

Secondhand Smoke and Aerosol Exposure in Multi-Unit Housing

FINDINGS FROM A 2025 SURVEY OF MINNESOTA ADULTS

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Secondhand Smoke and Aerosol Exposure in Multi-Unit Housing – Findings from a 2025 Survey of Minnesota Adults

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Introduction

Secondhand smoke and aerosol exposure in multi-unit housing is a public health concern. In multi-unit housing, secondhand smoke or aerosol from one dwelling unit can easily travel through shared air systems, vents, and wall openings into neighboring units. Secondhand exposure in multi-unit housing is also a health equity issue as some communities are more likely to live in multi-unit housing, making them especially vulnerable to exposure and the resulting health harms.

Communities across the state are working to strengthen smoke-free protections for residents living in multi-unit housing. While some communities have assessed support for additional protections locally, there has been no statewide assessment. This report provides baseline statewide assessment data on secondhand smoke and aerosol exposure in multi-unit housing that communities can use in their state and local efforts.

Secondhand smoke and aerosol

Secondhand smoke comes from combustible commercial tobacco products like cigarettes, cigars, or pipes. It also includes the smoke exhaled by the person smoking. Secondhand smoke contains over 7,000 chemicals – hundreds are toxic, and about 70 can cause cancer. *Secondhand aerosol* (sometimes called vapor) is exhaled by a person using an e-cigarette (vaping). Aerosol from e-cigarettes contains a mix of tiny particles and chemicals and can contain nicotine, heavy metals like lead, nickel, and cadmium, cancer-causing chemicals such as formaldehyde and acetaldehyde, and ultrafine particles that can reach deep into the lungs.

Whether it's smoke or aerosol, secondhand exposure can lead to lung and heart disease, more colds or respiratory infections, increased risk of cancer, asthma attacks, and other breathing problems. There is no risk-free level of secondhand smoke or aerosol exposure.

Clean air protections for people in Minnesota

The Minnesota Clean Indoor Air Act (MCIAA) protects people in Minnesota from the harmful effects of breathing secondhand smoke and aerosol. For *multi-unit housing* – residential buildings with three or more units, like apartment buildings – the MCIAA restricts smoking and vaping of both commercial tobacco and cannabis in common areas, like hallways, community rooms, or laundry rooms. Property managers or owners may extend policies to cover individual units and outdoor areas of the property.

In 2019, the MCIAA was expanded to include e-cigarette use and cannabis use – a change due in part to the multitude of cities and counties across the state leading the way with stronger clean air protections for their communities. In 2024, the smoking or vaping of non-medical, adult-use cannabis was prohibited in all areas of multi-family housing buildings, as well as locations where smoke or aerosol would be inhaled by minors.

Despite changes to the MCIAA, new voluntary policies, and overall reductions in exposure, many Minnesotans are still exposed to secondhand smoke and aerosol. In 2023, one in six students were still exposed to secondhand smoke in homes and cars, according to the Minnesota Youth Tobacco Survey.¹ For students living in multi-family housing, more than one in four were exposed to secondhand smoke.

¹ Minnesota Department of Health. (2024, July 2). *Data highlights from the 2023 Minnesota Youth Tobacco Survey*. <https://www.health.state.mn.us/communities/tobacco/data/docs/2023mytshighlights.pdf>

Nationally, secondhand smoke exposure is more than two times greater among adults over 25 with less than a college degree, families with incomes below the federal poverty level, and Black adults.²

Local communities, including private residential complexes, may adopt additional protections for their residents. Minnesota cities and counties also have the authority to extend smoke-free protections to all properties in their jurisdictions to protect residents from commercial tobacco and cannabis smoke and aerosol. For local communities interested in expanding smoke-free protections, it's important to consider resident and property owner support. Some Minnesota communities have assessed local support of these policies with residents and property managers; however, until now there has been no statewide assessment.

Statewide assessment of policy support

The Minnesota Department of Health partnered with Professional Data Analysts on a statewide survey to learn about secondhand exposure inside and outside of rental units among adults living in multi-unit housing, as well as demographic and geographic disparities in secondhand exposure, especially among low-income communities. From December 2024 through March 2025, the survey was administered online and via phone in English and Spanish. Participants were eligible if they resided in Minnesota, lived in an apartment building with three or more units, rented their current unit, and were age 18 or older. Participants who completed the survey were offered a \$10 Visa electronic gift card.

Findings from this survey provide baseline data for secondhand exposure statewide and can be used to inform state and local program planning and education efforts.

Data are organized by the following key sections:

- Smoke-free rules in the home
- Exposure to secondhand smoke and aerosol
- Opinions and beliefs about secondhand smoke
- Smoke-free policies in buildings
- Demographics

Where available, data are reported as number of respondents and percentages. For more information about the survey design and limitations see *About the survey* on page 23.

This survey was made possible with funding from the Minnesota Department of Health and the Centers for Disease Control and Prevention, National and State Based Tobacco Control Program, CDC-RFA-DP20-2001.

