Awareness, perceptions of and compliance with tobacco control policies among naswar vendors in Khyber Pakhtunkhwa Pakistan

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ABSTRACT

Introduction Regulatory compliance in the retail environment is integral to the success of tobacco control. We assessed compliance among naswar (smokeless tobacco product widely used in South Asia) vendors with tobacco control laws. We also assessed their awareness of tobacco-related harms and policies and perceived effect of policies on their sales.

Methods We surveyed 286 naswar vendors in three districts of the Khyber Pakhtunkhwa province of Pakistan. We recruited general and specialty vendors from urban and rural areas through multistage cluster sampling. Compliance was measured for promotion, sale to/by minors and tax paid on naswar. We used logistic regression analyses for assessing the association between the outcome variables (awareness of tobacco harms and laws, perceptions about the effect of policies on business and compliance with laws) and their predictors.

Results Most vendors (70%) were aware of tobacco-related harms of naswar. Although educated vendors were more aware of tobacco control policies, the greatest awareness was for a ban on sales to/by minors (21% overall). The majority of vendors (76%) violated this policy (measured by self-report), and violations were more common among rural than urban vendors (OR 2.27, 95% CI 1.05 to 4.96). Most vendors (71%) were more aware of tobacco control policies, the most detrimental for business.

Conclusions There was poor awareness and compliance among naswar vendors in Pakistan with tobacco control laws. This study finds potential areas for policy interventions that can reduce urban/rural disparities in implementation of and compliance with tobacco control laws.

INTRODUCTION

Smokeless tobacco (SLT) includes a diverse group of products containing tobacco, usually placed in the mouth or nose and used without burning.1 SLT contains more than 30 carcinogens1 and is associated with a variety of diseases including head and neck cancers and gastrointestinal and cardiovascular diseases.2–4 Around the globe, more than 300 million people use SLT products in various forms. More than 85% of these SLT users live in South and Southeast Asia with a 70% global attributable loss in terms of disability-adjusted life years just in India and 7% in Pakistan.5 The 2014 Global Adult Tobacco Survey estimated that 19.1% of adults in Pakistan use tobacco, of which 12.4% smoke, and 7.7% (approximately 17 million) use SLT,6 the most common forms being paan—betel quid with tobacco (7.4%), naswar (7.2%) and gutkha (6.4%).7 Naswar is made of dried crushed tobacco, ash, water and lime, with optional additives for flavour and colour such as cardamom, menthol and indigo. Although naswar is available in many parts of the world under different names, historically, it has mostly been consumed by the tribes of the south and central Asia.8 Cheaper than cigarettes, naswar is highly addictive with a nicotine level of up to 26 mg/g as compared with 16.3 mg/g in cigarettes.9 Naswar contains approximately twice the amount (1380 ng/g) of carcinogenic tobacco-specific nitrosamines compared with Swedish snus (723 ng/g)10—a form of SLT common in Nordic countries. Naswar use is a social norm among Pashtun ethnic population of Pakistan and is accepted as a confectionary item in the Pashtun dominant province of Khyber Pakhtunkhwa (KP). Children are not supposed to smoke in the presence of elders, but naswar use is permitted, and elders often ask children to fetch naswar for them from the point of sale (POS).10 11 A nationwide survey of Pakistan reports that naswar use is most common in KP,7 while other forms of SLT are rarely found in this province.12 Naswar constitutes about 60% of the tobacco consumed in Peshawar, the capital city of KP.13

The diversity in SLT products poses substantial regulatory challenges,14 making it difficult to legislate SLT-specific tobacco control laws. Moreover, the lack of a strong regulatory environment for SLT coupled with very low prices (as compared with cigarettes) may lead to increased uptake as well as more users switching from smoking to SLT use.15 Elimination of tobacco products from displays and restricting the advertisement of products at the POS are some regulations used globally for reducing demand at the POS.16 17 A few studies originating from South Asia have addressed the health warnings on SLT packaging and tobacco advertisement and promotion at the POS.18 19

