided comments and contributed to the development of the final draft of the
manuscript. All authors have supervised and approved the manuscript.

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Conflict of interest

438 None declared.

Patient and public involvement

440 No patients were involved in the development of the research question, the outcome441 measures, or the design of this study.

Patient consent for publication

443 Not applicable.

Ethics Approval

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1 2

446 All rounds of Global Adult Tobacco Survey obtained ethical clearance from their respective

447 implementation agencies in all three countries. No ethics clearance was required for this

study, as we performed a secondary data analysis using publicly available data.

449 Data availability statement

- 450 Dataset used for the countries under study are available in public domain.³³⁻³⁵ They can be
- 451 accessed from the Global Tobacco Surveillance System Data
- 452 (https://www.cdc.gov/tobacco/global/gtss/gtssdata/index.html).

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5 7 3	667	FIGURES
9 10 11	668	Figure 1: Initiation of smoking among population by sex and place of residence in India,
12 13 14	669	Pakistan, and Bangladesh
15 16	670	Figure 2: Initiation of smokeless tobacco use among population by sex and place of
7 8 9	671	residence in India, Pakistan, and Bangladesh
20 21 22	672	Figure 3: Policy progress in tobacco control in Bangladesh, India and Pakistan
23 24 25	673	
26 27	674	
29 30	675	
31 32 33 84	676	
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5 6 7 8	687	Supporting Material
9 10 11	688	Table S1. Initiation of smoking among overall population across different birth cohorts at
12 13	689	different ages in Bangladesh, India, and Pakistan
14 15 16	690	Table S2. Initiation of smoking among male and female populations across different birth
17 18	691	cohorts at different ages in Bangladesh, India, and Pakistan
19 20 21	692	Table S3. Initiation of smoking among urban and rural populations across different birth
22 23 24	693	cohorts at different ages in Bangladesh, India, and Pakistan
24 25 26	694	Table S4. Initiation of smokeless tobacco use among overall population across different
27 28	695	birth cohorts at different ages in Bangladesh, India, and Pakistan
29 30 31	696	Table S5. Initiation of smokeless tobacco use among male and female populations across
32 33	697	different birth cohorts at different ages in Bangladesh, India, and Pakistan
34 35	698	Table S6. Initiation of smokeless tobacco use among urban and rural populations across
36 37 38	699	different birth cohorts at different ages in Bangladesh, India, and Pakistan
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Trends in age of tobacco use initiation over time in Bangladesh, India, and Pakistan: analysis of cross-sectional nationally representative surveys

Supplementary Tables

Initiation of smoking among overall population across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smoking among male and female populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smoking among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smoking among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smokeless tobacco use among overall population across	2 3-4 5-6
Initiation of smoking among male and female populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smoking among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smokeless tobacco use among overall population across	3-4 5-6
Initiation of smoking among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smokeless tobacco use among overall population across	5-6
Initiation of smokeless tobacco use among overall population across	
different birth cohorts at different ages in Bangladesh, India, and Pakistan	7
Initiation of smokeless tobacco use among male and female populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan	8-9
Initiation of smokeless tobacco use among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan	10-11
	different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smokeless tobacco use among male and female populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan Initiation of smokeless tobacco use among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan

Ago at initiation	Bangladesh			India	India			a Pakistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	Bigth Cohort	%	(95% CI)	
<15	Before 1962	11.7	(9.2, 14.7)	Before 1961	7.7	(6.4, 9.2)	Besore 1959	10.7	(6.6, 16.9	
<15	1963-1972	9.1	(6.5, 12.5)	1962-1971	6.0	(4.7, 7.6)		6.7	(3.5, 12.1	
<15	1973-1982	5.4	(3.7, 7.8)	1972-1981	7.8	(6.2, 9.7)	s se <u>6</u> 0-1979	6.8	(3.8, 11.7	
<15	1983-1992	7.3	(4.9, 10.8)	1982-1991	9.0	(7.0, 11.7)		14.5	(9.1, 22.3	
<15	1993-2002	19.2	(12.3, 28.8)	1992-2001	22.2	(15.8, 30.3)		28.7	(16.4, 45	
15-17	Before 1962	24.5	(20.5, 29.0)	Before 1961	15.3	(13.5, 17.4)	6 Beore 1959	17.1	(11.5, 24	
15-17	1963-1972	24.0	(18.8, 30.2)	1962-1971	17.8	(15.1, 20.9)	¥₽20-1969	12.9	(8.2, 19.8	
15-17	1973-1982	16.8	(13.4, 20.8)	1972-1981	18.9	(16.4, 21.8)	nd g 90 0-1979	15.3	(10.8, 21	
15-17	1983-1992	21.9	(17.8, 26.7)	1982-1991	20.0	(17.0, 23.4)		16.5	(11.1, 23	
15-17	1993-2002	37.3	(26.7, 49.4)	1992-2001	40.3	(32.2, 49.0)		44.2	(28.5, 61	
18-19	Before 1962	12.6	(9.6, 16.4)	Before 1961	7.6	(6.3, 9.0)	E Set ore 1959	12.2	(8.2, 17.8	
18-19	1963-1972	13.9	(10.2, 18.6)	1962-1971	12.9	(10.6, 15.7)	بة 1969 - 1969	11.6	(7.3, 18.0	
18-19	1973-1982	16.5	(13.1, 20.7)	1972-1981	11.8	(9.9, 13.9)	A 19 2 0-1979	18.3	(12.3, 26	
18-19	1983-1992	19.8	(15.6, 24.8)	1982-1991	16.4	(13.8, 19.5)	a. 1980-1989	18.9	(12.6, 27	
18-19	1993-2002	26.5	(19.0, 35.8)	1992-2001	19.6	(14.3, 26.2)	j 1990-1999	15.0	(7.3, 28.3	
20-34	Before 1962	46.3	(41.5, 51.2)	Before 1961	51.4	(48.7, 54.0)	Besore 1959	47.7	(39.8, 55	
20-34	1963-1972	49.7	(43.7, 55.6)	1962-1971	53.9	(50.4, 57.4)	a 1900-1969	58.9	(50.4, 66	
20-34	1973-1982	59.3	(53.5, 64.8)	1972-1981	56.9	(53.5, 60.2)	1 9 2 0-1979	54.6	(46.2, 62	
20-34	1983-1992	51.0	(45.3, 56.6)	1982-1991	54.5	(50.5, 58.5)	a 1980-1989	50.1	(40.4, 59	
20-34	1993-2002	16.9	(10.2, 26.8)	1992-2001	17.9	(12.1, 25.7)	6 19 0-1999	12.1	(5.2, 25.5	
≥35	Before 1962	4.9	(3.3, 7.4)	Before 1961	18.1	(16.1, 20.3)	Bessore 1959	12.2	(7.9, 18.4	
≥35	1963-1972	3.4	(1.9, 5.8)	1962-1971	9.4	(7.4, 11.8)	હ . 19 8 0-1969	10.0	(6.0, 16.1	
≥35	1973-1982	2.0	(0.9, 4.3)	1972-1981	4.7	(3.1, 6.9)	0-1979	5.1	(2.5, 10.0	
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1980-1989	0.0	(0, 0)	
	1002 2002	0.0	(0, 0)	1992-2001	0.0	(0, 0)	1900-1999	0.0	(0, 0)	

