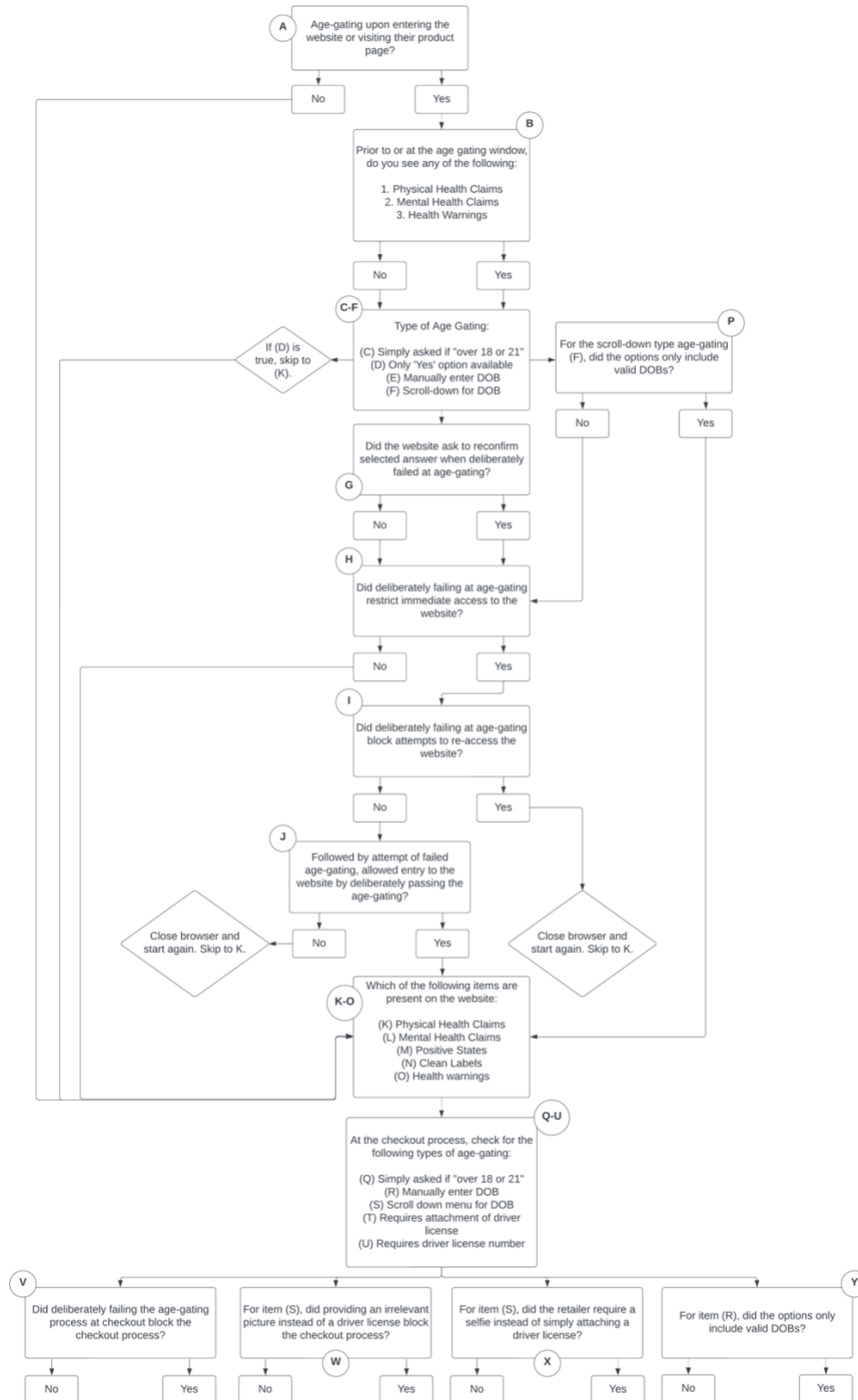


Appendix A

Main Algorithm for Website Coding

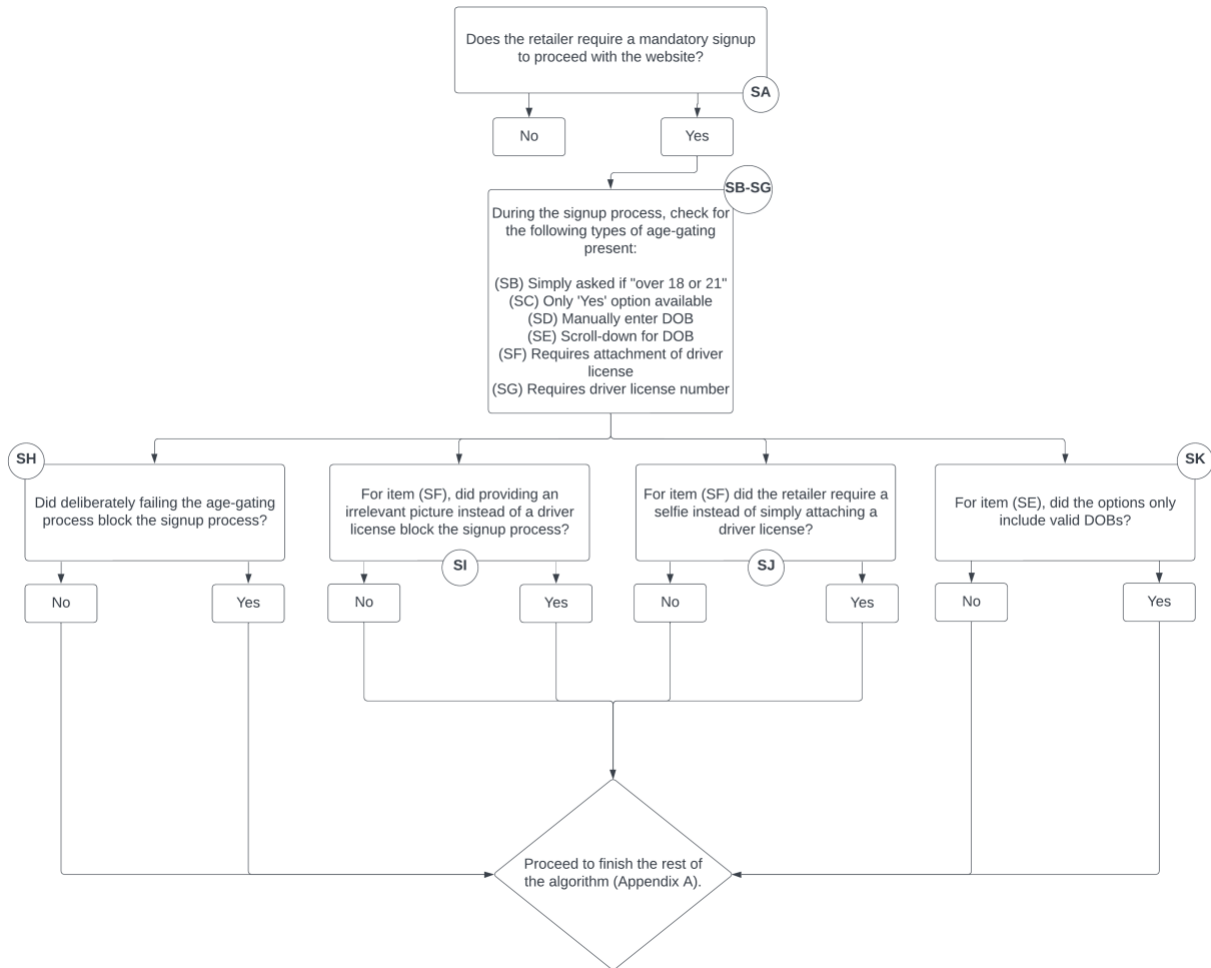


Age-gating and Marketing of Cannabis Retailers

This appendix consists of the main algorithm used to code for various aspects on age-gating methods and marketing practices for cannabis retailer websites. Each item was coded in binary fashion. A few variables are dependent on the presence of a prior item. Therefore, some variables were skipped for a few retailers. Item A represents the presence of initial age-gating, which is the practice of age verification when entering the retailer's website or product page. Item B represents the presence of any health claim or health warning prior to or during the initial age-gating process. Items C-F indicate the type of initial age-gating method employed. Items G-J and P indicate the effectiveness of the employed age-gating method (e.g., does deliberately failing at the initial age-gating restricts immediate access to the website). Items K-O coded for the individual presence of physical health claims, mental health claims, positive states, clean labels and health warnings anywhere on the website. Items V-W coded the consequences of deliberately failing age-gating during the checkout process of attempting to purchase products. Items Q-U coded for the type of age-gating methods employed during the checkout process. For items W-X, an irrelevant picture was uploaded instead of the requested photo identification to test whether immediate screening of photo identification was present. Lastly, item Y was coded to see the effectiveness of the scroll-down age-gating method if present during checkout.

Appendix B

Algorithm for Account Registration