Pakistan ratified the Framework Convention on Tobacco Control (FCTC) in 2005.20 The treaty is intended to restrict all forms of tobacco use, but SLT has been neglected in most countries, including Pakistan, compared with smoking.20 21 Tobacco
control laws in Pakistan either lack clarity or are missing in the case of SLT products. For instance, tax is applied to raw tobacco but not to SLT products. The law neither regulates the contents of tobacco products nor requires manufacturers to disclose its contents to government authorities. However, the sale of all tobacco products to minors is banned in Pakistan. Similarly, advertising and promotional activities are mostly aligned with FCTC guidelines. A major issue in tobacco policy implementation is particularly the compliance at POS in settings like South Asia, where high compliance is difficult to achieve. In the context of Pakistan, evidence on the implementation of SLT control laws and compliance with the existing laws at the POS is virtually absent, as is the information on disparities between urban and rural populations in this respect.

The regulatory compliance of tobacco control policies depends on individual and structural/contextual factors like effective implementation mechanisms and raising capabilities of policymakers, government personnel, civil society organisations and other key stakeholders for tobacco control efforts. Among the individual factors, it is important to know the degree of awareness of tobacco control policies among tobacco vendors, their perceived benefits and harms to the vendors, and perceived barriers to compliance. A tobacco vendor unaware of regulations may not be able to conform to laws, even though this does not protect him/her from any legal consequences. Similarly, regulatory compliance might be affected by the perceived effects of a particular policy on the retail business. Understanding perceptions of tobacco vendors can help policymakers identify policy interventions with the least resistance and hence have a greater chance of success. Moreover, some of the tobacco vendors considered tobacco a health hazard for consumers, and their awareness about tobacco harms may be associated with their compliance and interest in seeking alternative livelihoods rather than selling tobacco.

This study aimed to assess the awareness of naswar vendors about tobacco-related health harm and tobacco control laws, their compliance with the laws and their perceptions of decrease in sales linked to regulatory compliance. Furthermore, we aimed to assess the association between awareness of health harms, awareness of tobacco control laws, perceptions about potential effects of tobacco control policies on naswar sales, and shop and area type of vendors. Additionally, we assess the predictors for compliance with national laws (promotion and sale to/by minors) and provisions of FCTC (taxation) among naswar vendors.

METHODS
Study design and setting
We conducted a cross-sectional survey among naswar vendors in three districts of the KP province in Pakistan (Peshawar, Mardan and Bannu). These districts, with a population of 8.3 million, were purposively selected as they are among the five districts with the highest production, consumption and sale of naswar in Pakistan.

Study participants, sample size and sampling strategy
A detailed description of sample size and sampling strategy was reported elsewhere. Briefly, we employed a multistage cluster sampling strategy to recruit both urban and rural vendors at the three study sites. We first randomly selected the predefined (as per local government structure) urban and rural subdistrict/Tehsil-council in each district, the primary sampling units. Next, we randomly selected union councils—the smallest administrative unit—from the respective urban and rural settings, the secondary sampling units. Based on a previous finding of 10% of vendors’ non-compliance with the prohibition of tobacco sale to minors, we calculated a sample size of 273 vendors through OpenEpi software V3.01. We recruited 50 vendors in Bannu, 90 in Mardan and 160 in Peshawar proportionate to the total number of shops in each city. We recruited naswar vendors from any shop that was selling at least one brand of naswar including grocery stores (selling edibles such as fresh fruits/vegetables, bakery and canned food), convenience stores (selling edibles and other daily use commodities) and exclusive naswar shops (wholesale dealers and manufacturers of naswar who also use their manufacturing unit as POS). We grouped grocery and convenience stores as general vendors and those exclusively selling naswar as specialty vendors.

Data collection
We approached 300 eligible shop owners/managers in 31 selected areas between 10 November and 30 December 2019 and among them, 286 agreed to participate. The average time of an interview was 25–30 min. We used an interview tool (online supplemental file 1) adapted from a pilot study conducted in three South Asian countries, based on the relevant articles of the FCTC. The tool was pilot tested on a sample of 10 general and 3 specialty vendors who were not included in the final analysis. Data collectors explained the purpose of the study and addressed vendors’ queries/concerns before obtaining written consent.