BMJ Open BMJ Open Table S1. Initiation of smoking among overall population across different birth cohorts at different ages in Bangladesh and Pakistan

Page 33 of 42

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	Bangladesh			India			<u> </u>		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	ja – ja ja Birth Cohort	%	(95%
				Male			ecen Er use		
<15	Before 1962	11.6	(9.1, 14.8)	Before 1961	7.1	(5.9, 8.7)	B efore 1959	11.8	(7.1, 1
<15	1963-1972	8.4	(5.9, 11.9)	1962-1971	5.7	(4.3, 7.4)	at 01260-1969	7.0	(3.6, 1
<15	1973-1982	5.1	(3.4, 7.5)	1972-1981	7.5	(5.9, 9.6)		7.1	(4.0, 12
<15	1983-1992	7.3	(4.9, 10.7)	1982-1991	8.9	(6.8, 11.6)	້ອີ ຊີ 8 0-1989	14.6	(9.0, 22
<15	1993-2002	19.2	(12.3, 28.8)	1992-2001	21.9	(15.3, 30.2)	ar <u>e</u> 1890-1999	29.9	(17.1, 4
15-17	Before 1962	24.6	(20.4, 29.4)	Before 1961	15.6	(13.6, 17.8)	d Before 1959	19.4	(13.1, 2
15-17	1963-1972	24.1	(18.7, 30.4)	1962-1971	17.7	(14.8, 20.9)	a 7 d a 2 960-1969	14.1	(8.9, 2
15-17	1973-1982	16.9	(13.5, 20.9)	1972-1981	19.5	(16.8, 22.5)	B B C 7 0-1979	16.0	(11.3, 2
15-17	1983-1992	21.9	(17.7, 26.7)	1982-1991	20.5	(17.4, 24.0)	ing · 1980-1989	17.2	(11.6, 2
15-17	1993-2002	37.3	(26.7, 49.4)	1992-2001	41.3	(32.9, 50.3)	≥ 1990-1999	41.9	(26.1,
18-19	Before 1962	13.4	(10.2, 17.5)	Before 1961	8.4	(7.0, 10.0)	Before 1959	13.7	(9.2, 2
18-19	1963-1972	14.2	(10.4, 19.1)	1962-1971	14.1	(11.6, 17.1)	1960-1969	13.0	(8.2, 2
18-19	1973-1982	16.7	(13.2, 20.9)	1972-1981	12.4	(10.4, 14.7)	an 1970-1979	17.7	(11.7,2
18-19	1983-1992	19.8	(15.6, 24.8)	1982-1991	16.8	(14.1, 19.9)	<u>a</u> 1 <mark>8</mark> 80-1989	18.8	(12.4, 2
18-19	1993-2002	26.5	(19.0, 35.8)	1992-2001	19.3	(13.9, 26.1)	n i 1 0 90-1999	15.6	(7.6, 29
20-34	Before 1962	47.3	(42.3, 52.4)	Before 1961	54.9	(52.1, 57.7)	Before 1959	47.3	(38.6, 5
20-34	1963-1972	50.0	(43.9, 56.0)	1962-1971	55.6	(51.9, 59.3)	ch 1 b 60-1969	57.5	(48.5, 6
20-34	1973-1982	59.7	(53.9, 65.3)	1972-1981	57.1	(53.6, 60.5)	o <u>8</u> 1970-1979	54.9	(46.3, 0
20-34	1983-1992	51.0	(45.3, 56.7)	1982-1991	53.8	(49.7, 57.9)	gies 1980-1989	49.4	(39.3, 1
20-34	1993-2002	16.9	(10.2, 26.8)	1992-2001	17.5	(11.6, 25.5)	1 9 90-1999	12.6	(5.4, 2
≥35	Before 1962	3.0	(1.9, 4.6)	Before 1961	14.0	(12.1, 16.2)	Before 1959	7.9	(4.5, 1
≥35	1963-1972	3.3	(1.9, 5.9)	1962-1971	7.0	(5.2, 9.2)	1 8 60-1969	8.4	(4.6, 14
≥35	1973-1982	1.6	(0.7, 3.8)	1972-1981	3.6	(2.2, 5.7)	1 8 70-1979	4.2	(1.9, 9.
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1 8 80-1989	0.0	(0, 0)
>35	1993-2002	0.0	(0, 0)	1992-2001	0.0	(0, 0)	1 8 90-1999	0.0	(0, 0)