This appendix consists of the algorithm used to code for various aspects on age-gating methods and marketing practices for the mandatory account registration process for accessing or proceeding with cannabis retailer websites. Each item was coded in binary fashion. These items were not coded if the respective cannabis retailer did not require account registration to proceed with their website. SA represents whether the website required mandatory account registration to proceed with the website. Items SB-SG represent the presence of different age-gating methods used during the mandatory account registration process. Items SH-SK represent the effectiveness

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of the employed age-gating methods during account registration. For items SI-SJ, an irrelevant picture was uploaded instead of the requested photo identification to test whether immediate screening of photo identification was present. Items SA-SK were skipped for coding if creating an account with the website was not necessary.

Appendix C

Bivariate Associations between Age Gating, Health Claims, and Retailer Type

Characteristic	Storefront retailers	Non-storefront retailers	Total	Chi-square ^b	p-value	Cramér's V
	n = 134 (% of total storefront retailers)	n = 115 (% of total non-storefront retailers)	N = 249 (% of all retailers)			
<i>Age-gating and age-gating type</i>						
Initial age-gating type: manual date of birth entry ^d	3/112 (2.67%) ^a	0/88 (0%) ^a	3/200 (1.50%) ^a	-	.-	-
Initial age-gating type: scroll menu for date of birth ^d	0/112 (0%) ^a	0/88 (0%) ^a	0/200 (0%) ^a	-	-	-
<i>Initial age-gating effectiveness</i>						
Asked to reconfirm date of birth when deliberately failed at initial age-gating ^d	1/103 (0.97%) ^b	2/82 (2.44%) ^b	3 (1.62%) ^b	2.57	.58	-
Blocked future attempts to access website when deliberately failed initial age-gating ^d	1/103 (0.97%) ^b	0/82 (0%) ^b	1/185 (0.54%) ^b	-	-	-
<i>Age-gating at checkout</i>						
Checkout age-gating: simple yes/no ^d	0/94 (0%) ^c	0/54 (0%) ^c	0/148 (0%) ^c	-	-	-
Checkout age-gating: manual date of birth entry	72/94 (76.60%) ^c	20/54 (37.04%) ^c	92/148 (62.16%) ^c	32.53***	< .001	0.36
