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### Title

Assessment of Recreational Cannabis Dispensaries' Compliance With Underage Access and Marketing Restrictions in California

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2                   **Assessing Recreational Cannabis**

3           **Dispensaries' Compliance to Underage**

4           **Access and Marketing Restrictions in**

5                   **California**

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22           The increasing availability of cannabis to adults through legalization of  
23 recreational cannabis dispensaries (RCDs) raises concerns regarding underage  
24 access and exposure to products and marketing. The American Academy of  
25 Pediatrics “strongly recommends strict enforcement of rules and regulations that  
26 limit access, marketing, and advertising to youth”.<sup>1</sup> Currently all legalizing states  
27 prohibit sales to minors and require ID check, and most ban marketing activities  
28 appealing to children.<sup>2</sup> However, little is known about whether cannabis retailers  
29 comply. We assessed RCDs’ compliance to underage access and marketing  
30 restrictions in California.

### 31 **Methods**

32           Between June and September 2019, a research team at University of  
33 California San Diego identified and audited all the RCDs in California statewide  
34 (N=700).

35           A validated approach was used to construct a comprehensive list of RCDs.<sup>3</sup>  
36 We complemented the state licensing directory with online crowdsourcing  
37 platforms, given research showing that more than half of active dispensaries in Los  
38 Angeles operated without a state-issued license.<sup>4</sup> Trained researchers called  
39 dispensaries to verify the location, operation status, and requirements about patient  
40 ID card and doctor’s recommendation.

41           A validated instrument, Standardized Marijuana Dispensary Assessment -  
42 Children Focused (SMDA-CF), was adapted to audit the call-verified RCDs.<sup>2</sup> SMDA-CF  
43 includes items on underage access and point-of-sale marketing activities with  
44 particular attention to those appealing to children. SMDA-CF items have moderate  
45 to high reliability overall, with a median kappa score of 0.8.<sup>2</sup> Trained researchers

46 (aged 21-23 years) conducted the audits undercover in teams of two to improve  
47 data reliability. Observations on each dispensary were recorded right after the visit.

48 The institutional review board at University of California San Diego deemed  
49 this study non-human-subject research.

## 50 **Results**

51 Although California laws require age-limit signage, 67.9% of RCDs failed to  
52 comply. California laws further require ID check before any purchase, and overall  
53 compliance with this rule was high (96.8%). However, only 11.7% checked ID before  
54 entry. The majority (85.1%) checked ID after entry, where additional marketing  
55 items are displayed. Despite a low violation rate of children-appealing marketing  
56 restrictions on the exterior of the RCDs, 35.3% had children-appealing marketing  
57 items inside. Product promotions were common (85.7%), with 62.9% providing first  
58 time purchase discounts and 48.6% providing weekly or daily deals. Violations of  
59 free-sample ban were also common (21.6% for take-aways; 16.1% for on-site  
60 consumption). Moreover, 55.8% provided branded marketing materials and 38.9%  
61 promoted health benefits of cannabis.

## 62 **Discussion**

63 While RCDs in California were generally compliant with checking IDs, most  
64 RCDs did not check until customers entered the premises. Considering the low rate  
65 of compliance with age-limit signage, minors may unintentionally or even  
66 intentionally enter RCDs at which point they become exposed to marketing items  
67 hidden from casual outside observers, including advertisements, products,  
68 packages, and paraphernalia appealing to children, price promotions, free samples,  
69 brand awareness, and positive messaging. As more states liberalize cannabis,  
70 greater emphasis and resources need to be dedicated to enforcement of random

71 compliance checks to ensure that regulations intended to minimize access and  
72 exposure to minors have teeth.

73           Study limitations include that we used California-specific, cross-sectional data  
74 with possibly limited generalizability, binary indicators of instruments without  
75 quantity information, and subjective evaluation of children-appealing items.