	Bangladesh			India	India						
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	Lucin Barth Cohort	%	(95% C		
				Female			D 9 D				
<15	Before 1962	12.4	(5.1, 27.0)	Before 1961	11.1	(7.3, 16.5)	S m S fore 1959	3.3	(0.8, 13.		
<15	1963-1972	34.4	(13.5, 63.8)	1962-1971	8.6	(4.8, 15.1)	es n n n s 1060-1969	3.8	(0.5, 23.		
<15	1973-1982	34.8	(8.6, 75.3)	1972-1981	11.0	(5.8, 20.0)		0.0	(0, 0)		
<15	1983-1992	26.8	(4.5, 74.0)	1982-1991	12.6	(5.2, 27.6)		13.3	(3.0, 43.0		
<15	1993-2002	0.0	(0, 0)	1992-2001	32.0	(11.0, 64.2)		0.0	(0, 0)		
15-17	Before 1962	0.0	(0, 0)	Before 1961	13.7	(9.1, 20.1)	a Before 1959	-	-		
15-17	1963-1972	39.7	(5.7, 87.7)	1962-1971	19.5	(12.0, 30.0)	a u u u	1.7	(0.2, 12.		
15-17	1973-1982	12.4	(1.5, 57.1)	1972-1981	11.8	(5.0, 25.6)	a 7 0-1979	0.0	(0, 0)		
15-17	1983-1992	22.7	(5.6, 59.2)	1982-1991	7.5	(3.4, 15.8)		3.3	(0.4, 21.		
15-17	1993-2002	23.1	(11.7, 40.5)	1992-2001	12.9	(4.0, 34.8)	ing . 1890-1999	1.2	(0.2, 8.6)		
18-19	Before 1962	4.0	(0.8, 17.6)	Before 1961	2.7	(1.3, 5.6)	≥ Before 1959	1.8	(0.2, 12.		
18-19	1963-1972	0.0	(0, 0)	1962-1971	2.1	(0.9, 4.9)	fa 1860-1969	0.0	(0, 0)		
18-19	1973-1982	0.0	(0, 0)	1972-1981	3.6	(1.2, 10.9)	ng 1970-1979	30.2	(8.9, 65.		
18-19	1983-1992	0.0	(0, 0)	1982-1991	8.1	(1.4, 34.8)	an 1 <mark>3</mark> 80-1989	20.1	(4.8, 55.		
18-19	1993-2002	0.0	(0, 0)	1992-2001	26.9	(7.3, 63.0)	a 1890-1999	0.0	(0, 0)		
20-34	Before 1962	36.2	(22.0, 53.3)	Before 1961	29.4	(23.2, 36.5)	Before 1959	51.1	(31.3, 70		
20-34	1963-1972	37.9	(14.0, 69.7)	1962-1971	37.5	(27.9, 48.2)	a 1260-1969	69.9	(44.1, 87		
20-34	1973-1982	16.0	(2.5, 58.3)	1972-1981	54.0	(40.7, 66.7)	1 1 2 70-1979	47.1	(19.1, 77		
20-34	1983-1992	33.5	(4.3, 84.9)	1982-1991	71.8	(52.5, 85.4)	0 1980-1989	64.9	(33.9, 87		
20-34	1993-2002	0.0	(0, 0)	1992-2001	28.2	(7.6, 65.3)	G 1890-1999	0.0	(0, 0)		
≥35	Before 1962	24.4	(12.0, 43.2)	Before 1961	43.1	(36.1, 50.4)	B e fore 1959	42.6	(23.8, 63		
≥35	1963-1972	5.0	(1.0, 20.9)	1962-1971	32.4	(22.3, 44.4)	1 % 60-1969	23.1	(8.3, 49.		
≥35	1973-1982	36.8	(6.1, 83.9)	1972-1981	19.6	(9.8, 35.6)	1 8 70-1979	22.7	(5.6, 59.4		
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1 80-1989	0.0	(0,0)		
≥35	1993-2002	0.0	(0, 0)	1992-2001	0.0	(0, 0)	1 8 90-1999	0.0	(0, 0)		

