

Evaluation of Tobacco Control Education Interventions in Secondary Schools: A Community Health Study

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Abstract

Objective:

To understand tobacco use patterns and the context, implementation and reception of a 2-year school-based behavioural intervention to promote awareness and support for tobacco control policies.

Design:

A qualitative exploration of participating students', parents' and teachers' perspectives, experiences and observations related to tobacco use and the school-based intervention, as well as suggestions for the more effective prevention of tobacco use.

Setting:

A total of 1,440 schools (720 intervention, 720 control) in two districts of Andhra Pradesh and five districts of Gujarat, India, participated in the study.

Method:

Forty-six focus group discussions were conducted with 94 teachers, 105 parents and 138 students in the intervention schools.

Results:

Evaluation findings signal the influence of the social, economic and cultural context on the initiation and perpetuation of tobacco use. Positive health beliefs, the economic importance of tobacco and cultural practices related to tobacco use were at variance with mounting evidence on the adverse outcomes of tobacco use. Health behaviour change related to tobacco use was observed in participating students, teachers and their families. However, the wider

community was not as much influenced. Analysis of the intervention revealed various inputs and gaps in the implementation of the intervention associated with low impact on tobacco use in the community.

Conclusion:

School-based interventions can effect significant perceived health behaviour change among students and families. Health promotion interventions need to acknowledge, harness and address cultural norms, economic pressures and policy implementation with respect to the initiation and perpetuation of tobacco use health behaviours.

Keywords

Behaviour change, behaviour change wheel, cultural norm, economic pressure, policy support, school-based intervention, social-ecological model of health, tobacco control

Tobacco use is a preventable risk factor for various diseases (World Health Organisation [WHO], 2020). Globally, tobacco use kills approximately 8 million people every year. The health burden of tobacco use as reflected in resulting morbidity and mortality is highest in low- and middle-income countries (Institute for Health Metrics and Evaluation, 2019). The latest round of the Global Adult Tobacco Survey in India estimated that 28.6% (266.8 million) of adults aged 15 years or above currently use tobacco (Tata Institute of Social Sciences [TISS], Mumbai, and Ministry of Health and Family Welfare [MOHFW], Government of India, 2017).

The WHO Tobacco Atlas revealed that 625,000 children in India between the ages of 10 and 14 years use tobacco (Drope and Schluger, 2018). Previous cross-sectional regional studies have shown that the prevalence of any tobacco use among adolescents ranges from 5.5% to 11.8% (Muttappallymyalil et al., 2012; Narain et al., 2011; Philip et al., 2013). A recent systematic review of 20 studies in India on a total population of 50,390, revealed a higher prevalence of tobacco-smoking among schoolgoing adolescents, ranging from 5.9% to 49% (Raja and Devi, 2018).

The initiation and progression of adolescent tobacco use are influenced by individual, social and environmental factors including socioeconomic status (SES), knowledge of the health effects of tobacco use, peer pressure, parental smoking, normative beliefs and social norms (Arora et al., 2013; Mathur et al., 2013). Students of lower SES are more vulnerable to increased levels of tobacco use than those of higher SES (Mathur et al., 2013). Throughout Indian society, the use of tobacco is often culturally accepted and governed by social norms and

ritualistic practices, social solidarity and community identity (Mukherjea et al., 2012; Reddy and Gupta, 2004; Shah et al., 2018). Tobacco use also has connotations for lifestyle, self-image, social relationships and social status (Reddy and Gupta, 2004).

India ratified the Framework Convention on Tobacco Control in 2004 and enacted the Cigarette and Other Tobacco Products Act (COTPA) in 2003 (Government of India, 2003). The Act prohibits tobacco-smoking in public places, except in designated smoking areas, and prohibits the advertising of all tobacco products. COTPA also restricts the sale of tobacco products within 100 yards of educational institutions and prohibits the sale of tobacco products to and by persons under the age of 18 years.