² Minnesota Department of Health. (n.d.). *Smoke-free housing*.
<https://www.health.state.mn.us/communities/tobacco/initiatives/sfh.html>

Smoke-free rules in the home

Data in this section are about rules in the respondents' apartments. For reference, survey questions for this section are in the Appendix on page 27.

All percentages are weighted, unless otherwise noted, and statistical significance is reported using a 95% confidence interval. Income status was determined by categorizing income levels as *low* or *moderate/high* using SHADAC methodology,³ which relies on a combination of income and household size.

Allows smoking commercial tobacco in unit

Table 1: Allows smoking commercial tobacco in unit

RESPONSE	%	RESPONDENTS
YES	5.9	37
NO	94.1	599

Table 2: Allows smoking commercial tobacco in unit, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	636 [‡]	257	325
YES %	5.9	10.2	3.5*
NO %	94.1	89.8	96.5

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

‡ Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Allows smoking cannabis in unit

Table 3: Allows smoking cannabis in unit

RESPONSE	%	RESPONDENTS
YES	10.5	71
NO	89.5	566

³ Hest, R. (2023, August 17). *Four methods for calculating income as a percent of the federal poverty guidelines (FPG) in the behavioral risk factor surveillance system (BRFSS)*. SHADAC. <https://www.shadac.org/four-methods-calculating-income-percent-federal-poverty-guidelines-fpg-behavioral-risk-factor>

Table 4: Allows smoking cannabis in unit, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	637 [‡]	256	326
YES %	10.5	17.6 [†]	6.2 [†]
NO %	89.5	82.4	93.8

[†] The *Low Income* group and the *Not Low Income* group are statistically different using a 95% confidence interval comparison.

[‡] *Overall* respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Allows vaping of any substances in unit

Table 5: Allows vaping in unit

RESPONSE	%	RESPONDENTS
YES	21.1	119
NO	78.9	517

Table 6: Allows vaping in unit, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	636 [‡]	257	324
YES %	21.1	30.1	17.3
NO %	78.9	69.9	82.7

[‡] *Overall* respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Number of days that anyone smoked or vaped commercial tobacco or cannabis in unit in past 7 days

Table 7: Number of days that anyone smoked or vaped commercial tobacco or cannabis in unit in past 7 days

RESPONSE	%	RESPONDENTS
0	78.7	503
1	2.0*	11
2	2.6*	14
3	1.8*	11
4	--^	6
5	--^	8
6	--^	5
7	10.6	62

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 8: Number of days that anyone smoked or vaped commercial tobacco or cannabis in unit in past 7 days, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	620 [‡]	250	318
0 DAY %	78.7	67.0	85.0
1-7 DAYS %	21.3	33.0 [†]	15.0

† The *Low Income* group and the *Not Low Income* group are statistically different using a 95% confidence interval comparison.

‡ *Overall* respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Exposure to secondhand smoke and aerosol

For this survey, secondhand smoke was defined as smoke from burning commercial tobacco or cannabis products, like cigarettes, cigars, pipes, hookahs, joints, or bongs and the smoke exhaled by people who smoke. Secondhand aerosol is produced from vaping devices or e-cigarettes and is exhaled by people who vape. For reference, survey questions for this section are in the Appendix on page 27.

All percentages are weighted, unless otherwise noted, and statistical significance is reported using a 95% confidence interval. Income status was determined by categorizing income levels as *low* or *moderate/high* using SHADAC methodology,⁴ which relies on a combination of income and household size.

In-unit exposure to secondhand tobacco smoke

Respondents who reported using any combustible commercial tobacco products (cigarettes, cigars, cigarillos, water or regular pipes, and hookahs) in the past 30 days were excluded from Table 9 and Table 10.

Table 9: In-unit exposure to secondhand tobacco smoke

RESPONSE	%	RESPONDENTS
EVERY DAY	5.2	40
A FEW TIMES A WEEK	11.9	70
A FEW TIMES A MONTH	16.5	78
A FEW TIMES A YEAR	11.8	73
NEVER	54.6	260

Table 10: In-unit exposure to secondhand tobacco smoke, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	521 [‡]	184	294
EVERY DAY OR A FEW TIMES A WEEK %	17.1	25.2	13.4
A FEW TIMES A MONTH OR A FEW TIMES A YEAR %	28.3	28.4	26.9
NEVER %	54.6	46.5	59.8

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

⁴ Hest, R. (2023, August 17). *Four methods for calculating income as a percent of the federal poverty guidelines (FPG) in the behavioral risk factor surveillance system (BRFSS)*. SHADAC. <https://www.shadac.org/four-methods-calculating-income-percent-federal-poverty-guidelines-fpg-behavioral-risk-factor>

In-unit exposure to secondhand cannabis smoke

Respondents who reported smoking or vaping cannabis in the past 30 days were excluded from Table 11 and Table 12.