Page 35 of 42

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Ago at initiation	Bangladesh			India			e Pakistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	G Biggh Cohort	%	(95%
				Urban			or u		
<15	Before 1962	7.1	(4.5, 11.1)	Before 1961	5.5	(3.4, 8.6)	S Betore 1959	6.6	(3.0, 1
<15	1963-1972	6.3	(3.1, 12.4)	1962-1971	5.5	(3.3, 9.2)		8.2	(2.7, 2
<15	1973-1982	4.9	(3.1, 7.8)	1972-1981	10.3	(6.8, 15.3)	e 9%0-1979	4.6	(1.8, 1
<15	1983-1992	5.8	(3.7, 9.0)	1982-1991	9.8	(5.2, 17.6)	5 1 9 6 0-1989	9.3	(3.7, 2
<15	1993-2002	17.0	(8.5, 31.2)	1992-2001	22.8	(10.6, 42.3)	e S ¥ ¥9990-1999	20.5	(8.4, 4
15-17	Before 1962	19.1	(13.3, 26.7)	Before 1961	12.6	(9.1, 17.2)	and eeore 1959	18.5	(8.8, 3
15-17	1963-1972	19.8	(14.1, 27.2)	1962-1971	17.0	(11.7, 23.9)	at 1990-1969	7.2	(3.6, 1
15-17	1973-1982	16.9	(10.9, 25.2)	1972-1981	17.3	(13.2, 22.5)	n 199 1 1 1 1 1 1 1 1 1 1	11.9	(6.1, 2
15-17	1983-1992	22.1	(15.7, 30.2)	1982-1991	14.7	(9.9, 21.2)	1 9 2 0-1989	15.2	(7.7, 2
15-17	1993-2002	36.6	(17.0, 61.8)	1992-2001	33.6	(20.6, 49.7)	B. 1990-1999	38.1	(13.3,
18-19	Before 1962	14.9	(8.9, 23.7)	Before 1961	8.9	(6.0, 13.1)	Bettere 1959	9.4	(4.6, 1
18-19	1963-1972	16.4	(8.7, 28.6)	1962-1971	12.2	(8.3, 17.5)	1980-1969	14.2	(7.0, 2
18-19	1973-1982	10.3	(6.4, 16.3)	1972-1981	13.0	(9.7, 17.3)	G 19 5 0-1979	15.4	(7.9, 2
18-19	1983-1992	22.1	(14.8, 31.7)	1982-1991	20.5	(14.7, 28)	a 1980-1989	15.0	(7.2, 2
18-19	1993-2002	36.1	(20.9, 54.7)	1992-2001	14.0	(7.4, 24.8)	S 19 2 0-1999	17.5	(5.2, 4
20-34	Before 1962	55.5	(46.3, 64.4)	Before 1961	54.8	(48.8, 60.6)	Besore 1959	50.1	(35.2,
20-34	1963-1972	53.4	(43.4, 63.2)	1962-1971	56.0	(48.9, 62.8)	19 5 0-1969	54.0	(40.2,
20-34	1973-1982	67.0	(55.1, 77.0)	1972-1981	56.0	(49.8, 62.0)	no 19,000-1979	65.3	(52.5,
20-34	1983-1992	50.1	(41.1, 59.1)	1982-1991	55.0	(46.7, 63.1)	9 . 19 2 0-1989	60.6	(43.5,
20-34	1993-2002	10.3	(4.5, 22.2)	1992-2001	29.6	(16.2, 47.8)	ຶ່ 19 ຊຸ 0-1999	23.9	(8.8, 5
≥35	Before 1962	3.4	(1.7, 6.6)	Before 1961	18.2	(14.1, 23.4)	Beare 1959	15.5	(7.5, 2
≥35	1963-1972	4.1	(2.1, 8.0)	1962-1971	9.3	(5.5, 15.5)	1980-1969	16.5	(7.9, 3
≥35	1973-1982	0.9	(0.3, 2.7)	1972-1981	3.4	(1.7, 6.6)	1900-1979	2.9	(0.8, 1
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1980-1989	0.0	(0,0)
2 D F	1993-2002	0.0	(0,0)	1992-2001	0.0	(0, 0)	1920-1999	0.0	(0,0)

BMJ Open **Table S3.** Initiation of smoking among urban and rural populations across different birth cohorts at different ages in Bargladiesh, India, and Pakistan

	Bangladesh			India	India			j ë Pakiistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	u Bi f th Cohort	%	(95%	
				Rural			n 9 ng 1			
<15	Before 1962	12.7	(9.8, 16.3)	Before 1961	8.3	(6.9, 10.1)	Becore 1959	13.2	(7.4, 2	
<15	1963-1972	9.8	(6.8, 14.0)	1962-1971	6.1	(4.6, 8.1)	S m č S S S S S S S S S S	6.0	(2.8, 2	
<15	1973-1982	5.6	(3.4, 8.9)	1972-1981	6.7	(5.1, 8.7)	e g 9 2 0-1979	7.8	(3.9, 1	
<15	1983-1992	7.9	(4.8, 12.8)	1982-1991	8.8	(6.7, 11.5)	6 9 8 0-1989	16.3	(9.6, 2	
<15	1993-2002	20.3	(11.6, 33.3)	1992-2001	22.0	(15.4, 30.4)	6 1 990-1999	31.7	(16.4,	
15-17	Before 1962	25.7	(21.0, 31.0)	Before 1961	16.1	(14.0, 18.4)	το βοre 1959	16.3	(10.4,	
15-17	1963-1972	25.1	(18.8, 32.6)	1962-1971	18.1	(15.1, 21.6)	an 9900-1969	15.5	(9.1, 2	
15-17	1973-1982	16.8	(12.9, 21.6)	1972-1981	19.6	(16.5, 23.2)	a 1920-1979	16.9	(11.1,	
15-17	1983-1992	21.8	(16.8, 27.9)	1982-1991	21.9	(18.3, 25.9)		17.0	(10.5,	
15-17	1993-2002	37.7	(26.1, 50.9)	1992-2001	43.4	(33.8, 53.6)		46.5	(27.9,	
18-19	Before 1962	12.1	(8.7, 16.4)	Before 1961	7.2	(5.9, 8.6)	Berore 1959	13.9	(8.7, 2	
18-19	1963-1972	13.2	(9.2, 18.6)	1962-1971	13.2	(10.5, 16.5)	t 1950-1969	10.5	(5.6, 1	
18-19	1973-1982	19.0	(14.7, 24.1)	1972-1981	11.3	(9.1, 13.8)	ai 1920-1979	19.7	(12.1,	
18-19	1983-1992	18.9	(14.0, 24.9)	1982-1991	15.0	(12.2, 18.3)	g 1980-1989	20.2	(12.6,	
18-19	1993-2002	21.9	(13.8, 32.8)	1992-2001	22.2	(15.5, 30.8)	1990-1999	14.0	(5.7,3	
20-34	Before 1962	20.1	(11.2, 33.6)	Before 1961	12.4	(7.7, 19.4)	S. Begore 1959	7.7	(1.8, 2	
20-34	1963-1972	51.4	(44.3, 58.3)	1962-1971	54.4	(49.7, 58.9)	ar 19 g 0-1969	46.6	(35.2,	
20-34	1973-1982	56.2	(50.0, 62.2)	1972-1981	57.2	(53.1, 61.2)	ec 19g0-1979	49.6	(39.0,	
20-34	1983-1992	48.7	(41.8, 55.7)	1982-1991	53.2	(49.1, 57.2)	1 980-1989	61.0	(50.4,	
20-34	1993-2002	44.3	(38.8, 49.9)	1992-2001	50.4	(47.4, 53.3)	g 19 8 0-1999	46.3	(37.5,	
≥35	Before 1962	5.3	(3.3, 8.2)	Before 1961	18.0	(15.8, 20.5)	Before 1959	10.3	(6.1, 1	
≥35	1963-1972	3.2	(1.6, 6.3)	1962-1971	9.4	(7.2, 12.1)	19 2 0-1969	7.1	(3.5, 2	
≥35	1973-1982	2.4	(1.0, 5.8)	1972-1981	5.2	(3.3, 8.3)	19 8 0-1979	6.1	(2.7, 1	
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0,0)	19 8 0-1989	0.0	(0,0)	
≥35	1993-2002	0.0	(0, 0)	1992-2001	0.0	(0,0)	19	0.0	(0,0)	