At the programmatic level, the school environment is a critical setting for tobacco use prevention and cessation. Evidence of the effectiveness of the Mobilising Youth for Tobacco Related Initiatives (MYTRI) project in India, a school-based intervention involving students, teachers, parents and communities to reduce tobacco use among adolescents (Perry et al., 2009), contributed to the case for the inclusion of School Health Programmes as part of the National Tobacco Control Programme (NTCP) (Arora et al., 2011) which was launched in 2007–2008 by the MOHFW, Government of India (2012). MYTRI adopted a group randomised trial designed to assess a 2-year multi-component intervention aimed at preventing tobacco use among schoolgoing Indian youth. Post-intervention, current tobacco use decreased by 17% in the intervention group and increased by 68% in the control group (Perry et al., 2009).

The Intervention Model for Protecting Adolescents and Children against Tobacco (IMPACT) provides a comprehensive framework for interventions to address tobacco use among adolescents. It combines policy-, community- and individual-level approaches and stresses the in-tandem use of policy and programme interventions to address multi-level risk factors for tobacco use among adolescents (Arora et al., 2012). It formed part of Strengthening of Tobacco Control Efforts through Innovative Partnerships and Strategies (STEPS), a scale-up of Project MYTRI implemented by the Public Health Foundation of India (PHFI), under the aegis of the Bill and Melinda Gates Foundation, in partnership with the State Governments of Andhra Pradesh and Gujarat (Gupta et al., 2013; Sarkar et al., 2013). The Youth Empowerment component of Project STEPS included a 2-year school-based behavioural intervention delivered to students from 720 schools (with 720 schools as control) in Andhra Pradesh and Gujarat. The programme leveraged schools as portals of community mobilisation and aimed to transfer the ownership of the programme to the students over the course of the intervention. The programme resources were field-tested and adapted to the sociocultural milieu of the project states, including the development of the complete school intervention package in the vernacular

languages – Telugu in Andhra Pradesh and Gujarati in Gujarat. A total of 75,000 students aged between 10 and 16 years, and enrolled in classes 6 to 9, participated. The intervention, to build awareness and mobilise support for tobacco control policies, was designed to foster and reinforce tobacco-free norms at home, in the school and at community levels, thereby creating a conducive environment for the effective enforcement of COTPA provisions. Themes covered included the multiple adverse effects (health, social, economic) of tobacco use, the development of self-efficacy and skills to abstain from tobacco use, support to quit tobacco use, enforcing tobacco-free norms in school, disseminating tobacco control messages to the home and community at large, and support for effective enforcement of India's tobacco control legislation. Each of the intervention components in Project STEPS, adapted from Project MYTRI ([Stigler et al., 2006](#)), was designed to engage students and parents to initially bridge knowledge gaps related to the multi-dimensional hazards of tobacco use, and subsequently, to foster and reinforce tobacco-free norms, addressing intrapersonal and social-environmental factors. The key intervention components were

- training teachers to facilitate innovative classroom activities;
- training student peer leaders to steer the intervention in the classroom and school;
- encouraging peer-led health activism through innovative methods, including debates, community walks, street plays and fun learning games;
- student–parent engagement through take home postcards and
- creating a school environment conducive to tobacco control through school posters.

This paper discusses an in-depth qualitative exploration into the social, cultural and economic underpinnings of tobacco use, and the experiences and influence of the STEPS school-based intervention on individuals, families and the community, in two states in India (Gujarat and Andhra Pradesh), which are the hub of tobacco-cultivation and the manufacturing of tobacco products. Focus group discussions (FGDs) were undertaken with students, teachers and parents of students in participating intervention schools to understand the context in which the participants lived, and how the school-based tobacco control intervention was implemented and received by the local communities. This included enquiry into individual, family, community, societal, occupational and policy factors. The social-ecological model was deemed ideal to study these diverse influences and impacts at different levels together, as well as to enable the development of recommendations at different levels of action. For a closer examination of the intervention itself, we use the behaviour change wheel, a framework comprising three layers of interacting constructs classified as sources

of behaviour, intervention functions and policy categories, developed by Michie and colleagues (2011).

Key insights from the perspectives of schoolgoing adolescents, their parents and teachers on the sociocultural and economic determinants of initiation and perpetuation of tobacco use among young people are presented in this paper. These findings have relevance for health education and health promotion and could inform future tobacco control interventions, particularly for this target population, and strengthen tobacco control in India and potentially in other low- and middle-income countries.