Table 11: In-unit exposure to secondhand cannabis smoke

RESPONSE	%	RESPONDENTS
EVERY DAY	6.4	45
A FEW TIMES A WEEK	17.8	88
A FEW TIMES A MONTH	17.6	85
A FEW TIMES A YEAR	10.3	70
NEVER	47.8	239

Table 12: In-unit exposure to secondhand cannabis smoke, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	527 [‡]	199	283
EVERY DAY OR A FEW TIMES A WEEK %	24.2	25.4	22.8
A FEW TIMES A MONTH OR A FEW TIMES A YEAR %	27.9	28.1	28.3
NEVER %	47.8	46.5	48.9

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

In-unit exposure to secondhand aerosol

Respondents who reported vaping in the past 30 days were excluded from Table 13 and Table 14.

Table 13: In-unit exposure to secondhand aerosol

RESPONSE	%	RESPONDENTS
EVERY DAY	2.2	19
A FEW TIMES A WEEK	4.7	27
A FEW TIMES A MONTH	6.9	33
A FEW TIMES A YEAR	7.3	39
NEVER	79.0	428

Table 14: In-unit exposure to secondhand aerosol, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	546 [‡]	206	294
EVERY DAY OR A FEW TIMES A WEEK %	6.8	10.4	6.0
A FEW TIMES A MONTH OR A FEW TIMES A YEAR %	14.2	19.9	10.7
NEVER %	79.0	69.6	83.3

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Any in-unit exposure to secondhand smoke or aerosol

Respondents were excluded from analysis for this question if they also reported being a user of the substance that was asked about in the question. Respondents who were users of one substance could be counted as exposed to other substances. For example, a respondent who reported only using combustible commercial tobacco could still be counted as exposed to cannabis smoke or aerosol.

Respondents were asked separate questions about exposure to commercial tobacco smoke, cannabis smoke, or aerosol. If respondents reported exposure to multiple substances, the most frequent rate of exposure was selected in Table 15 and Table 16. For example, a respondent who reported being exposed to commercial tobacco smoke every day and to cannabis smoke a few times a month, the response would be counted in Every Day, not A Few Times A Month.

Table 15: Any in-unit exposure to secondhand smoke or aerosol

RESPONSE	%	RESPONDENTS
EVERY DAY	8.2	68
A FEW TIMES A WEEK	20.8	115
A FEW TIMES A MONTH	19.0	107
A FEW TIMES A YEAR	10.7	80
NEVER	41.3	245

Table 16: Any in-unit exposure to secondhand smoke or aerosol, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	615 [‡]	245	321
EVERY DAY OR A FEW TIMES A WEEK %	29.0	33.1	25.9
A FEW TIMES A MONTH OR A FEW TIMES A YEAR %	29.7	29.8	29.3

SECONDHAND SMOKE AND AEROSOL EXPOSURE IN MULTI-UNIT HOUSING

	OVERALL	LOW INCOME	NOT LOW INCOME
NEVER %	41.3	37.2	44.8

‡ *Overall* respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Exposure to secondhand tobacco or cannabis smoke or aerosol in indoor common areas

Respondents who reported smoking or vaping commercial tobacco products (cigarettes, cigars, cigarillos, water or regular pipes, and hookahs) or cannabis in the past 30 days were excluded from Table 17 and Table 18. Respondents who reported that there were no indoor common areas in their buildings were also excluded.

Table 17: Exposure to secondhand tobacco or cannabis smoke or aerosol in indoor common areas

RESPONSE	%	RESPONDENTS
EVERY DAY	9.7	55
A FEW TIMES A WEEK	20.1	79
A FEW TIMES A MONTH	16.8	73
A FEW TIMES A YEAR	12.1	51
NEVER	41.3	159

Table 18: Exposure to secondhand tobacco or cannabis smoke or aerosol in indoor common areas, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	417 [‡]	135	244
EVERY DAY OR A FEW TIMES A WEEK %	29.8	32.9	27.5
A FEW TIMES A MONTH OR A FEW TIMES A YEAR %	28.9	25.8	32.3
NEVER %	41.3	41.4	40.1

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Opinions and beliefs about secondhand smoke

Data in this section show respondents' opinions and beliefs about secondhand smoke exposure. For reference, survey questions for this section are in the Appendix on page 28.

All percentages are weighted, unless otherwise noted, and statistical significance is reported using a 95% confidence interval. Income status was determined by categorizing income levels as *low* or *moderate/high* using SHADAC methodology,⁵ which relies on a combination of income and household size.

Desire to move out of a building with secondhand smoke exposure

Table 19: Desire to move out of a building with secondhand smoke exposure

RESPONSE	%	RESPONDENTS
STRONGLY AGREE	52.6	348
SOMEWHAT AGREE	27.8	167
SOMEWHAT DISAGREE	11.7	77
STRONGLY DISAGREE	7.8	47

Table 20: Desire to move out of a building with secondhand smoke exposure, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	639 [‡]	258	326
STRONGLY OR SOMEWHAT AGREE %	80.4	76.0	84.5
STRONGLY OR SOMEWHAT DISAGREE %	19.6	24.0	15.5

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

⁵ Hest, R. (2023, August 17). *Four methods for calculating income as a percent of the federal poverty guidelines (FPG) in the behavioral risk factor surveillance system (BRFSS)*. SHADAC. <https://www.shadac.org/four-methods-calculating-income-percent-federal-poverty-guidelines-fpg-behavioral-risk-factor>