Page 37 of 42

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	Bangladesh			India			E Pakistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	g Bi k th Cohort	%	(95%
<15	Before 1962	5.0	(3.5, 7.0)	Before 1961	8.9	(7.6, 10.3)	5 Begore 1959	6.3	(3.1, 12
<15	1963-1972	5.1	(3.2, 8.3)	1962-1971	7.0	(5.7, 8.5)	S B B B B O -1969	6.0	(2.7, 1
<15	1973-1982	4.0	(2.7, 5.7)	1972-1981	8.3	(7.0, 9.8)		13.9	(8.0, 2
<15	1983-1992	7.4	(5.1, 10.8)	1982-1991	9.5	(7.8, 11.5)	₫ 9 980-1989	8.1	(4.5, 1
<15	1993-2002	13.2	(5.7, 27.6)	1992-2001	25.2	(21.2, 29.8)	ਰ ∰9⊕0-1999	38.6	(24.7,
15-17	Before 1962	7.0	(4.9, 9.8)	Before 1961	11.8	(10.3, 13.5)	te en te en te	23.3	(14.8,
15-17	1963-1972	6.1	(4.3, 8.5)	1962-1971	11.4	(9.7, 13.4)	a 290-1969	11.9	(6.6, 2
15-17	1973-1982	8.4	(6.1, 11.4)	1972-1981	16.0	(13.9, 18.3)	a £ 9 0 0-1979	10.8	(6.3, 1
15-17	1983-1992	14.2	(10.0, 19.8)	1982-1991	21.3	(19.2, 23.6)	a Da0-1989	21.8	(14.3,
15-17	1993-2002	31.1	(19.9, 45.0)	1992-2001	37.7	(33.2, 42.4)	n 0 0 0-1999	33.4	(19.8,
18-19	Before 1962	3.0	(1.9, 4.8)	Before 1961	5.0	(4.0, 6.2)	Bee re 1959	2.6	(1.1, 6
18-19	1963-1972	4.8	(2.7, 8.3)	1962-1971	8.9	(7.4, 10.7)	▶ 19 <mark>8</mark> 0-1969	4.0	(1.6, 9
18-19	1973-1982	4.3	(2.4, 7.6)	1972-1981	10.0	(8.6, 11.6)	a 1920-1979	16.5	(9.6, 2
18-19	1983-1992	9.1	(6.1, 13.5)	1982-1991	16.2	(14.3, 18.2)	19 <mark>8</mark> 0-1989	10.3	(5.7, 1
18-19	1993-2002	16.0	(8.8, 27.4)	1992-2001	22.9	(19.3, 27.0)	بق 19 <mark>6</mark> 0-1999	12.8	(6.0, 2
20-34	Before 1962	35.6	(31.4, 40.0)	Before 1961	41.6	(39.2, 44.1)	Betore 1959	35.5	(24.2,
20-34	1963-1972	37.8	(32.7, 43.2)	1962-1971	47.6	(44.7, 50.5)	S. 1960-1969	54.7	(43.3,
20-34	1973-1982	58.3	(53.2, 63.2)	1972-1981	57.3	(54.6, 59.9)	a 19 2 0-1979	51.8	(41.0,
20-34	1983-1992	69.3	(63.1, 74.8)	1982-1991	53.1	(50.3, 55.8)	6 19 20-1989	59.8	(48.3,
20-34	1993-2002	39.7	(27.0, 54.0)	1992-2001	14.2	(11.2, 17.8)	19 0 -1999	15.2	(7.0, 2
≥35	Before 1962	49.5	(45.0, 53.9)	Before 1961	32.7	(30.4, 35.1)	6 Betore 1959	32.3	(22.5, -
≥35	1963-1972	46.2	(40.9, 51.6)	1962-1971	25.1	(22.7, 27.7)	eg 1980-1969	23.4	(14.7,
≥35	1973-1982	25.1	(20.9, 29.9)	1972-1981	8.5	(7.0, 10.2)	19 2 0-1979	6.9	(3.5, 1
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	19 6 0-1989	0.0	(0, 0)
	1993-2002	0.0	(0,0)	1992-2001	0.0	(0,0)	19 8 0-1999	0.0	(0, 0)