Methods

A qualitative assessment of the experiences and perceived influence of the school-based intervention was conducted in intervention schools in five districts of Gujarat and two districts of Andhra Pradesh. The districts selected in the two project states were not covered under the NTCP.

Ethics approval for the study, TRC-IEC 70/10, was obtained from the Public Health Foundation of India Ethics Committee. Between September and November 2013, FGDs were conducted, with teachers, student peer leaders and parents, based on their direct (teachers and students) or indirect (parents) involvement with the intervention. Overall, 46 FGDs were conducted (28 in Gujarat and 18 in Andhra Pradesh) on the school premises, involving 105 parents (both mothers and fathers), 138 students and 94 teachers. FGDs were conducted in the local languages (Gujarati and Telugu) and were moderated by a trained researcher, taking an average of 45 minutes each. They were audio-recorded, translated into English and transcribed.

The findings were analysed thematically, with coding following a three-step process. An initial list of codes was drawn up based on the questions and probes in the FGD guides developed at the outset of data collection. These were labelled a priori codes. Codes that emerged from a thorough reading of the transcripts were labelled 'emergent codes' (e.g. the gap between awareness and action). The transcripts were then coded using both these sets of codes. Higher level analytic themes, which were supersets of emergent and a priori codes (e.g. tobacco and hospitality), were arrived at from further examination of the coded transcripts, and synthesis of the a priori and emergent codes. Discrepancies and disconfirming cases were identified, discussed within the research team, and resolved and documented. Data analysis was facilitated by the use of ATLAS.Ti (6.2.11).

Results

Perspectives of students, teachers and parents on patterns of tobacco use in the community; socioeconomic and cultural aspects of tobacco-production and use;

policies; media influences; the school-based intervention on tobacco control; and suggestions for tobacco control are detailed below. Differences between the project states, Gujarat and Andhra Pradesh, are highlighted where they occurred. Quotes that illustrate the themes arrived at are presented in [Table I](#).

All participant groups acknowledged tobacco use as a pervasive health, social and economic problem, and pointed to the easy accessibility, both geographical and financial, of tobacco. The vital role of the family and friends in shaping people's interests and health behaviours was recognised by all. Previous campaigns that had attempted to discourage the use of tobacco were reported to have had rather low rates of success. Some individuals and groups had encountered resistance, expressed to varying extents, in their endeavours to advise against tobacco use.

Students' perspectives

Students acknowledged the ubiquity of tobacco use among young people, members of many of their families and the community at large. Many reported being enlightened and enthused by the school-based intervention information and activities to avoid initiating tobacco use, and to convince their tobacco-using near and dear ones to quit. Students credited the intervention with enhancing not only their knowledge about the negative effects of tobacco use, including the physical, social and economic ramifications, but with having a positive impact on their confidence, communication skills and motivation to engage with communities, transmit this information to others and persuade others to be tobacco-free. They reported feeling empowered after the intervention to positively influence their family and friends.

Students who disseminated health messages in the community, through rallies, street plays and personal conversations with associates, described a range of experiences – from being made welcome and receiving acceptance and validation from some family and community members; to disbelief and polite aloofness from strangers and those observing the effects of occasional but not habitual tobacco use; to outright opposition, rejection and hostility from habitual tobacco users. Close relatives and non-users or relatively new users of tobacco tended to engage with the students' explanations and exhortations more than strangers and habitual tobacco users did.

Parents' perspectives

Parents acknowledged the widespread use of tobacco in various forms – for enhancing work capacity, for the relief of certain disease conditions, and for socialising and recreation. Numerous workers used tobacco as a stimulant to help them perform physical labour for prolonged periods, and to shorten and

space meal breaks, making tobacco more or less inseparable from the workday for many. Participants also confirmed this from the point of view of employers of manual labourers, who were able to claim a specified amount of tobacco along with wages for labour. The use of tobacco, in smoked or smokeless forms, was believed to relieve certain physical ailments and was therefore part of most households' therapeutic repertoire. Tobacco use was cited as a customary activity and as an element of socialisation in certain social groups (e.g. among middle-aged and elderly women).