Checkout age-gating: scroll menu for date of birth	15/94 (15.96%) ^c	29/54 (53.70%) ^c	44/148 (29.73%) ^c	7.81**	< .01	0.18
Scroll menu for date of birth: only valid date of births available	10/15 (66.67%) ^d	17/29 (58.62%) ^d	27/44 (61.36%) ^d	0.04	.85	0.03
<i>Effectiveness of age-gating at checkout</i>						
Required uploading photo with the user's face (i.e., selfie) and identification together	0/50 (0%) ^e	12/50 (24%) ^e	12/100 (12%) ^e	11.46	< .001	0.34
<i>Age-gating during mandatory account registration & type</i>						
Account registration age-gating: simple yes/no ^d	0/40 (0%) ^f	0/65 (0%) ^f	0/105 (0%) ^f	-	-	-
Account registration age-gating: manual date of birth entry	14/40 (35%) ^f	19/65 (29.23%) ^f	33/105 (31.43%) ^f	0.16	.69	.04
Account registration age-gating: scroll menu for date of birth	13/40 (32.50%) ^f	14/65 (21.54%) ^f	27/105 (25.71%) ^f	1.04	.31	0.10
Scroll menu for date of birth: only valid date of births available ^d	12/40 (30%) ^f	10/65 (15.38%) ^f	24/105 (22.86%) ^f	0.22	.33	-
<i>Effectiveness of age-gating during mandatory account registration</i>						
Unable to proceed with signup when deliberately failing age-gating	12/40 (30%) ^f	20/65 (30.77%) ^f	32/105 (30.48%) ^f	1.72	.19	0.19
Unable to proceed after uploading an irrelevant photo identification ^d	1/19 (5.26%) ^g	10/37 (27.03%) ^g	11/56 (19.64%) ^g	6.49	.08	-
Require uploading photo with the user's face (i.e., selfie) and identification together	1/19 (5.26%) ^g	7/37 (18.92%) ^g	8/56 (14.29%) ^g	0.55	.46	0.07
<i>Extra age-gating methods</i>						
Implemented age verification via phone by either sending photo identification via text or by 3 rd party software applications	1 (0.75%)	11 (9.57%)	12 (4.82%)	8.66**	< .01	0.19
<i>Other variables</i>						
Utilizes weedmaps' plug-in for checkout services at the retailer's website	13 (9.70%)	12 (10.43%)	25 (10.04%)	0.00	.99	0.00
Provides only pick-up order services ^d	73 (54.48%)	0 (0%)	73 (29.32%)	-	-	-