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Age at initiation	Bangladesh			India			ō. Pakistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	Biech Cohort	%	(95% CI)
				Male			Dece		
<15	Before 1962	2.2	(1, 4.6)	Before 1961	6.8	(5.4, 8.7)	8 b c c c c c c c c c c	7.5	(3, 17.5)
<15	1963-1972	3.6	(1.4, 8.7)	1962-1971	5.5	(4.1, 7.3)	reign960-1969	5.4	(1.9, 14.7)
<15	1973-1982	2.8	(1.4, 5.6)	1972-1981	6.8	(5.5, 8.5)	ed #920-1979	13.1	(6.9, 23.5)
<15	1983-1992	6.2	(2.6, 14.1)	1982-1991	8.6	(6.6, 11)		8.8	(4.9, 15.5)
<15	1993-2002	13.5	(3.4, 41)	1992-2001	23.2	(18.7, 28.4)	× 4990-1999	33.3	(19.5, 50.6
15-17	Before 1962	4.7	(2.4, 9.1)	Before 1961	12.1	(10.2, 14.2)	d e b ore 1959	6.3	(2.8, 13.7)
15-17	1963-1972	5.9	(3.2, 10.9)	1962-1971	11.7	(9.6, 14.2)	ata 1960-1969	15.2	(8.2, 26.3)
15-17	1973-1982	3.0	(1.5, 6.2)	1972-1981	16.8	(14.3, 19.7)	B B 0-1979	12.3	(7, 20.7)
15-17	1983-1992	16.2	(8.7, 28.2)	1982-1991	22.0	(19.6, 24.6)	n. 1980-1989	22.1	(14, 33)
15-17	1993-2002	30.7	(15.4, 51.9)	1992-2001	39.2	(34.1, 44.5)	≥ 1980-1999	34.9	(19.9, 53.6
18-19	Before 1962	2.7	(1.3, 5.7)	Before 1961	5.3	(4.1, 6.9)	a Beore 1959	4.8	(2, 11.4)
18-19	1963-1972	8.7	(4.1, 17.5)	1962-1971	11.1	(9, 13.6)	nin 1990-1969	5.4	(2.1, 13)
18-19	1973-1982	2.9	(1.2, 6.9)	1972-1981	11.6	(9.8, 13.6)	ັຍ ຊີ 19 <mark>7</mark> 0-1979	19.5	(11.3, 31.5
18-19	1983-1992	10.8	(6.2, 18.3)	1982-1991	17.2	(15.1, 19.5)	d 1980-1989	10.7	(5.8, 19.2)
18-19	1993-2002	18.6	(7.9, 37.8)	1992-2001	23.3	(19.2, 27.9)	190-1999	14.6	(6.8, 28.5)
20-34	Before 1962	41.2	(34.6, 48.1)	Before 1961	49.4	(46.2, 52.7)	Betore 1959	47.5	(30.4, 65.2
20-34	1963-1972	44.1	(35.5, 53.1)	1962-1971	53.6	(49.9, 57.3)	ch 19 6 0-1969	59.4	(46.4, 71.3
20-34	1973-1982	72.5	(64.6, 79.2)	1972-1981	60.2	(57, 63.3)	o 1970-1979	53.1	(41, 64.8)
20-34	1983-1992	66.8	(55.2, 76.7)	1982-1991	52.2	(49.1, 55.4)	es 1980-1989	58.3	(45.8, 69.9
20-34	1993-2002	37.3	(19.5, 59.3)	1992-2001	14.4	(11, 18.5)	19 2 0-1999	17.3	(7.9, 33.7)
≥35	Before 1962	49.3	(42.6, 56)	Before 1961	26.4	(23.7, 29.2)	Bégore 1959	33.8	(20, 51.1)
≥35	1963-1972	37.7	(29.6, 46.5)	1962-1971	18.2	(15.4, 21.4)	19 6 0-1969	14.6	(7.1, 27.5)
≥35	1973-1982	18.8	(13, 26.4)	1972-1981	4.6	(3.6, 5.9)	1950-1979	2.0	(0.6, 6.1)
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	12 0-1989	0.0	(0,0)
≥35	1993-2002	0.0	(0,0)	1992-2001	0.0	(0, 0)	1990-1999	0.0	(0, 0)

BMJ Open **Table S5.** Initiation of smokeless tobacco use among male and female populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan

 Page 39 of 42

	Bangladesh			India	India			 ∃ Patistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	E Birth Cohort	%	(95	
				Female			ing 1			
<15	Before 1962	7.0	(4.7, 10.2)	Before 1961	11.7	(9.6, 14.2)	Beoore 1959	4.8	(1.6	
<15	1963-1972	6.1	(3.4, 10.6)	1962-1971	9.7	(7.4, 12.6)	S T 2 S S S S S S S S S S	7.5	(2.2	
<15	1973-1982	4.5	(2.9, 7)	1972-1981	12.2	(9.4, 15.6)	egg970-1979	18.1	(5.8	
<15	1983-1992	8.2	(5.5, 12)	1982-1991	13.4	(10.7, 16.6)	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1.1	(0.1	
<15	1993-2002	12.9	(5.8, 26.5)	1992-2001	35.8	(27.6, 45)	₫ ₩ 90-1999	73.4	(36	
15-17	Before 1962	8.5	(5.6, 12.7)	Before 1961	11.5	(9.2, 14.2)	segore 1959	43.5	(28	
15-17	1963-1972	6.1	(4, 9.2)	1962-1971	11.0	(8.4, 14.3)	and 61960-1969	2.7	(0.6	
15-17	1973-1982	10.9	(7.8, 15.2)	1972-1981	13.8	(11, 17.3)		3.1	(0.7	
15-17	1983-1992	13.0	(8.6, 19.2)	1982-1991	18.3	(14.7, 22.5)	a A T m 009980-1989	18.9	(7, 4	
15-17	1993-2002	31.6	(17.6, 49.8)	1992-2001	30.0	(22.4, 38.9)	0-1999	23.9	(5.6	
18-19	Before 1962	3.2	(1.8, 5.9)	Before 1961	4.6	(3.2, 6.7)	Begore 1959	0.0	(0,	
18-19	1963-1972	2.4	(1.2, 5)	1962-1971	5.1	(3.6, 7)	1 19 0-1969	0.0	(0,	
18-19	1973-1982	5.0	(2.5, 9.8)	1972-1981	5.9	(4.2, 8.3)	n i 1970-1979	0.8	(0.1	
18-19	1983-1992	8.2	(4.6, 14.2)	1982-1991	11.7	(8.4, 16.2)	بو 1980-1989	6.4	(0.9	
18-19	1993-2002	12.9	(5.9, 25.9)	1992-2001	20.9	(14.8, 28.8)	nd 1999	1.1	(0.1	
20-34	Before 1962	31.7	(26.6, 37.4)	Before 1961	31.0	(27.6, 34.7)	Beore 1959	21.2	(11	
20-34	1963-1972	33.9	(27.8, 40.6)	1962-1971	36.7	(32.5, 41.1)	ar 1980-1969	41.2	(20	
20-34	1973-1982	51.5	(45.2, 57.8)	1972-1981	49.7	(44.8, 54.7)	6 19 0-1979	45.1	(23	
20-34	1983-1992	70.7	(63.4, 77)	1982-1991	56.6	(51.5, 61.6)	olo 1980-1989	73.7	(49	
20-34	1993-2002	42.7	(27.1, 59.9)	1992-2001	13.3	(8.4, 20.4)	gie 1980-1999	1.6	(0.3	
≥35	Before 1962	49.6	(43.7, 55.5)	Before 1961	41.2	(37.4, 45.2)	Bestore 1959	30.5	(18	
≥35	1963-1972	51.5	(44.7, 58.1)	1962-1971	37.7	(33.3, 42.2)	1 % 0-1969	48.7	(26	
≥35	1973-1982	28.1	(22.7, 34.3)	1972-1981	18.4	(14.3, 23.3)	19 2 0-1979	32.9	(15	
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1980-1989	0.0	(0, 0	
≥35	1993-2002	0.0	(0, 0)	1992-2001	0.0	(0, 0)	1980-1999	0.0	(0,	