Particular mention was made of the fact that unlike alcohol, also a recreational substance, tobacco was popular and openly used among a much wider range of age and communal groups. Parents were unanimous in stating that men far outnumbered women among tobacco users: Tobacco use among women was largely attributed to beliefs of therapeutic action, and then dependency over time, rather than to the use of tobacco as a potential stimulant. Mention was also made of the strong norms against tobacco use among girls and women, particularly in certain castes. Opinion was divided on whether the prevalence of tobacco use was greater in rural areas or urban settings. Participants also indicated that the forms of tobacco most popular among users had changed somewhat over the years: for example, the use of chewing tobacco such as *gutkha* was on the rise, with a corresponding drop in the use of *paan*, which is tobacco chewed along with areca nuts, slaked lime, spices and flavouring wrapped in a betel leaf.

Parents observed that the school-based health promotion intervention had brought about appreciable changes in the families of participating students and in many cases among themselves. Some also reported a small degree of positive change in the larger community, for instance, shopkeepers no longer selling tobacco to minors. Parents discussed the competing pulls of pro-tobacco media messages and health information on the adverse effects of tobacco use, and deemed the pro-tobacco messaging, such as tobacco-using celebrities in movies and sports, more successful than the tobacco-control messaging, leading to an increase in the number of tobacco users.

Parents emphasised the influence of prominent members of the community in the success of any endeavour directed at community health. They highlighted the need for comprehensive community mobilisation involving all stakeholders, rather than an exclusive focus on specific sites such as schools, for the promotion of tobacco-free norms in the community. They advocated the organisation of community meetings to disseminate health messages and highlighted the imperative to create a social atmosphere that supports tobacco-avoidance.

The responsibility for ensuring a tobacco-free community was largely judged to be that of the government. Efforts to attain this end were expected to be

made by government and civil society organisations via the formulation and enforcement of policies and campaigns to raise community awareness. The powerful influence of teachers and celebrity role models on youth was mentioned by parents. However, individuals and institutions such as schools were not generally considered effective at more than imparting information.

Teachers' perspectives

Teachers reflected on the predominance of tobacco-production as an economic pillar in many of the communities studied and said that the economic importance of tobacco meant that tobacco use, and then abuse, were natural in the community. Some teachers believed that tobacco use was more common in persons of lower educational attainment than in people with higher levels of education and closely associated with involvement in manual labour.

Tobacco use was deeply entrenched in the sociocultural practices of many local communities and had implications for the perceived hospitality of families. Participants in Gujarat, a state where alcohol is prohibited, described the centrality of tobacco products to festivities, at gatherings of family and friends at weddings, festivals and other celebrations. This was in contrast to participants in Andhra Pradesh, whose observations were mostly about the health effects and economic impact of tobacco-production and use. The numerous cultural and socioeconomic roles of tobacco in the community made it difficult for people to wholeheartedly and summarily eliminate tobacco from their lives. Moreover, the addictive nature of tobacco engendered resistance to quit among users.

Teachers spoke about the lack of time and effort devoted by parents and teachers to children as an important influence in the commencement and maintenance of unhealthy behaviours among children. They considered their influence on students' tobacco use somewhat limited, notwithstanding the regular and detailed information on tobacco that was transmitted by them to students in the course of their schooling. They also spoke of the lack of parental support for school-based tobacco prevention, and specifically how some parents considered it outside the teachers' jurisdiction to promote tobacco-avoidance as part of the educational activities in school.

Teachers described their heightened consciousness of the ills of tobacco use and their increased proactivity to avoid second-hand smoke, and to persuade their family and friends to quit tobacco use. Many teachers commented on the dissonance between the awareness of the injurious effects of tobacco and the actual practice of using tobacco, underscoring the fact that merely knowing does not produce action. The need for more empowerment and authority to enforce tobacco control, highlighting the gap between awareness and action, was emphasised. Teachers reflected that COTPA provisions were interpreted

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somewhat loosely and flexibly, and that in Indian society where enforcement of many policies is not stringent and penalties seldom severe, this is not conducive to bringing about substantial change within communities. Recommendations for stronger tobacco control included a complete ban on tobacco-production, processing and sale, and the imposition of hefty penalties on those selling tobacco.

