Introduction

 Globally, 88% of smokers begin smoking before age eighteen. [1] Tobacco retailing near schools constitutes an important environmental determinant of youth smoking initiation. [2] The Chinese tobacco industry has increased its investments in retail outlets following stricter advertising prohibitions. Yet few studies in China have investigated tobacco retailing near schools to systematically assess youth exposure to school proximate tobacco retailing. In an earlier 2009 survey of more than 1,000 16-19 year olds in 13 Kunming high schools, we found that 52.5% of male students and 9.2% of female students had smoked in the last month. [3] There remains an urgent need to connect patterns of youth smoking to contextual and environmental factors that may underlie these behaviors.

We investigate youth exposure to tobacco retailing by mapping tobacco retailer density and proximity to middle- and high-schools in Kunming, the heart of China’s tobacco industry. [4] Through the integration of geographic information systems (GIS) and on-site observation of retail outlets and school-focused focus groups with youth, we begin to bridge environmental exposure to tobacco retailing with youth knowledge, attitudes and behaviors toward tobacco.

Methods

We conducted our study between April-May 2012. The study area encompassed 5 city districts in Kunming’s urban core. Together, these five districts span 164 square kilometers and contain 220 kilometers of street length. The study area includes 40 middle- and high-schools. We selected these areas as they represent major residential areas within Kunming’s urban core, and the principals of schools in these districts supported our project. The Chinese tobacco industry has sponsored rural schools and has conducted marketing on school campuses; [5] consequently, not all schools will support work they perceive as against the interests of the tobacco industry.

• First, trained observers mapped tobacco retailer density and proximity to 40 schools in five districts in Kunming’s urban core. Using a street map obtained from Baidu Maps, investigators conducted on-site surveying. They took note on each tobacco retailer using a structured observation sheet, recording building (in Chinese), surrounding geographic information (e.g., cross streets, major landmarks) and information about tobacco marketing in each store. After reviewing the observation sheets, we excluded 10% of recorded retailers.

• Second, focus groups with 80 students probed youth perceptions of school-proximate tobacco retailing. We held focus groups in one elementary and one middle school in each of the five city districts included in the study.

• Third, structured, on-site observation after the school day documented youth interactions with retailers and catalogued retailer types by type.

Figure 1. Map showing location of Kunming in Yunnan Province, China

Figure 2. Distribution of tobacco retailers and schools in Kunming’s urban core.

Types of tobacco retailing

The most frequent types of tobacco retailers within 50 and 100 meters of schools were convenience stores (315, 33%) followed by grocery stores (291, 29%), tobacco stores (179, 18%), newspaper stands (144, 14%), food/snack stalls (59, 6%) and other store types (11, 1%). We found tobacco sold in a variety of unregulated venues including small booths, print shops, retail agencies, dry cleaners, shoe repair shops, photo print shops and high-end gift stores.

Table 1: Different kinds of advertising on display by tobacco retailer types, n (%)

<table>
<thead>
<tr>
<th>Types of retailers</th>
<th>No. stores</th>
<th>Posters</th>
<th>Door signs</th>
<th>Lighted displays</th>
<th>Runners</th>
<th>Leaflets</th>
<th>No sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience stores</td>
<td>351</td>
<td>224 (63.62)</td>
<td>43 (12.32)</td>
<td>38 (10.93)</td>
<td>5 (0.96)</td>
<td>3 (0.96)</td>
<td>69 (22.19)</td>
</tr>
<tr>
<td>Grocery stores</td>
<td>291</td>
<td>195 (67.01)</td>
<td>67 (23.02)</td>
<td>42 (14.43)</td>
<td>7 (2.41)</td>
<td>1 (0.34)</td>
<td>65 (22.34)</td>
</tr>
<tr>
<td>Tobacco stores</td>
<td>179</td>
<td>139 (77.45)</td>
<td>113 (62.51)</td>
<td>58 (32.17)</td>
<td>10 (5.59)</td>
<td>7 (3.91)</td>
<td>14 (7.62)</td>
</tr>
<tr>
<td>Newsstands</td>
<td>144</td>
<td>76 (52.79)</td>
<td>2 (1.39)</td>
<td>7 (4.86)</td>
<td>2 (1.39)</td>
<td>2 (1.39)</td>
<td>65 (45.14)</td>
</tr>
<tr>
<td>Snack stalls</td>
<td>59</td>
<td>43 (72.88)</td>
<td>5 (8.47)</td>
<td>2 (3.39)</td>
<td>5 (8.47)</td>
<td>1 (1.69)</td>
<td>13 (22.05)</td>
</tr>
<tr>
<td>Other stores types</td>
<td>31</td>
<td>21 (68.1)</td>
<td>0 (0.00)</td>
<td>1 (0.99)</td>
<td>1 (0.99)</td>
<td>0 (0.00)</td>
<td>3 (9.68)</td>
</tr>
<tr>
<td>Total</td>
<td>995</td>
<td>683 (68.44)</td>
<td>228 (22.91)</td>
<td>136 (13.67)</td>
<td>28 (2.81)</td>
<td>14 (1.41)</td>
<td>229 (23.02)</td>
</tr>
</tbody>
</table>

Qualitative focus groups

We conducted focus groups with 80 students from 12 schools in the study area. Youth described school-proximate retailing as “normal” and purchasing tobacco as “easy.” Students reported watching their peers purchase tobacco at retailers near schools or bringing tobacco to school from home. There was some indication from the focus group discussions that students at technical high schools may face greater exposure to tobacco retailing – or be more impacted by similar levels of exposure – than students at regular high schools, as technical high school students offered more information on tobacco retailers in their school neighborhoods.

“Buying tobacco is really easy. If you want some, I can go get you some within just five minutes!” [6]

“Places selling tobacco are basically right at the school gate. Just about every day people go to these shops. Buying tobacco, selling tobacco – these are things that classmates feel are very normal.”

“Personally I think it’s very normal. That isn’t to say that students who don’t buy tobacco near school won’t buy tobacco. If a student really wants to buy tobacco, they can do so away from school. All they have to do is walk a few streets away.”

Conclusions

The finding that students in Kunming experience high exposure to tobacco retailing measured by density and proximity to schools demonstrates the importance of regulating retail environments under broader tobacco control initiatives. Limiting youth exposure to tobacco retailing near schools in China does not require the creation of new legislation. Stronger implementation of existing laws and policies would allow city, state and national officials to protect youth from tobacco retailing around school campuses. We offer the following recommendations:

1. Implement and enforce existing national laws that protect youth against tobacco, including the Protection of Minors Law (未成年人保护法) and the Prevention of Juvenile Crimes Law (预防未成年人犯罪法).

2. Create new laws restricting tobacco retailer density and proximity to high schools and middle schools.

3. While waiting for the creation of national law, officials in Kunming should, in accordance with current municipal regulations, set a deadline for the removal of stores selling tobacco – both licenced and unlicensed – within 100 meters of schools.

Our study also demonstrates that civil society organizations and tobacco-affected communities can use GIS technologies in combination with other field-based methods to characterize tobacco retail environment and use these findings to support evidence-based policy advocacy. This can be done even in places which, like Kunming, are major financial centers of the tobacco industry. We encourage other organizations fighting tobacco to begin documenting the penetration of tobacco retailers around child-centered spaces in their communities.

Literature cited


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