Importance of living in a building where smoking is not allowed indoors

Table 21: Importance of living in a building where smoking is not allowed indoors

RESPONSE	%	RESPONDENTS
VERY IMPORTANT	56.8	376
SOMEWHAT IMPORTANT	24.5	135
NOT VERY IMPORTANT	9.7	69
NOT AT ALL IMPORTANT	9.1	52

Table 22: Importance of living in a building where smoking is not allowed indoors, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	632 [‡]	253	325
VERY OR SOMEWHAT IMPORTANT %	81.2	74.6	84.4
NOT VERY OR NOT AT ALL IMPORTANT %	18.8	25.4	15.6

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Importance of living in a building where smoking is not allowed anywhere, including outdoors

Table 23: Importance of living in a building where smoking is not allowed anywhere, including outdoors

RESPONSE	%	RESPONDENTS
VERY IMPORTANT	30.6	203
SOMEWHAT IMPORTANT	27.7	172
NOT VERY IMPORTANT	19.7	119
NOT AT ALL IMPORTANT	22.0	138

Table 24: Importance of living in a building where smoking is not allowed anywhere, including outdoors, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	632 [‡]	253	324
VERY OR SOMEWHAT IMPORTANT %	58.3	51.4	60.7
NOT VERY OR NOT AT ALL IMPORTANT %	41.7	48.6	39.3

‡ Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Believe they experienced health impacts from secondhand smoke entering unit

- Respondents were included who reported exposure to secondhand smoke or aerosol in units. Respondents were only counted as being exposed to a substance if they did not report being a user of that substance. Respondents who were users of one substance could be counted as exposed to other substances. For example, a respondent who reported only using combustible commercial tobacco could still be counted as exposed to secondhand cannabis smoke or aerosol.
- Respondents were included who reported exposure to secondhand smoke or aerosol in indoor common areas

Table 25: Believe they experienced health impacts from secondhand smoke entering unit

RESPONSE	%	RESPONDENTS
YES	15.2	60
NO	84.8	334

Table 26: Believe they experienced health impacts from secondhand smoke entering unit, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	394 [‡]	153	215
YES %	15.2	26.1 [†]	8.4
NO %	84.8	73.9	91.6

† The *Low Income* group and the *Not Low Income* group are statistically different using a 95% confidence interval comparison.

‡ Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Smoke-free policies in buildings

Data in this section are about policies in respondents' apartment building. For reference, survey questions for this section are in the Appendix on page 28.

All percentages are weighted, unless otherwise noted, and statistical significance is reported using a 95% confidence interval. Income status was determined by categorizing income levels as *low* or *moderate/high* using SHADAC methodology,⁶ which relies on a combination of income and household size.

Building policy on smoking tobacco indoors

Table 27: Building policy on smoking tobacco indoors

RESPONSE	%	RESPONDENTS
ALLOWED EVERYWHERE ON THE PROPERTY	-- [^]	8
ALLOWED IN ALL UNITS, BUT NOT IN INDOOR COMMON AREAS	5.1	30
ALLOWED IN CERTAIN UNITS, BUT NOT IN INDOOR COMMON AREAS	2.7*	15
NOT ALLOWED ANYWHERE INDOORS	82.3	538
I DON'T KNOW IF MY BUILDING HAS A POLICY	7.9	47

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

[^] A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 28: Building policy on smoking tobacco indoors, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	638 [‡]	257	326
BUILDING ALLOWS COMMERCIAL TOBACCO SMOKING SOMEWHERE INDOORS %	9.8	14.9	7.5*
BUILDING DOES NOT ALLOW COMMERCIAL TOBACCO SMOKING ANYWHERE INDOORS %	82.3	76.0	85.0
DON'T KNOW %	7.9	9.1	7.5*

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

[‡] Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

⁶ Hest, R. (2023, August 17). *Four methods for calculating income as a percent of the federal poverty guidelines (FPG) in the behavioral risk factor surveillance system (BRFSS)*. SHADAC. <https://www.shadac.org/four-methods-calculating-income-percent-federal-poverty-guidelines-fpg-behavioral-risk-factor>

Building policy on smoking cannabis indoors

Table 29: Building policy on smoking cannabis indoors

RESPONSE	%	RESPONDENTS
ALLOWED EVERYWHERE ON THE PROPERTY	-- [^]	6
ALLOWED IN ALL UNITS, BUT NOT IN INDOOR COMMON AREAS	3.0 [*]	19
ALLOWED IN CERTAIN UNITS, BUT NOT IN INDOOR COMMON AREAS	-- [^]	8
NOT ALLOWED ANYWHERE INDOORS	77.1	502
I DON'T KNOW IF MY BUILDING HAS A POLICY	16.2	102

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

[^] A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 30: Building policy on smoking cannabis indoors, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	637 [‡]	258	324
BUILDING ALLOWS CANNABIS SMOKING SOMEWHERE INDOORS %	6.7	12.2 [*]	4.3 [*]
BUILDING DOES NOT ALLOW CANNABIS SMOKING ANYWHERE INDOORS %	77.1	73.3	78.2
DON'T KNOW %	16.2	14.5	17.4

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

[‡] Overall respondents is not the summation of the Low Income and Not Low Income categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the Low Income and Not Low Income categories for this table.