Table 1. Extracts from focus group discussions with students, teachers and parents, in Gujarat and Andhra Pradesh.

Theme	Participant category	Quote
Extent and patterns of tobacco use	G – student	“Tobacco is everywhere. The cigarette is everywhere.”
	G – teacher	“Beedi is smoked by the people of the past generation. In children and adults, the level of <i>gutkha</i> [chewing tobacco] is more. The level of <i>paan</i> [tobacco shewed with betel leaves] is less.”
	G – parent	“The ladies in our caste don’t eat <i>gutkha</i> .”
	G – teacher	“Workers always eat [tobacco]. Otherwise they don’t like to work; they feel sleepy, bored and tired.”
	G – parent	“If children buy it for parents today, they will eat it tomorrow.”
	G – parent	“When your own child comes and asks you to leave your addiction, it is really embarrassing.”
	G – student	“Friends offer tobacco. While going to school, friends gather and engage in such things.”
	G – parent	“Snuff is being used by old women... They offer it to each other when they all sit together.”
	G – parent	“If you are teaching children, and you eat tobacco, the children are going to eat tobacco”.
	G – teacher	“In films, or where there are heroes, or cricketers, they show smoking on the screen. It

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Theme	Participant category	Quote
		might be only a programme, but the children consider it a style [to imitate].”
Economic and cultural importance of tobacco	G – teacher	“It is hard for the elders in the village to quit. The living will be affected if the <i>beedi</i> (a mini-cigar of flaked/shredded tobacco wrapped in a leaf that is tied or pasted at one end) factory faces a shutdown. The source of income will be stopped. Parents of almost 50–60 percent of the students have their daily living from the <i>beedi</i> factory ... A <i>beedi</i> worker will not be found who doesn’t smoke.”
	G – teacher	“The addictions have got attached to the work. As long as the tobacco is in the mouth, the work goes on.”
	G – parent	“People have a belief that if a tooth is paining, place tobacco on it, and it will be okay. Ladies eat it for this. Second, if you smoke, gas trouble [flatulence] will be cured. Ladies too smoke out of this belief.”
	G – teacher	“At a wedding in the family you have to get <i>beedi</i> , cigarettes, tobacco for guests. Otherwise the guests will say that they didn’t even give cigarettes or tobacco at the wedding. We have to buy it for all small or big functions [celebrations]. We can eliminate the bad effect on children if we remove it from there. Whether the occasion is happy or sad, in any social function, from childhood onwards, the child sees that tobacco is being used.”
	G – teacher	“It is difficult [promoting tobacco-avoidance] at the village level. If I force them, and then I have a function [celebration] at home, they will not come to attend it. They will say that he doesn’t even serve <i>beedis</i> .”

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Theme	Participant category	Quote
	G – teacher	“Whatever you talk to the students here they will forget once they are out of here. The entire society has become like that. We teach a lot, a lot... But we don’t get any result of it.”
	G – teacher	“The parents say this: “If you are here to teach, then teach. We will teach it [avoiding tobacco] at home.”
Policies, popular media and their influence on the community ethos	G – teacher	“Smoking is prohibited in buses, trains or any other public place. But still the driver and conductor smoke standing in front of the board itself.”
	AP – parent	“There are advertisements of cigarettes on television and in cinemas. A few people may be quitting the use of tobacco with this kind of activity [tobacco control interventions], but every day more people are starting to use tobacco.”
Significance of community involvement	AP – parent	“This is not the work of only children; you should work with village communities. You have to involve village leaders, then villagers will take it seriously.”
	G – teacher	“If it is a small village, they have unity, or if they are of the same caste, it does make a difference. Then this [tobacco control] is possible. There are all castes here. If we go to say anything, we will get beaten up.”
Enhanced awareness, motivation and self-efficacy to promote tobacco control	G – student	“With all these [interventions] we have got more courage to speak up against tobacco.”
	AP – teacher	“One thing is certain – that our children will not use tobacco in the future.”