Ago at initiation	Bangladesh			India			ā. Pakistan			
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	Bicth Cohort	%	(95% CI)	
				Urban			or u			
<15	Before 1962	3.5	(1.5, 8.0)	Before 1961	5.0	(3.1, 8.0)	S B B O O O C C C C C C C C C C	1.9	(0.3, 12.9)	
<15	1963-1972	6.2	(3.4, 11.0)	1962-1971	3.8	(2.2, 6.6)	relan 20-1969	8.4	(2.3, 26.2)	
<15	1973-1982	3.9	(2.4, 6.4)	1972-1981	8.7	(5.9, 12.4)	ed n 930-1979	13.2	(5.0, 30.6)	
<15	1983-1992	5.4	(3.3, 8.7)	1982-1991	8.6	(5.9, 12.5)		7.4	(2.8, 18.2)	
<15	1993-2002	20.0	(9.2, 38.3)	1992-2001	25.7	(17.1, 36.6)	× 1999 0-1999	44.6	(15.8, 77.6	
15-17	Before 1962	4.5	(2.7, 7.4)	Before 1961	8.4	(5.9, 11.8)	d a contraction of the second	36.6	(20.3, 56.7	
15-17	1963-1972	6.1	(3.3, 11.0)	1962-1971	10.9	(7.5, 15.4)	ata 200-1969	21.5	(9.5, 41.8)	
15-17	1973-1982	10.8	(5.9, 18.9)	1972-1981	12.9	(9.9, 16.7)	a H 9 0-1979	10.2	(4.1, 23.1)	
15-17	1983-1992	20.0	(9.8, 36.4)	1982-1991	22.4	(17.9, 27.7)	nig. 1980-1989	20.5	(10.5, 36.2	
15-17	1993-2002	32.4	(17.4, 52.1)	1992-2001	40.8	(30.6, 51.8)	≥ 1 2 0-1999	29.7	(10.6, 60.1	
18-19	Before 1962	3.2	(1.5, 6.8)	Before 1961	4.9	(3.0, 7.9)	Beore 1959	0.9	(0.2, 3.6)	
18-19	1963-1972	3.6	(1.6, 7.9)	1962-1971	8.9	(5.9, 13.2)	ng 1960-1969	0.9	(0.1, 6.3)	
18-19	1973-1982	4.3	(1.8, 10.2)	1972-1981	12.1	(8.9, 16.4)	an 1970-1979	15.5	(5.5, 36.9)	
18-19	1983-1992	10.6	(6.0, 18.1)	1982-1991	11.9	(8.7, 16.0)	G 1 <mark>3</mark> 0-1989	11.9	(3.5, 33.6)	
18-19	1993-2002	32.3	(14.4, 57.5)	1992-2001	20.0	(12.8, 29.7)	n ia 19 8 0-1999	3.6	(0.8, 15.5)	
20-34	Before 1962	42.2	(33.7, 51.1)	Before 1961	44.4	(38.5, 50.4)	Before 1959	42.5	(24.2, 63.2	
20-34	1963-1972	44.0	(35.2, 53.2)	1962-1971	50.3	(44.2, 56.4)	5 1 % 0-1969	45.9	(27.8, 65.0	
20-34	1973-1982	53.8	(42.5, 64.7)	1972-1981	58.6	(52.9, 64.1)	b 1970-1979	52.9	(35.1, 70.1	
20-34	1983-1992	64.0	(50.8, 75.4)	1982-1991	57.1	(51.1, 62.8)	19 19 0-1989	60.2	(39.0, 78.1	
20-34	1993-2002	15.4	(5.4, 36.5)	1992-2001	13.6	(8.2, 21.7)	1990-1999	22.1	(5.6, 57.6)	
≥35	Before 1962	46.6	(38.0, 55.5)	Before 1961	37.3	(31.8, 43.2)	Begore 1959	18.1	(8.5, 34.4)	
≥35	1963-1972	40.1	(32.1, 48.6)	1962-1971	26.1	(21.2, 31.8)	19 6 0-1969	23.4	(10.9, 43.2	
≥35	1973-1982	27.1	(18.2, 38.4)	1972-1981	7.7	(4.7, 12.6)	1920-1979	8.2	(3.1, 20.0)	
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1980-1989	0.0	(0, 0)	
≥35	1993-2002	0.0	(0, 0)	1992-2001	0.0	(0, 0)	190-1999	0.0	(0, 0)	