Building policy on vaping indoors

Table 31: Building policy on vaping indoors

RESPONSE	%	RESPONDENTS
ALLOWED EVERYWHERE ON THE PROPERTY	4.1 [*]	21
ALLOWED IN ALL UNITS, BUT NOT IN INDOOR COMMON AREAS	4.0 [*]	22
ALLOWED IN CERTAIN UNITS, BUT NOT IN INDOOR COMMON AREAS	-- [^]	5
NOT ALLOWED ANYWHERE INDOORS	56.5	354
I DON'T KNOW IF MY BUILDING HAS A POLICY	34.0	237

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

[^] A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 32: Building policy on vaping indoors, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	639 [‡]	258	326
BUILDING ALLOWS VAPING SOMEWHERE INDOORS %	9.5	13.2	8.6*
BUILDING DOES NOT ALLOW VAPING ANYWHERE INDOORS %	56.5	53.3	55.8
DON'T KNOW %	34.0	33.5	35.5

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

‡ Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Building allows smoking tobacco or cannabis or vaping on decks, balconies, and patios

Respondents who reported that their building does not have decks, balconies, or patios were excluded from Table 33 and Table 34.

Table 33: Building allows smoking tobacco or cannabis or vaping on decks, balconies, and patios

RESPONSE	%	RESPONDENTS
YES	19.7	108
NO	49.2	244
I DON'T KNOW IF MY BUILDING HAS A POLICY	31.1	138

Table 34: Building allows smoking tobacco or cannabis or vaping on decks, balconies, and patios, by income status

	OVERALL	LOW INCOME	NOT LOW INCOME
RESPONDENTS	490 [‡]	171	279
YES %	19.7	27.5	15.2
NO %	49.2	42.0	52.6
DON'T KNOW %	31.1	30.5	32.2

‡ Overall respondents is not the summation of the *Low Income* and *Not Low Income* categories. Respondents' income category was determined using self-reported income level and number of adults and children in the household. If a respondent didn't report their income level or the number of adults or children in their household, their income category could not be determined, and they were excluded from the *Low Income* and *Not Low Income* categories for this table.

Demographics

Table 35: Respondent smoked or vaped the following products in the past 30 days

For this question, respondents were able to select multiple responses. Therefore, the weighted percentages may add up to more than 100%.

RESPONSE	%	RESPONDENTS
CIGARETTES	16.3	108
CIGARS	--^	6
CIGARILLOS	--^	7
VAPING DEVICES/E-CIGARETTES	16.4	85
WATER OR REGULAR PIPES	1.2*	10
HOOKAHS	--^	1
CANNABIS	19.2	109
I HAVE NOT SMOKED OR VAPED ANY OF THESE PRODUCTS IN THE LAST 30 DAYS	65.1	436

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 36: County

RESPONSE	%	RESPONDENTS
AITKIN	--^	1
ANOKA	3.4	20
BELTRAMI	--^	3
BENTON	--^	7
BLUE EARTH	--^	5
BROWN	--^	1
CARVER	--^	4
CHISAGO	--^	5
CLAY	--^	6
COTTONWOOD	--^	6
CROW WING	--^	5
DAKOTA	7.3	36
DODGE	--^	1
DOUGLAS	--^	3

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RESPONSE	%	RESPONDENTS
FILLMORE	--^	1
GOODHUE	--^	2
HENNEPIN	42.5	292
HUBBARD	--^	2
ISANTI	--^	3
ITASCA	--^	2
JACKSON	--^	8
KANABEC	--^	1
KOOCHICHING	--^	9
LAKE	--^	2
LE SUEUR	--^	1
LYON	--^	5
MARSHALL	--^	1
MCLEOD	--^	3
MORRISON	--^	2
NICOLLET	--^	4
OLMSTED	3.2*	23
OTTER TAIL	--^	3
PINE	--^	1
PIPESTONE	--^	1
POLK	--^	1
RAMSEY	15.6	104
RICE	--^	1
SAINT LOUIS	2.2*	19
SCOTT	--^	7
SHERBURNE	--^	2
STEARNS	2.2*	11
STEELE	--^	1
STEVENS	--^	2
TODD	--^	1
WASHINGTON	1.6*	12
WINONA	--^	3
WRIGHT	--^	3

RESPONSE	%	RESPONDENTS
YELLOW MEDICINE	--^	1

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 37: Number of adults in household

RESPONSE	%	RESPONDENTS
1	46.3	390
2	41.9	209
3	10.3	27
4	--^	4
5	--^	1

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 38: Number of children in household

RESPONSE	%	RESPONDENTS
0	81.1	514
1	10.5	66
2	4.8	31
3	2.3*	14
4	--^	3
5	--^	3

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 39: Marital status

RESPONSE	%	RESPONDENTS
MARRIED	21.1	96
DIVORCED/WIDOWED/ SEPARATED	24.7	163
NEVER MARRIED	40.3	290
A MEMBER OF AN UNMARRIED COUPLE	11.5	71
OTHER	2.3*	14