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Theme	Participant category	Quote
	AP – parent	“Our village is small, and everybody is now aware of the problems of tobacco. Shop keepers are also feeling shy to sell it openly.”
	G – parent	“Those who ask the children to go and buy it [tobacco] for them will not ask [anymore]. Water the roots and it will reach the leaves for sure.”
	AP – parent	“We are not sending our children to get beedis now.”
	G – student	“We went to a wedding one day, and my father had to take a cigarette as he was forced to... But I have stopped him from smoking. He did not smoke.”
	G – teacher	“Now, wherever we go, we are trying to educate tobacco users to the extent possible.”
	G – teacher	“Getting involved [in the enforcement of tobacco laws] unnecessarily will only create difficulties. But if we are given authority, we can stop the sale. Without power no work can be done.”
	AP – teacher	“Some of our students could successfully change their parents, I mean their fathers who regularly smoke. They convinced them that smoking is injurious and to be away from it. Some of them have also educated their neighbours and relatives.”
	AP – student	“We changed our parents to some extent, but not others.”
	G – teacher	“The parents and siblings of the students are quitting already. But it doesn’t make any difference in the locality and the village.”

Theme	Participant Quote category
	AP – teacher ‘Yes, a little awareness has come. But how far this awareness will change tobacco-use I don’t know’.

G: Gujarat; AP: Andhra Pradesh.

Discussion

The patterns of tobacco use in the community and the perceived impact of the school-based intervention documented here highlight the influence of social and cultural norms and economic pressure on the initiation and perpetuation of tobacco use. Communities where the production and sale of tobacco were key occupations had tobacco use woven into social life, facilitated by some positive health beliefs related to tobacco held by community members which were at odds with the mounting information on the adverse outcomes of tobacco use. Groups engaging in manual labour for prolonged periods were reputed to be avid users of tobacco as a stimulant. The easy availability and affordability of tobacco products; the non-comprehensive nature of tobacco control and prevention policies, and their incomplete enforcement; as well as tobacco use by family members and other role models were acknowledged by many as militating against tobacco control locally. The influence of information, social norms, and economic and environmental pressures in the initiation and perpetuation of tobacco use is depicted to the left of the social-ecological model of health in [Figure 1](#).