Study variables
Demographic variables
We collected data on participants’ shop type (general/specialty), area type (rural/urban), duration of business (less than 5 years, 5 years or more), level of education (no formal education, and received education between 1 and 10 years, and more than 10 years) and mean daily profit from sales of naswar.

Dependent variables
Awareness
Awareness (aware/not aware) was assessed about health harms associated with tobacco/naswar use and tobacco control policies: ban on sale to/by minors, pictorial and written health warning, and ban on advertisements at POS.

Perceptions
Perceived effect on business (no effect vs a decline in business) was assessed for five potential tobacco control measures: increasing tax, placing ingredient details on packaging, putting written and graphic health warning, and banning the sale of naswar to/by minors.

Compliance
Compliance (yes/no) with tobacco control laws was assessed for the following laws: promotion of naswar (discounts, free samples, promotional goods and credit lines), self-reported sale of naswar to minors, self-reported sale of naswar by minors and tax paid on naswar (yes/no).

Independent variables (IVs)
IVs for awareness and perceptions (dependent variables) included shop type, area type, length of business and education level. Although non-modifiable, factors such as area type can help understand tobacco control disparities. IVs for compliance included both non-modifiable (shop type, area type and daily profit from naswar) and modifiable factors (awareness of
health harms and laws, and perceived negative effects of taxes and stopping sale to minors). An understanding of the association between these modifiable factors and compliance can help design future interventions aimed at increasing awareness and modifying perceptions of naswar vendors.

**Statistical analysis**

Descriptive analyses were conducted by shop and area type for the demographic variables, awareness, perceptions and compliance. We calculated frequencies and percentages for categorical variables and means with SD for continuous variables. We conducted logistic regression analyses to assess the association between potential predictors and awareness of tobacco-related harms and laws, perceptions about the effect of policies on business and compliance with laws. We calculated ORs with 95% CIs. All analyses were conducted using STATA V.14.39

**RESULTS**

Our study sample consisted of 229 general and 57 specialty vendors, of which 88 were rural and 198 were urban vendors. The duration of business in around 60% of vendors was less than 5 years. One-quarter of the naswar vendors received no formal education, whereas nearly 50% received education between 1 and 10 years (table 1). The average daily profit from naswar was 1653 PKR (US$10.6) among specialty vendors and only 68 PKR (US$0.43) among general vendors (table 1). Seventy per cent of vendors were aware of the tobacco-related health harms. Among the different policy options (online supplemental file 1), vendors were aware of written and pictorial health warnings and a ban on sale to/by minors. Awareness level was highest for a ban on sale to/by minors (21%) (table 1). Among the perceptions about the negative effects of tobacco control policies on naswar sales, taxes (42%) and stopping the sale of naswar to minors (39%) were considered most detrimental by vendors. Specialty vendors expressed most apprehensions regarding the perceived effects of four out of five policy measures (table 1). Regarding compliance, the self-reported sale of naswar to minors was the most frequently violated law (76%).

**Table 2 presents the predictors of awareness of tobacco-related harms and tobacco control policies.** The awareness about tobacco-related harms was low among rural vendors compared with urban vendors (adjusted OR (aOR)0.43, 95% CI 0.25 to 0.74). Formally educated vendors with 5 or more years’ duration of business were more likely to be aware of a ban on sale to/by minors, pictorial health warning and written health warning compared with vendors with less than 5 years of business and no education (table 2).

**Table 3 presents predictors of perceptions about the negative effects of tobacco control policies on naswar sales.** The specialty vendors were more likely to perceive a reduction in business with printing ingredient details on packages, and written and graphic health warnings compared with general vendors. The odds of a perceived reduction in business with stopping the sale of naswar to minors were significantly elevated among rural vendors compared with urban vendors (aOR 2.55, 95% CI 1.49 to 4.34). The odds of a perceived reduction in business with all the five policy measures significantly increased with length of business (table 3). Similarly, the educated vendors were more likely to perceive a reduction in business with printing detail of ingredients and graphic health warnings compared with vendors receiving no education (table 3).