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

Table 40: Education

RESPONSE	%	RESPONDENTS
NO HIGH SCHOOL DIPLOMA	6.0	27
HIGH SCHOOL DIPLOMA/GED	29.0	120
SOME COLLEGE OR VOCATIONAL/TECHNICAL DEGREE	21.9	151
ASSOCIATE'S DEGREE (E.G. AA, OR, AS)	8.3	59
BACHELOR'S DEGREE (E.G. BA, BS, BSN)	23.8	169
MASTER'S DEGREE (E.G. MA, MS)	8.3	79
PROFESSIONAL/DOCTORAL DEGREE (E.G. PHD, MD, JD)	2.6	28

Table 41: Ethnicity

Respondents who reported that they did not know their ethnicity were excluded from these rows.

RESPONSE	%	RESPONDENTS
HISPANIC, LATINO, OR SPANISH	7.1	39
NOT HISPANIC, LATINO, OR SPANISH	92.9	572

Table 42: Race

Respondents who reported that they did not know their race were excluded from this table. Respondents were also able to select multiple responses. Therefore, the weighted percentages may add up to more than 100%.

RESPONSE	%	RESPONDENTS
AMERICAN INDIAN OR ALASKA NATIVE	8.7	50
ASIAN OR ASIAN AMERICAN	5.8	28
BLACK OR AFRICAN OR AFRICAN AMERICAN	15.5	85
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	-- [^]	2
WHITE	62.3	442
RACE NOT LISTED ABOVE	3.8*	12

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

[^] A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 43: Sex

RESPONSE	%	RESPONDENTS
FEMALE	55.1	402
MALE	44.9	213

Table 44: Gender identity

For this question, respondents were able to select multiple responses. Therefore, the weighted percentages may add up to more than 100%.

RESPONSE	%	RESPONDENTS
FEMALE	52.5	396
MALE	42.5	209
TRANSGENDER WOMAN	--^	2
TRANSGENDER MAN	--^	2
GENDERQUEER/GENDER NON-CONFORMING	--^	5
NON-BINARY	--^	9
TWO-SPIRIT (INDIGENOUS SPECIFIC GENDER)	--^	2
GENDER NOT LISTED ABOVE	--^	1
DON'T KNOW	--^	2

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 45: Household income

RESPONSE	%	RESPONDENTS
\$0 TO \$24,999	24.5	168
\$25,000 TO \$34,999	10.9	83
\$35,000 TO \$49,999	13.5	88
\$50,000 TO \$74,999	17.6	108
\$75,000 TO \$99,999	14.8	55
\$100,000 TO \$149,999	12.2	56
\$150,000+	6.6	28

Table 46: Low income

Low income status was determined by categorizing income levels as *low* or *moderate/high* using SHADAC methodology,⁷ which relies on a combination of income and household size.

RESPONSE	%	RESPONDENTS
LOW INCOME	38.4	258
NOT LOW INCOME	61.6	326

⁷ Hest, R. (2023, August 17). *Four methods for calculating income as a percent of the federal poverty guidelines (FPG) in the behavioral risk factor surveillance system (BRFSS)*. SHADAC. <https://www.shadac.org/four-methods-calculating-income-percent-federal-poverty-guidelines-fpg-behavioral-risk-factor>

Table 47: Sexual orientation

For this question, respondents were able to select multiple responses. Therefore, the weighted percentages may add up to more than 100%.

RESPONSE	%	RESPONDENTS
STRAIGHT/HETEROSEXUAL	81.5	508
GAY/LESBIAN	4.8	34
BISEXUAL	7.2	44
SEXUAL ORIENTATION NOT LISTED HERE	1.6*	14
DON'T KNOW	--^	5

* This estimate's relative standard error (RSE) is greater than 30% and should be interpreted with caution.

^ A dash indicates that the unweighted frequency was fewer than ten and a weighted percentage could not be displayed.

Table 48: Age

RESPONSE	%	RESPONDENTS
18-24	19.1	56
25-44	43.1	297
45-64	18.5	176
65+	19.3	110

About the survey

Methodology

The Minnesota Department of Health and Professional Data Analyst convened two advisory groups to plan and implement the survey:

- **Professional Advisory Group:** Individuals from organizations in Minnesota with a vested interest in reducing secondhand exposure for renters living in multi-unit housing.
- **Community Advisory Group:** Community members with experience living in rented multi-unit housing in Minnesota.

The department used hybrid sampling methodology – a combination of address-based sampling and convenience sampling from the community. For the address-based sample, the department mailed an invitation letter followed by two reminder mailings, all of which included a QR code, survey URL, and phone number. Convenience samples were recruited by working with community partners across the state to post recruitment flyers in their communities. A special focus was placed on reaching individuals in low-income households.