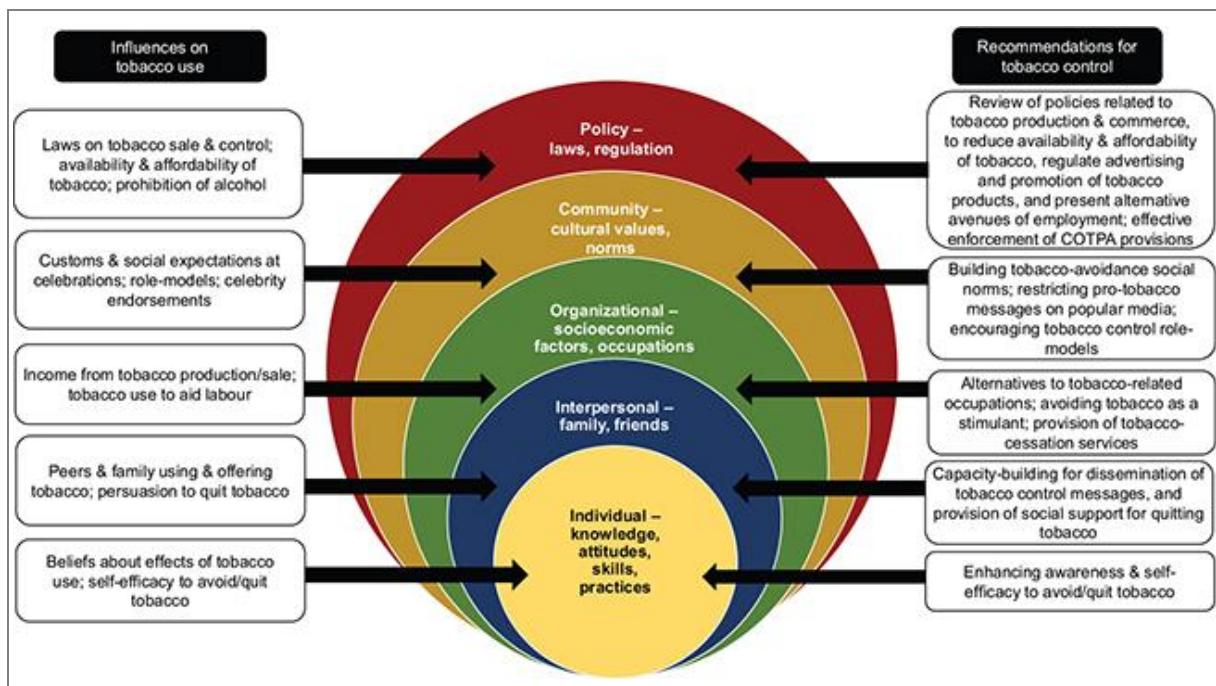


Figure 1. Social-ecological model of health showing influences on tobacco use and recommendations for tobacco control.

Health beliefs that promoted tobacco use in the contexts studied included the stimulant and appetite-suppressant action of tobacco, and thereby its role as a physiological support for increased work, and perceptions of the therapeutic action of tobacco in several disease conditions. Awareness of the adverse health consequences of tobacco use conflicted with these beliefs.

Sociocultural norms encouraging tobacco use included the actions of tobacco-using role models and peers, and the association of tobacco provision with hospitality, particularly in Gujarat. The significance of tobacco-using peers and families was demonstrated in the positive association between favourable perceptions of smokers and tobacco use among friends and teachers of adolescents (Bhojani et al., 2011). The unobtrusiveness of certain forms of tobacco use, for example, chewing tobacco compared to smoking, permitted its use even in social and professional settings where smoking tobacco would have been impractical or unacceptable, for example, during manual work. Certain social mores discouraged tobacco use in particular castes and among women. These findings are in line with perceptions of greater immorality and irresponsibility, and a more negative social image of female smokers compared to male smokers, among adolescents in Karnataka (Bhojani et al., 2011). In addition, many individuals were encouraged to avoid initiating, or to quit, tobacco use by persuasion by members of their social networks.

The ready availability, and affordability, of tobacco products facilitated tobacco use. Other studies involving young people in India echo these findings (George and Thomas, 2018; Sharma et al., 2016). Tobacco-based local economy in the two sites studied made it very difficult for many young people and adults to separate tobacco from their lives, in particular their occupational reliance on tobacco from their social use of tobacco and the physiological dependence on tobacco that developed over time.

Tobacco use prevention policies and their enforcement, as well as interventions such as Project STEPS, exerted moderate influence on tobacco use in the community: Although more people became aware of the policies, and this restricted the availability of tobacco in the community to some extent, the enforcement of the policies was weak and flouting of the rules rampant. This underscores the need for robust policy formulation and effective enforcement, including legislation such as that recommended by Barua and coworkers (2017) of a tightly regulated retail model for tobacco akin to that for alcohol to restrict tobacco accessibility for adolescents.

The school-based youth empowerment intervention represented a comprehensive attempt to address sociocultural beliefs and practices. The close

kinship bonds characteristic of Indian families facilitated influences over both individual and collective behaviours. The STEPS project demonstrated that engaging schools as an intervention site for tobacco control efforts can have positive impact at multiple levels, fostering a healthy school environment, ensuring adherence to tobacco-free school policies and sensitising and empowering teachers and students, who in turn become agents of change for family and the wider community. Students reported quitting tobacco use, resolving not to initiate or resume tobacco use, and influencing parents and family members to quit tobacco use as well. Such efforts need to be nurtured and sustained in communities to bring about positive changes in social norms, create environments that support tobacco-avoidance and, ideally, to denormalise tobacco use in all its forms.

Participants' recommendations for improved tobacco control acknowledge different levels of influence on health behaviour. Suggestions included intensive interventions in school to prevent initiation of tobacco use by children and adolescents, as well as to disseminate information about the adverse effects of tobacco to the community through schoolchildren. Families were expected to be discouraged from tobacco use by the influence of informed children enthusiastic about avoiding the use of tobacco products. However, participants did not expect the community at large to change its practices of tobacco use from raised awareness alone. This dissonance between awareness and practice is supported by the findings of [Rangey and colleagues \(2018\)](#) that tobacco use is prevalent among adolescents in Gujarat despite high awareness of the harmful effects of tobacco.