**Table 4 presents predictors of compliance with the regulations.** The odds of paying taxes were significantly reduced among rural vendors (aOR 0.16, 95% CI 0.05 to 0.47) vendors compared with urban vendors.

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**Table 1 Characteristics of naswar vendors and their awareness, perceptions of and compliance with the regulations, by store and area type**

| Characteristics                  | Overall (N=286) | General (n=229) | Specialty (n=57) | Rural (n=88) | Urban (n=198) |
|----------------------------------|----------------|-----------------|------------------|-------------|---------------|
| Length of business               |                |                 |                  |             |               |
| Less than 5 years                | 167 (58.4)     | 148 (64.6)      | 19 (33.3)        | 59 (67.1)   | 108 (54.6)    |
| 5 or more years                  | 119 (41.6)     | 81 (35.4)       | 38 (66.7)        | 29 (32.9)   | 90 (45.4)     |
| Level of education               |                |                 |                  |             |               |
| No formal education              | 72 (25.2)      | 52 (22.7)       | 20 (35.1)        | 24 (27.3)   | 48 (24.2)     |
| 1–10 years                       | 140 (49.0)     | 111 (48.5)      | 29 (50.9)        | 41 (46.6)   | 99 (50.0)     |
| More than 10 years               | 74 (25.8)      | 66 (28.8)       | 08 (14.0)        | 23 (26.1)   | 51 (25.8)     |
| Daily profit from naswar in PKR  | 384 (695.1)    | 68.2 (48.2)     | 1653.1 (639.1)   | 367.4 (696.5)| 391.5 (697.4) |

| Awareness about health harms and tobacco control laws |                |                 |                  |             |               |
|-------------------------------------------------------|----------------|-----------------|------------------|-------------|---------------|
| Awareness about tobacco-related health harms          | 199 (69.6)     | 162 (70.7)      | 37 (64.9)        | 50 (56.8)   | 149 (75.2)    |
| Awareness about written health warning                | 43 (15.0)      | 34 (14.9)       | 09 (15.8)        | 09 (10.2)   | 34 (17.1)     |
| Awareness about pictorial health warning              | 52 (18.2)      | 39 (17.0)       | 13 (22.8)        | 15 (17.0)   | 37 (18.7)     |
| Awareness about ban on sale to and by minors         | 61 (21.3)      | 50 (21.8)       | 11 (19.3)        | 12 (13.6)   | 49 (24.8)     |
| Perceptions about the potential effects of tobacco control on naswar sales |                |                 |                  |             |               |
| Negative effect of tax increase on sales              | 119 (41.6)     | 88 (38.4)       | 31 (54.4)        | 38 (43.2)   | 81 (40.9)     |
| Negative effect of labelling ingredients on sales     | 32 (11.2)      | 16 (7.0)        | 16 (28.0)        | 5 (5.7)     | 27 (13.6)     |
| Negative effect of written health warning on sales    | 58 (20.3)      | 36 (15.7)       | 22 (38.6)        | 11 (12.5)   | 47 (23.7)     |
| Negative effect of pictorial health warning on sales  | 74 (25.9)      | 49 (21.4)       | 25 (43.9)        | 24 (27.3)   | 50 (25.2)     |
| Negative effect of stopping sale of naswar to minors  | 111 (38.8)     | 93 (40.6)       | 18 (31.6)        | 46 (52.3)   | 65 (32.8)     |
| Compliance with tobacco control laws                  |                |                 |                  |             |               |
| Promotion of naswar                                   | Yes            | 204 (71.3)      | 167 (72.9)       | 67 (76.1)   | 137 (69.2)    |
| Sale of naswar to minors                              | Yes            | 218 (76.2)      | 180 (78.6)       | 77 (87.5)   | 141 (71.2)    |
| Sale of naswar by minors                              | Yes            | 93 (32.5)       | 70 (30.6)        | 42 (47.7)   | 51 (25.8)     |
| Tax paid on naswar                                    | Yes            | 47 (16.4)       | 31 (13.5)        | 05 (5.6)    | 42 (21.2)     |