Survey topics included: smoke-free rules in home, secondhand exposure, opinions and beliefs about secondhand exposure, smoke-free policies in buildings, and demographics. The survey was administered between December 2024 – March 2025, and it was available online and on the phone in English and Spanish. People were eligible to take the survey if they resided in Minnesota, lived in an apartment building with three or more units, rented their current unit, and were 18 or older. People who completed the survey could opt to receive a \$10 electronic Visa gift card incentive.

There were 639 respondents who completed the survey, 519 (81%) came from address-based sampling, and 120 (19%) came from the convenience sampling in the community. Data were weighted on key demographics to reflect the statewide population of adults who rent in Minnesota.

Relative standard error (RSE) is a measure to indicate the reliability of estimates or weighted percentages. RSE can be calculated by dividing the standard error of the estimate by the estimate itself, multiplied by 100 for percentages. A large RSE (e.g., above 30%) is considered statistically unreliable, which means the estimate is not precise enough to draw a conclusion.⁸

Limitations

The survey had several limitations:

- Using a push-to-web survey with an electronic gift card incentive limited the department's ability to reach those without reliable internet access, with limited digital literacy, or discomfort with electronic transactions.
- Offering the survey in only English and Spanish across modes limited the accessibility of the survey to those who speak or read English or Spanish.
- Responses, such as the building policies, level of exposure, or type of product used were not verified because they were self-reported, so may be inaccurate.

⁸ National Center for Health Statistics. (2024, July 24). *Relative standard error (RSE)*. Centers for Disease Control and Prevention. <https://www.cdc.gov/nchs/hus/sources-definitions/rse.htm>

- There are limitations to self-reported surveys such as recall bias, response bias and social desirability bias.
- The sample size for variables like Race, Ethnicity, Sexual Orientation, and Gender Identity was insufficient and limited analysis.
- Throughout the report, some percentages are noted to have a relative standard error (RSE) greater than 30% and should be interpreted with caution as the estimate is unreliable.
- In tables where differences between group were statistically significant using a 95% confidence interval, that difference is noted with a “+”. In the absence of that notation, differences are not statistically significant.

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Survey questions

Section A. Smoke-free rules in home

The first questions are about rules in your individual apartment unit.

A1. Not including decks, porches, patios, or garages, do you allow people, including yourself, to smoke tobacco inside your unit?

(Select one: Yes/No)

A2. Not including decks, porches, patios, or garages, do you allow people, including yourself, to smoke marijuana/cannabis inside your unit?

(Select one: Yes/No)

A3. Not including decks, porches, patios, or garages, do you allow people, including yourself, to vape inside your unit?

(Select one: Yes/No)

A4. During the past 7 days, how many days did anyone, including yourself vape or smoke any tobacco or marijuana/cannabis products anywhere inside your unit, not including decks, porches, patios, or garages?

Section B. Exposure to secondhand smoke and vapor

The next set of questions ask about secondhand smoke and vapor.

For this survey, secondhand smoke is smoke from burning tobacco or marijuana/cannabis products, like cigarettes, cigars, pipes, hookahs, joints, or bongs and the smoke breathed out by people who smoke. Secondhand vapor is the aerosol or vapor that is produced from vaping devices or e-cigarettes and what is breathed out by people who use vaping devices or e-cigarettes.

In-unit from outside (ever and frequency; type of smoke/vape)

B1. How often do you smell tobacco smoke coming into your unit from another unit or outside?

(Select one: Every day, A few times a week, A few times a month, A few times a year, Never)

B2. How often do you smell marijuana/cannabis smoke coming into your unit from another unit or outside?

(Select one: Every day, A few times a week, A few times a month, A few times a year, Never)

B3. How often do you smell vapor from a vaping device or e-cigarette coming into your unit from another unit or outside?

(Select one: Every day, A few times a week, A few times a month, A few times a year, Never)

In building (not in-unit)

B4. How often do you smell smoke from tobacco or marijuana or vapor from a vaping device or e-cigarette in indoor common areas of your building, such as hallways, stairwells, laundry rooms, lobbies, etc.?

(Select one: Every day, A few times a week, A few times a month, A few times a year, Never, There are no indoor common areas in my building)

Section C. Opinions and beliefs about secondhand smoke

Influence on housing choice

- C1. To what extent do you agree with the following statement: If I lived in a building where I was exposed to secondhand smoke, I would want to move to a building that did not allow smoking.**

(Select one: Strongly agree, Somewhat agree, Somewhat disagree, Strongly disagree)

Attitude toward smoke-free environments and policies

- C2. How important is it that you live in a building where smoking is not allowed anywhere indoors including individual apartment units?**

(Select one: Very important, Somewhat important, Not very important, Not at all important)

- C3. How important is it that you live in a building where smoking is not allowed anywhere on the property including outdoor areas?**

(Select one: Very important, Somewhat important, Not very important, Not at all important)

Health impacts

- C4. Do you believe that you, or anyone in your household, has experienced any health problems related to secondhand smoke or vapor entering your unit?**

(Select one: Yes/No)

Section D. Smoke-free policies in buildings

The following section is about policies in your apartment building.