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This appendix consists of a table of all prevalence and bivariate associations between content, age gating, health claim practices, and storefront and non-storefront retailers operating in California, 2022. Percentages in each cell were calculated using the total number of retailers of the respective type (storefront retailers $n = 134$, non-storefront retailers $n = 115$) apart from those marked with “a” where percentages were calculated by dividing the frequency counts of each coded variable by the total number of respective retailer type which implemented initial age-gating (storefront $n = 112$, non-storefront $n = 88$); those marked “b” where percentage of the respective frequency counts of the variable by retailer type which implemented initial age-gating, excluding those which only had the “Yes” option type of age-gating (storefront $n = 103$, non-storefront $n = 82$); those marked “c” where percentage of respective frequency counts of the variable by retailer type which had any presence of age-gating during checkout (storefront $n = 94$, non-storefront $n = 54$); those marked “d” where percentage of respective frequency counts of the variable by each retailer type which implemented a scroll down menu during their checkout process (storefront $n = 15$, non-storefront $n = 29$); those marked “e” where percentage of the respective frequency counts of the variable divided by the number of each retailer type which required uploading a photo ID during the checkout process (storefront $n = 50$, non-storefront $n = 50$); those marked “f” where percentage of respective frequency counts of the variable divided by the number of each retailer type which required mandatory sign up to proceed with navigating the website (storefront $n = 40$, non-storefront $n = 65$); and those marked “g” where percentage of the respective frequency counts of the variable divided by the number of each retailer type which required uploading a photo ID during the sign up process (storefront $n = 19$, non-storefront $n = 37$). Significance at the level: * $p < .05$; ** $p < 0.01$; *** $p < .001$. Variables which had expected cell frequencies of less than five by retailer type were omitted from the Chi-square test of

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independence analysis. ^hPresented Chi-square tests of independence had one degree of freedom.

ⁱFisher exact test utilized where odds ratios are reported within the Chi-square test effect size

instead. In addition, odds ratios for Fisher exact tests which were indeterminate (i.e., zero or

infinite) were also not reported. Lastly, Cramer's *V* are reported for Chi-square tests to observe

substantive significance, but were omitted for variables which utilized the Fisher exact test.