General indicates point of sale; specialty denotes exclusive naswar sellers. For awareness, counts of only aware vendors are mentioned.
vendors. The odds of selling naswar to minors and selling by minors were twofold increased among rural vendors compared with urban vendors. The odds of promoting naswar and paying taxes were fourfold and twofold increased, respectively, in those vendors who were aware of any tobacco control law compared with unaware vendors, while the odds were significantly reduced for sale of naswar to minors and sale by minors among the aware vendors (table 4). The odds of promoting naswar were significantly increased in those vendors who expected a reduction in sales with paying taxes on naswar (aOR 2.28, 95% CI 1.24 to 4.21). Similarly, the odds of selling naswar to and by minors were significantly increased in those vendors who expected a reduction in sales with stopping the sale of naswar to minors (table 4). Although the mean daily profit from naswar sales was associated with the sale of naswar to minors in univariate analysis, the daily profit was not associated with compliance to any law in the multivariate analysis.

**DISCUSSION**

The main findings of this study suggest that overall awareness of tobacco-related health harms from naswar consumption was high in the study area in Pakistan, with three-quarters of the urban vendors reporting awareness. Awareness about tobacco control laws was poor in general. Implementation of all the laws and specifically increase in taxes, ban on sale to minors and pictorial health warnings were perceived as harmful for business. More than 70% of vendors were involved in the promotion of naswar and its sale to minors. Longer duration of business and higher education level of vendors were positively associated with awareness about tobacco control laws. Specialty store type and longer duration of business were positively associated with expectations of a reduction in business from tobacco control policies. Among the predictors of compliance with regulations, area type of vendors and awareness of any tobacco control law were strongly associated with compliance.

### Table 2: Predictors of awareness about health harms and tobacco control laws

| Predictors                  | Awareness about tobacco-related health harms | Awareness about ban on sale to/by minors | Awareness about pictorial health warning | Awareness about written health warning |
|-----------------------------|---------------------------------------------|------------------------------------------|------------------------------------------|----------------------------------------|
|                             | aOR (95% CI)                                | aOR (95% CI)                             | aOR (95% CI)                             | aOR (95% CI)                           |
| Store type                  |                                             |                                          |                                          |                                        |
| Specialty (ref)             | –                                           | –                                        | –                                        | –                                      |
| General                     | 1.44 (0.74 to 2.80)                         | 1.26 (0.57 to 2.77)                      | 0.86 (0.40 to 1.85)                      | 1.06 (0.45 to 2.50)                    |
| Area type                   |                                             |                                          |                                          |                                        |
| Urban (ref)                 | –                                           | –                                        | –                                        | –                                      |
| Rural                       | 0.43 (0.25 to 0.74)*                         | 0.53 (0.26 to 1.08)                      | 1.05 (0.53 to 2.11)                      | 0.62 (0.28 to 1.39)                    |
| Length of business          |                                             |                                          |                                          |                                        |
| Less than 5 years (ref)     | –                                           | –                                        | –                                        | –                                      |
| 5 or more years             | 1.19 (0.68 to 2.08)                         | 2.43 (1.31 to 4.49)*                     | 2.99 (1.55 to 5.77)*                     | 2.60 (1.29 to 5.23)*                   |
| Level of education          |                                             |                                          |                                          |                                        |
| No formal education (ref)   | –                                           | –                                        | –                                        | –                                      |
| 1–10 years                  | 0.64 (0.33 to 1.24)                         | 3.91 (1.52 to 10.03)*                    | 3.34 (1.35 to 8.23)                      | 3.28 (1.17 to 9.19)*                    |
| More than 10 years          | 0.67 (0.31 to 1.42)                         | 4.33 (1.58 to 11.84)*                    | 2.10 (0.75 to 5.81)                      | 2.07 (0.93 to 8.80)                    |

*Statistically significant.
aOR, adjusted OR; ref, reference.