BMJ Open **Table S6.** Initiation of smokeless tobacco use among urban and rural populations across different birth cohorts at different ages in Bangladesh, India, and Pakistan

 Page 41 of 42

	Bangladesh			India	India			 ∋ Pakistan		
Age at initiation	Birth Cohort	%	(95% CI)	Birth Cohort	%	(95% CI)	G Birth Cohort	%	(95%	
				Rural			ing f			
<15	Before 1962	5.3	(3.6, 7.7)	Before 1961	10.0	(8.5, 11.7)	Berore 1959	9.7	(4.6, 1	
<15	1963-1972	4.9	(2.7, 8.8)	1962-1971	8.1	(6.5, 10.0)	в пё ся з 250-1969	4.9	(1.7, 1	
<15	1973-1982	4.0	(2.5, 6.2)	1972-1981	8.2	(6.9, 9.7)	egg.970-1979	14.5	(7.4, 2	
<15	1983-1992	8.0	(5.1, 12.4)	1982-1991	9.7	(7.8, 12.2)	100 1989	8.4	(4.1, 1	
<15	1993-2002	11.5	(3.6, 31.2)	1992-2001	25.1	(20.6, 30.2)	5 4 99 0-1999	37.5	(22.6,	
15-17	Before 1962	7.5	(5.0, 10.9)	Before 1961	12.8	(11.1, 14.7)	e Sy A Begore 1959	12.9	(6.7, 2	
15-17	1963-1972	6.0	(4.0, 9.0)	1962-1971	11.6	(9.8, 13.8)	and 60-1969	7.6	(3.3, 1	
15-17	1973-1982	7.8	(5.4, 11.2)	1972-1981	17.2	(14.7, 20.1)		11.3	(5.7, 2	
15-17	1983-1992	12.4	(8.4, 18.0)	1982-1991	21.0	(18.7, 23.5)	a A T B B B B B C - 1989	22.4	(13.1,	
15-17	1993-2002	30.8	(17.8, 47.7)	1992-2001	36.8	(31.9, 41.9)	0-1999	34.1	(18.9,	
18-19	Before 1962	3.0	(1.7, 5.2)	Before 1961	5.1	(4.0, 6.4)	Besore 1959	4.0	(1.5, 1	
18-19	1963-1972	5.1	(2.7, 9.5)	1962-1971	9.0	(7.3, 10.9)	In 1969	5.4	(2.0, 1	
18-19	1973-1982	4.3	(2.2, 8.4)	1972-1981	9.1	(7.8, 10.7)	1970-1979	17.3	(9.5, 2	
18-19	1983-1992	8.7	(5.2, 14.2)	1982-1991	17.5	(15.3, 19.8)	رم م 1 <mark>%</mark> 0-1989	9.6	(5.2, 1	
18-19	1993-2002	12.0	(5.4, 24.5)	1992-2001	23.8	(19.8, 28.3)	nd 1990-1999	14.5	(6.6, 2	
20-34	Before 1962	34.3	(29.6, 39.3)	Before 1961	40.8	(38.2, 43.5)	Beore 1959	30.0	(17.3,	
20-34	1963-1972	36.4	(30.5, 42.6)	1962-1971	46.6	(43.4, 49.8)	ar 1960-1969	58.8	(44.5,	
20-34	1973-1982	59.3	(53.6, 64.9)	1972-1981	56.7	(53.7, 59.7)	ech 1900-1979	51.0	(37.9,	
20-34	1983-1992	70.9	(63.8, 77.0)	1982-1991	51.8	(48.8, 54.9)	198 0-1989	59.6	(46.0,	
20-34	1993-2002	45.7	(30.2, 62.1)	1992-2001	14.4	(11.0, 18.5)	G i i i i i i i i i i	14.0	(5.5, 3	
≥35	Before 1962	50.0	(45.0, 55.1)	Before 1961	31.4	(28.9, 34.0)	Berore 1959	43.5	(29.5,	
≥35	1963-1972	47.6	(41.4, 54.0)	1962-1971	24.7	(22.0, 27.8)	1 80-1969	23.4	(12.9,	
≥35	1973-1982	24.6	(19.9, 30.0)	1972-1981	8.8	(7.3, 10.5)	19 67 0-1979	6.0	(2.4, 1	
≥35	1983-1992	0.0	(0, 0)	1982-1991	0.0	(0, 0)	1980-1989	0.0	(0, 0)	
≥35	1993-2002	0.0	(0, 0)	1992-2001	0.0	(0, 0)	180-1999	0.0	(0,0)	

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STROBE Statement-	-Checklist of items	s that should be	included in re	eports of <i>cross-s</i>	ectional studies
				1	

	Item No	Recommendation	Page No
Title and abstract	1	(<i>a</i>) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what	2
		was done and what was found	
Introduction			_
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(<i>a</i>) Give the eligibility criteria, and the sources and methods of selection of participants	5-6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5
Bias	9	Describe any efforts to address potential sources of bias	7
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If	6
Statistical methods	12	(<i>a</i>) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	7
		(c) Explain how missing data were addressed	7
		(<i>d</i>) If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	
Results			
Participants	13*	 (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed 	8
		(b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	8
		(b) Indicate number of participants with missing data for each variable of interest	
Outcome data	15*	Report numbers of outcome events or summary measures	
Main results	16	(<i>a</i>) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9-17

		(b) Report category boundaries when continuous variables were categorized	
		(c) If relevant, consider translating estimates of relative risk into absolute	
		risk for a meaningful time period	
Other analyses	17	Report other analyses done-eg analyses of subgroups and interactions, and	
		sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study objectives	18
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias	20
		or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20	Give a cautious overall interpretation of results considering objectives,	18-
		limitations, multiplicity of analyses, results from similar studies, and other	20
		relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study	
		and, if applicable, for the original study on which the present article is based	

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.