Participants suggested frequent messaging using multiple channels to refresh and reinforce information on the adverse health effects of tobacco use. They also emphasised the importance of policy and enforcement support for tobacco control. These findings align with the IMPACT framework ([Arora et al., 2012](#)), demonstrating links between the various kinds of risk factors (individual, interpersonal and environmental) affecting tobacco use and policy and programmatic measures (individual, community and policy).

While we elucidated the factors associated with tobacco use and the reception of the intervention in the community using the social-ecological model, we use the behaviour change wheel developed by [Michie and colleagues \(2011\)](#) to shed light on the intervention itself. The wheel comprises three layers of interacting constructs classified as sources of behaviour, intervention functions and policy categories, in which we placed our findings to understand the inputs and gaps in the implementation of the intervention. We identified the constructs that had received attention and input in this study as well as those that had received inadequate input. The intervention functions 'education', 'persuasion', 'training', 'restriction', and 'environmental restructuring' and

'modelling', had received attention. However, input into and implementation of the functions 'incentivisation', 'coercion' and 'enablement' was inadequate. The gaps in the planning and implementation we identified were associated with low impact on opportunity and motivation among community members and, through this, with low impact on tobacco use in the community, despite significant impact on the participants themselves and their immediate families.

The key role of the enactment and enforcement of health-promoting policies that support tobacco-free norms was stressed in the FGDs. Teachers categorically stated their need for empowerment in order to promote tobacco control norms among children and adolescents, and their families. The two selected study sites for the intervention were not covered by the NTCP. The lack of any official authority that might check violations of COTPA was mentioned as a challenge, since tobacco control was not considered to be within the jurisdiction of teachers, whose primary role was to impart mainstream curricular education. Analysis of the Global Youth Tobacco Survey data for India has shown a positive influence of school-based tobacco use prevention education in India ([Khubchandani et al., 2017](#)). Our findings underscore the need for empowerment and capacity-building of teachers to enable the effective leadership of school-based programmes on tobacco control. In pursuit of such a goal in such settings, local health and sanitation committees could perhaps be formed, and stakeholders empowered to engage in the more effective implementation of COTPA.

Implications for health promotion interventions, particularly for tobacco control

Health education and promotion interventions need to acknowledge the powerful influence of cultural norms, economic pressures and policy implementation on the initiation, perpetuation and change of health behaviours. Sensitisation and participatory work to aid social change, as well as economic planning, policymaking and effective enforcement to facilitate a supportive environment for the promotion of healthy behaviours, are vital to effective interventions for tobacco control. In addition, the role of children and elders within families, and influential persons in communities, should be harnessed for the establishment of healthy behaviours and the perpetuation of health-promoting social norms. School-based interventions which show great potential to promote tobacco control norms, particularly among children and adolescents, and to transmit health messages to the wider community, need to be encouraged.

Specific recommendations from this study to engender a supportive environment and build capacity for tobacco-free norms ([Figure 1](#)) include (1) the formulation and strict enforcement of policies to restrict tobacco sale, advertising and promotion; (2) the restriction of pro-tobacco messaging via popular media; (3) the encouragement of tobacco control role models in society

and in popular media messaging; (4) the promotion of tobacco-free cultural practices; (5) the promotion of tobacco-free worksite policies; (6) the effective enforcement of COTPA provisions, particularly on prohibiting tobacco sale to and by minors, and sale within 100 yards of educational institutions; (7) capacity-building of individuals and groups to inform and persuade people to avoid tobacco and provide support for potential quitters; (8) enhancing, through counselling and awareness-raising, the self-efficacy of people to avoid tobacco; and (9) providing tailored, community-based tobacco cessation services for potential tobacco quitters. In addition, work is required to develop and offer alternatives to tobacco-production and processing as sources of livelihood, in addition to concerted efforts to promote tobacco control social norms to support the avoidance of tobacco use.

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