The reference category for all dependent variables is not aware. aORs are adjusted for all the other independent variables in the respective model.

### Table 3: Predictors of vendors’ perceptions about potential effects of tobacco control policies on naswar sales

| Predictors                  | Increasing taxes will decrease business | Printing ingredients on pack will decrease business | Printing written health warning will decrease business | Printing graphic health warnings will decrease business | Stopping sale to minors will decrease business |
|-----------------------------|-----------------------------------------|--------------------------------------------------|------------------------------------------------------|------------------------------------------------------|--------------------------------------------------|
|                             | aOR (95% CI)                            | aOR (95% CI)                                    | aOR (95% CI)                                         | aOR (95% CI)                                         | aOR (95% CI)                                    |
| Store type                  |                                          |                                                  |                                                      |                                                      |                                                  |
| Specialty (ref)             | –                                       | –                                                | –                                                    | –                                                    | –                                                |
| General                     | 0.65 (0.35 to 1.21)                      | 0.16 (0.06 to 0.39)*                            | 0.32 (0.16 to 0.66)*                                 | 0.37 (0.19 to 0.72)*                                 | 1.90 (0.97 to 3.71)                             |
| Area type                   |                                          |                                                  |                                                      |                                                      |                                                  |
| Urban (ref)                 | –                                       | –                                                | –                                                    | –                                                    | –                                                |
| Rural                       | 1.20 (0.71 to 2.03)                      | 0.36 (0.12 to 1.05)                             | 0.48 (0.22 to 1.01)                                 | 1.27 (0.69 to 2.33)                                 | 2.55 (1.49 to 4.34)**                            |
| Length of business          |                                          |                                                  |                                                      |                                                      |                                                  |
| Less than 5 years (ref)     | –                                       | –                                                | –                                                    | –                                                    | –                                                |
| 5 or more years             | 2.07 (1.24 to 3.44)*                     | 2.58 (1.10 to 6.04)*                            | 2.37 (1.25 to 4.49)*                                 | 2.32 (1.29 to 4.16)*                                 | 2.09 (1.23 to 3.54)*                             |
| Level of education          |                                          |                                                  |                                                      |                                                      |                                                  |
| No formal education (ref)   | –                                       | –                                                | –                                                    | –                                                    | –                                                |
| 1–10 years                  | 0.85 (0.47 to 1.54)                      | 11.99 (2.48 to 57.93)*                          | 2.27 (1.00 to 5.14)*                                 | 2.76 (1.27 to 5.96)*                                 | 1.09 (0.59 to 2.01)                             |
| More than 10 years          | 0.91 (0.46 to 1.80)                      | 8.58 (1.57 to 46.93)*                           | 1.74 (0.68 to 4.46)                                 | 2.66 (1.12 to 6.27)*                                 | 1.10 (0.55 to 2.22)                             |

*Statistically significant.
aOR, adjusted OR; ref, reference.

The reference category for all dependent variables is no effect on business. aORs are adjusted for all the other independent variables in the respective model.
Awareness about tobacco-related health harms is an important factor for reduced likelihood of initiation and greater likelihood of quitting tobacco use.\(^4\)\(^0\)\(^1\) We found less awareness of tobacco-related harms among rural vendors. A study from India also found a low level of awareness of the harms from SLT among rural users in two Indian states.\(^3\)\(^2\) Similarly, adequate knowledge about tobacco control legislation and consequently compliance to legislations by tobacco vendors can result in effective tobacco control.\(^4\)\(^3\)\(^4\) We report that 21% of vendors were aware of the ban on the sale of tobacco to minors, which is in contrast to findings reported from India (69%–89%).\(^2\)\(^4\)\(^3\)\(^1\) This might be due to India being more advanced in tobacco control implementation. Vendors with longer durations of being in business were more aware of tobacco control laws, reflecting the fact that a business advances in knowledge—including knowledge about relevant regulations—with experience.\(^4\)\(^5\) Educating tobacco vendors through specific programmes about tobacco control laws has resulted in greater compliance and awareness in many countries.\(^4\)\(^6\)\(^4\)\(^7\) For low-income and middle-income countries (LMICs) like Pakistan, a prerequisite for such educational activities is the literacy of vendors, which was around 75% and tries (LMICs) like Pakistan, a prerequisite for such educational activities is the literacy of vendors, which was around 75% and.