Indoor policies in buildings

- D1. Does your apartment building have a policy about smoking tobacco indoors? Would you say smoking is...**

(Select one: Allowed everywhere on the property; Allowed in all units, but not in indoor common areas; Allowed in certain units, but not in indoor common areas; Not allowed anywhere indoors; I don't know if my building has a policy.)

- D2. Does your apartment building have a policy about smoking marijuana/cannabis indoors? Would you say marijuana/cannabis smoking is...**

(Select one: Allowed everywhere on the property; Allowed in all units, but not in indoor common areas; Allowed in certain units, but not in indoor common areas; Not allowed anywhere indoors; I don't know if my building has a policy.)

- D3. Does your apartment building have a policy about vaping indoors? Would you say vaping is...**

(Select one: Allowed everywhere on the property; Allowed in all units, but not in indoor common areas; Allowed in certain units, but not in indoor common areas; Not allowed anywhere indoors; I don't know if my building has a policy.)

Deck/balcony/patio policies

- D4. Does your apartment building have a policy that allows smoking tobacco or marijuana/cannabis or vaping on decks, balconies, and patios?**

(Select one: Yes; No; I don't know if my building has a policy; My building does not have decks, balconies, or patios)

Section F. Demographics

This last section includes some more questions about yourself. These questions are used to compare answers between groups and will only be reported in groups, not at the individual level.

F1. In the past 30 days, which of the following products have you smoked or vaped?

(Check all that apply: Cigarettes, Cigars, Cigarillos, Vaping devices/e-cigarettes, Water or regular pipes, Hookahs, Marijuana/cannabis, I have not smoked or vaped any of these products in the last 30 days)

F2. What county do you live in?

(Select one: Aitkin, Anoka, Becker, Beltrami, Benton, Big Stone, Blue Earth, Brown, Carlton, Carver, Cass, Chippewa, Chisago, Clay, Clearwater, Cook, Cottonwood, Crow Wing, Dakota, Dodge, Douglas, Faribault, Fillmore, Freeborn, Goodhue, Grant, Hennepin, Houston, Hubbard, Isanti, Itasca, Jackson, Kanabec, Kandiyohi, Kittson, Koochiching, Lac qui Parle, Lake of the Woods, Lake, Le Sueur, Lincoln, Lyon, Mahnommen, Marshall, Martin, McLeod, Meeker, Mille Lacs, Morrison, Mower, Murray, Nicollet, Nobles, Norman, Olmsted, Otter, Tail, Pennington, Pine, Pipestone, Polk, Pope, Ramsey, Red, Lake, Redwood, Renville, Rice, Rock, Roseau, Saint Louis, Scott, Sherburne, Sibley, Stearns, Steele, Stevens, Swift, Todd, Traverse, Wabasha, Wadena, Waseca, Washington, Watonwan, Wilkin, Winona, Wright, Yellow Medicine)

F3. Including yourself, how many adults – that is, people 18 years or older – live in your household? Household members include adults who think of this household as their primary place of residence. Include adults who live in the household part time.

F4. How many children aged 17 or younger live in your household, even part time?

F5. Are you...?

(Select one: Married Divorced/Widowed/Separated Never Married, A member of an unmarried couple, Other)

F6. What is the highest level of school you have completed, or the highest degree you have received?

(Select one: No high school diploma High school diploma/GED; Some college or vocational/technical degree; Associate's degree (e.g. AA, OR, AS); Bachelor's degree (e.g. BA, BS, BSN); Master's degree (e.g. MA, MS); Professional/Doctoral degree (e.g. PhD, MD, JD))

F7. Are you Hispanic, Latino, or Spanish?

(Select one: Yes, No, Don't know, Prefer not to answer)

F8. How do you describe yourself?

(Check all that apply: American Indian or Alaska Native, Asian or Asian American, Black or African or African American, Native Hawaiian or Other Pacific Islander, White, Race not listed above (please specify), Don't know, Prefer not to answer)

F9. What was your sex assigned at birth?

(Select one: Male, Female, Intersex, Sex not listed above, Prefer not to answer)

F10. How do you describe your gender today?

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(Select all that apply: Male, Female, Transgender man, Transgender woman, Genderqueer/Gender non-conforming, Non-binary, Two-spirit (Indigenous Specific Gender), Gender not listed above, Don't know, Prefer not to answer)

F11. Which of the following categories best describes the total combined income of everybody who lives with you?

(Select one: \$0 to \$24,999, \$25,000 to \$34,999, \$35,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$149,999, \$150,000+, Don't know, Prefer not to answer)

F12. How do you describe yourself?

(Check all that apply: Straight/Heterosexual Gay/Lesbian, Bisexual, Sexual orientation not listed here, Don't know, Prefer not to answer)

F13. Approximately how many hours of television do you watch on an average day?

F14. In a typical week, about how many hours do you spend on the internet for personal use?

F15. Do you usually try new products before other people do?

(Select one: Never, Sometimes, Often, Always)

F16. What is your birth month and year?

(month, year)

F17. Is there anything else you would like to share about your experience with secondhand smoke or secondhand vapor exposure in your unit or building?