## 76 **Disclosures**

77 **Author Contribution:** Dr. Shi had full access to all of the data in the study and  
78 takes responsibility for the integrity of the data and the accuracy of the data  
79 analysis.

80 Concept and design, funding obtainment, acquisition, analysis, and interpretation of  
81 data, statistical analysis, drafting of the manuscript, critical revision of the  
82 manuscript for important intellectual content, administrative, technical, and  
83 material support, supervision: Dr. Shi  
84 Interpretation of data, drafting of the manuscript, critical revision of the manuscript  
85 for important intellectual content: Dr. Pacula

86 **Conflict of Interest Disclosure:** Drs. Shi and Pacula reported no conflict of  
87 interest.

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91 **Role of the Funder/Sponsor:** The funding organizations had no role in the design  
92 and conduct of the study; collection, management, analysis, and interpretation of  
93 the data; preparation, review, or approval of the manuscript; and decision to submit  
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110 **Table 1. Compliance to Underage Access and Marketing Restrictions in**  
 111 **Recreational Cannabis Dispensaries<sup>1</sup> in California, 2019 (N=700)**

	<b>Exterior (before entry) %</b>	<b>Interior (after entry) %</b>	<b>Exterior or Interior %</b>
<b>Access</b>			
Security personnel present <sup>^</sup>	25.1	61.4	77.4
Surveillance camera present <sup>^</sup>	93.1	97.0	97.6
License displayed <sup>^</sup>	3.3	66.1	67.3
ID checked <sup>^</sup>	11.7	85.1	96.8
Age-limit sign <sup>^</sup>	17.2	21.3	32.1
On-site use restriction sign	NA	36.9	NA
<b>Point-of-sale Marketing</b>			
Children-appealing items <sup>2#</sup>			
Ads	1.1	10.7	11.4
Products	0.1	19.6	19.7
Packages	0	11.3	11.3
Paraphernalia	0	13.3	13.3
<i>Sum: any children-appealing items</i>	1.3	35.3	35.6
Product promotions			
Loyalty programs	NA	NA	25.1
Daily/weekly deals	NA	NA	48.6
Early bird/happy hour specials	NA	NA	30.4
Price discounts	NA	NA	41.0
First-time purchase discounts	NA	NA	62.9
Social media review discounts	NA	NA	15.7
Free samples with purchase, donation, or gambling	NA	NA	17.1
<i>Sum: any product promotions</i>	NA	NA	85.7
Free samples to take away <sup>#</sup>	NA	NA	21.6
Free samples to consume onsite <sup>#</sup>	NA	16.1	NA
Branded marketing materials	3.6	53.8	55.8
Signs, posters, ads that			
Promote health benefits	NA	38.9	NA
Display health warnings	NA	19.3	NA
Billboards related to cannabis	11.6	NA	NA
Images or wording indicative of cannabis	57.4	NA	NA
Biggest ads over 1,600 square inches	3.3	NA	NA
<b>Other Sources of Exposure to Cannabis</b>			
Observed anyone consuming cannabis	2.1	5.4	7.3
Smelled cannabis before entering outlet	11.7	NA	NA

112 Notes.

113 <sup>^</sup>Required by California state laws. <sup>#</sup>Prohibited by California state laws.

114 <sup>1</sup> Recreational cannabis dispensaries in this study were defined as brick-and-mortar  
 115 retailers that primarily sell cannabis products to adults aged 21 or older without  
 116 requiring a patient ID card or a doctor's recommendation.



117 <sup>2</sup> Children-appealing marketing activities in SMDA-CF were defined as  
118 advertisements, products, packages, and paraphernalia that are “characterized by  
119 promotional characters (e.g., cartoons, animals, toys, or children), shaped like  
120 commercially sold products usually consumed by children (e.g., gummy bears,  
121 lollipop, fruits), or using bright colors (in products, mostly edibles) or bubble-like  
122 fonts (on packages, branding, advertisements, or signage)“.