### Table 4 Predictors of vendors’ compliance with the regulations

| Predictors                          | Promoting naswar aOR (95% CI) | Sale of Naswar to minors aOR (95% CI) | Sale of naswar by minors aOR (95% CI) | Tax paid on naswar aOR (95% CI) |
|-------------------------------------|-------------------------------|--------------------------------------|--------------------------------------|-------------------------------|
| Store type                          |                               |                                       |                                       |                               |
| Specialty (ref)                     | –                             | –                                    | –                                    | –                             |
| General                             | 0.86 (0.16 to 4.56)           | 1.16 (0.20 to 6.77)                  | 1.13 (0.23 to 5.41)                  | 0.19 (0.03 to 1.17)           |
| Area type                           |                               |                                       |                                       |                               |
| Urban (ref)                         | –                             | –                                    | –                                    | –                             |
| Rural                               | 1.58 (0.84 to 2.94)           | 2.27 (1.04 to 4.92)*                 | 2.36 (1.35 to 4.13)*                 | 0.16 (0.05 to 0.47)*          |
| Awareness of harms                  |                               |                                       |                                       |                               |
| No (ref)                            | –                             | –                                    | –                                    | –                             |
| Yes                                 | 0.61 (0.32 to 1.15)           | 0.92 (0.46 to 1.86)                  | 1.22 (0.68 to 2.19)                  | 0.48 (0.23 to 0.98)*          |
| Awareness of any tobacco control law|                               |                                       |                                       |                               |
| No (ref)                            | –                             | –                                    | –                                    | –                             |
| Yes                                 | 4.50 (1.87 to 10.83)*         | 0.22 (0.10 to 0.50)*                 | 0.35 (0.17 to 0.72)*                 | 2.32 (1.07 to 5.06)*          |
| Perceiving negative effect of taxes on sales |                   |                                       |                                       |                               |
| No (ref)                            | –                             | –                                    | –                                    | –                             |
| Yes                                 | 2.18 (1.17 to 4.03)*          | 1.03 (0.52 to 2.03)                  | 1.30 (0.74 to 2.28)                  | 1.01 (0.49 to 2.09)           |
| Perceiving negative effect of stopping sale to minors |                   |                                       |                                       |                               |
| No (ref)                            | –                             | –                                    | –                                    | –                             |
| Yes                                 | 0.58 (0.31 to 1.08)           | 9.25 (3.82 to 22.35)*                | 1.78 (1.01 to 3.15)*                 | 1.27 (0.62 to 2.61)           |

The reference category for all dependent variables is: no. Adjusted odds ratios (aOR) are adjusted for all the other independent variables in the respective model.

*statistically significant

aOR, adjusted OR; ref, reference.

Rural vendors in this study expected a more profound decrease in business with a ban on the sale of naswar to minors when compared with urban sellers. This perception of rural vendors reinforces the previously reported presence of urban/rural disparities in youth tobacco use.\(^2\)\(^3\)\(^5\)\(^6\) Printing details of ingredients, graphics and written health warnings on naswar packets were seen as detrimental for business by specialty vendors. This is likely linked to the amount of their income from naswar sales as compared with general vendors. Moreover, printing health warning labels was considered an extra expense by the specialty vendors and naswar manufacturers.\(^1\) Vendors with a longer duration of business expected a reduction in sales if they were made to follow different tobacco control laws. Similar findings were reported among retailers in a study in the USA.\(^5\)\(^4\) This indicates that a longer sales practice led to more concerns about business infringements with more regulation.

Limiting sales of tobacco to minors is an important tobacco control strategy to reduce tobacco use and access by youth, and different reports have highlighted that successful deterrence of tobacco sales to youths can decrease their tobacco usage.\(^2\)\(^5\)\(^6\) Three-quarters of retailers in our study reported selling naswar to minors, with rural vendors being more likely to do so, which is in line with the findings from India.\(^5\)\(^7\) Although Pakistan’s tobacco control laws prohibit the sale of tobacco products to minors, compliance can be improved through enforcement efforts and vendor education across different communities.\(^2\)\(^3\)\(^4\)\(^5\)\(^6\)\(^7\) Vendors who were aware of tobacco control laws were less likely to sell naswar to and by minors, similar to findings reported from India.\(^5\)\(^8\) Laws in Pakistan also prohibit the promotion of tobacco products like free distribution and special discounts,\(^5\)\(^9\) but we found more than 70% of vendors practising such promotion of naswar. In Mumbai, India, an additional scheme of silver coins in packets of gutkha and other SLT products supported this practice.\(^5\)\(^9\) Around 33% of the vendors admitted to having sales assistants below the age of 18, rural vendors and those who perceived a negative effect of stopping sales to minors were more
likely to employ under-age sales assistants. This was an obvious violation of national legislations and puts the enforcement of the respective laws in question.60

In our study, only 16% of vendors affirmed that tax is paid on naswar and vendors were less likely to pay tax if they were rural vendors. POS vendors in a previous study stated that tax is an issue for specialty vendors like manufacturers or suppliers of naswar and even national laws oblige the tax only on raw tobacco and not SLT products.11 23 For specialty vendors, naswar is their sole source of income, which is why they feared a loss in business with compliance of laws. This perception of specialty vendors is in line with other studies where vendors who reported more income from tobacco sales were less likely to be compliant with tobacco control laws.11 24 61

Limitations of the study include the fact that it was conducted in only three districts of the KP province in Pakistan. However, these cities are the hubs of the naswar business in Pakistan, and products from here are sent across the country and even abroad. Thus, the findings of the study might not be generalisable to other provinces of the country or SLT sales in LMICs in general. Although socially desirable answers were an issue for awareness-related information and sale to minors, the provision of subsequent open-ended questions mitigated this problem. Eliciting information on the monetary aspects of the business was difficult, particularly if they deal with such sensitive issues as profits and taxes; hence, the accuracy of the information on these variables may be limited. Although we obtained information on the payment of taxes, the actual amount of tax paid could not be calculated. Strengths of this study include the ability of this study to discern between the different vendor types and to investigate urban–rural disparities.

CONCLUSIONS
Awareness about different tobacco control laws was found poor among the tobacco vendors in the KP province of Pakistan. The laws regarding the promotion of naswar and its sale to minors were frequently violated by vendors, and particularly so by rural vendors. The financial implications of policies on the sale of naswar are a key determinant of compliance among specialty vendors. Our findings suggest that policymakers in Pakistan should consider the urban–rural disparities in tobacco use and develop awareness or education programmes for tobacco vendors to enhance awareness of tobacco-related harm and control laws. To align with the WHO’s recommendation of raising taxes to 70% of the retail price for tobacco products, Pakistan needs to include SLT products as well.

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What this paper adds
► This study provides novel insights into the naswar (a form of smokeless tobacco (SLT)) retail environment, in a geographical setting where its consumption is a social norm.
► More than 70% of vendors were involved in the promotion of naswar and its sale to minors. Most of the urban vendors were aware of tobacco-related health harms but knowledge regarding tobacco control laws was extremely poor. Implementation of control policies was perceived financially detrimental for business by specialty and rural vendors expecting a significant decline in their business following a ban on the sale of naswar to minors.
► The findings have potential implications for the implementation and compliance of existing tobacco control policies and their alignment with the Framework Convention on Tobacco Control. This study also identifies that for the sale of naswar to and by minors (especially in rural areas in Pakistan), population-level interventions could help to decrease disparities in tobacco-related harm reduction.
► For raising awareness and improving compliance among vendors, interventions like mass media campaigns, group educations and the use of flyers or posters are recommended. Further research is warranted on the strategies of improving compliance and implementation of point of sale laws.
► The diversity of SLT products makes them challenging for regulatory interventions.
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