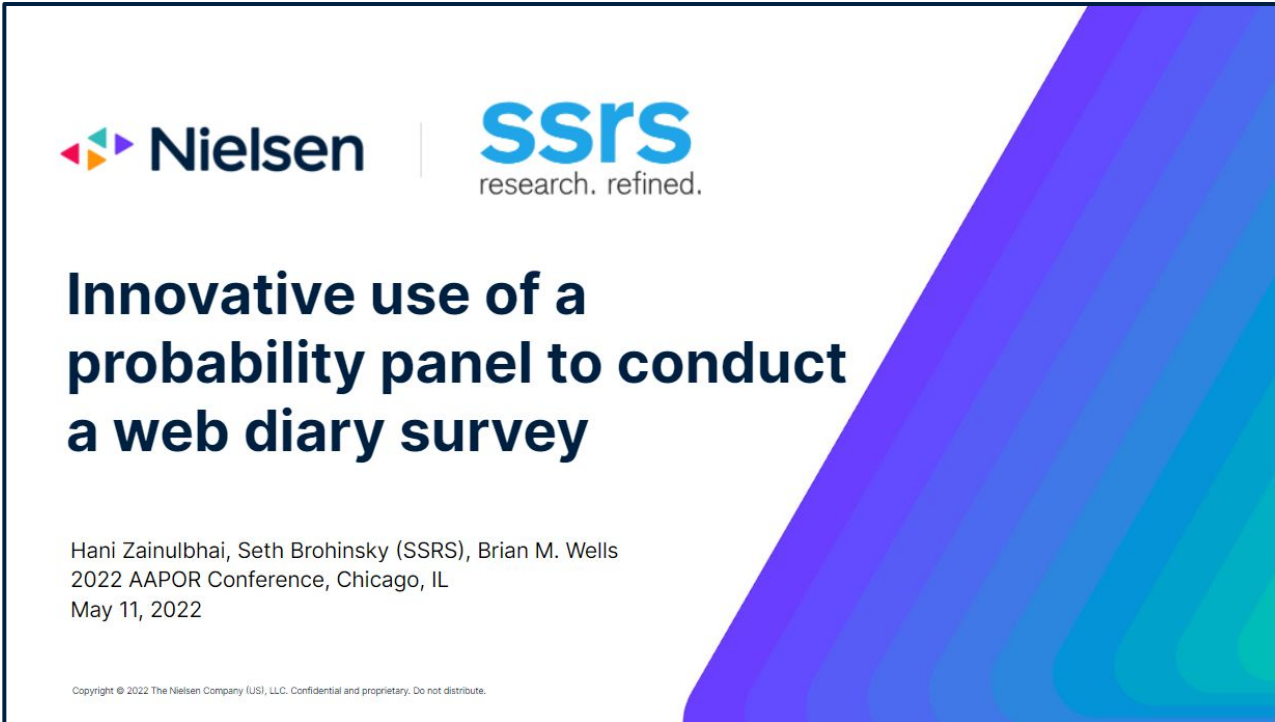# Web diary data collection to capture out-of-home media measurement

Brian M. Wells, Hani Zainulbhai, Seth Brohinsky (SSRS)
2022 AAPOR Conference, Chicago, IL
May 11, 2022

Did you catch the previous presentation?

A full description and exploration of this study's methods are covered here

What is out-of-home (OOH) viewing?

Consuming media content and advertisements outside of one's home

Occurs at various locations

(e.g., bars, restaurants, work, school, gyms, hotels, airports, another person's home)

Can be part of everyday routine

(e.g., work, school, gym)

Can be intentional or more by chance

(e.g., going to a bar to watch a game vs. walking by news TV in an airport)

Can be primary or secondary activity

(e.g., watching a movie at a friends house vs. a show while working out)

All of these factors can influence how engaged someone is while consuming media OOH

Nielsen

Research questions

Location

Where is out-of-home viewing occurring?

Engagement

How engaged are people when viewing at different locations?

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Methods

Diary goals

Design and execution of survey of OOH viewing behavior
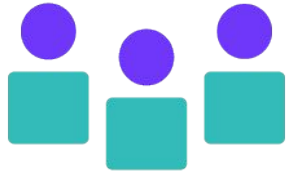
Who

Probability-based sample of 2,000 adults in the U.S. from the SSRS Opinion Panel

What

Collect information about the program, station and genre they are watching

When

Collect the time of day and duration of watching out of home programming

Where

Collect the type of location where the out of home viewing is occuring

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Overall design and field period

- Data collection occurred in two parts
  - **Recruitment survey** - obtain baseline information on panelist and recruit to participate in diary
  - **7-day diary** - obtain daily measures of OOH activity and viewing for one week

- Diary collection: **Oct. 21 - Nov. 17, 2021**
  - Important to field diaries during a time where OOH viewing is particularly prevalent
  - Fall sports season

NFL and NCAA Football

Mid-season play
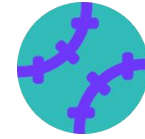
MLB championships and World Series

Championship series - Oct. 15-23
World Series - Oct. 26 - Nov. 2

NBA, NCAA Basketball begin

NBA started on Oct. 19
NCAA started on Nov. 9

NHL season begins

NHL started on Oct. 12

Recruitment survey

Gather info about OOH behaviors and in-home and OOH viewing

Out-of-Home Activity

OOH activity now vs. pre-pandemic

In-Home TV Viewing

Do they watch a lot or a little? How do they watch? What do they watch? With who? How attentive are they?

Out-of-Home TV Viewing

How often do they view OOH? Is it purposeful? Where do they go? What do they watch? With who? How attentive are they?

Out-of-Home Smartphone Use

What activities do they do on their phone? How often do they stream or watch TV? Where do they stream on their phone?

Nielsen

Diary constructs

For each OOH viewing event...

| Location specific | Program specific |

Viewing location	Duration at location	# of TVs at location	Content viewed	Viewing duration

Example: Airport   2 hours   5+ TVs   CNN News   30 minutes

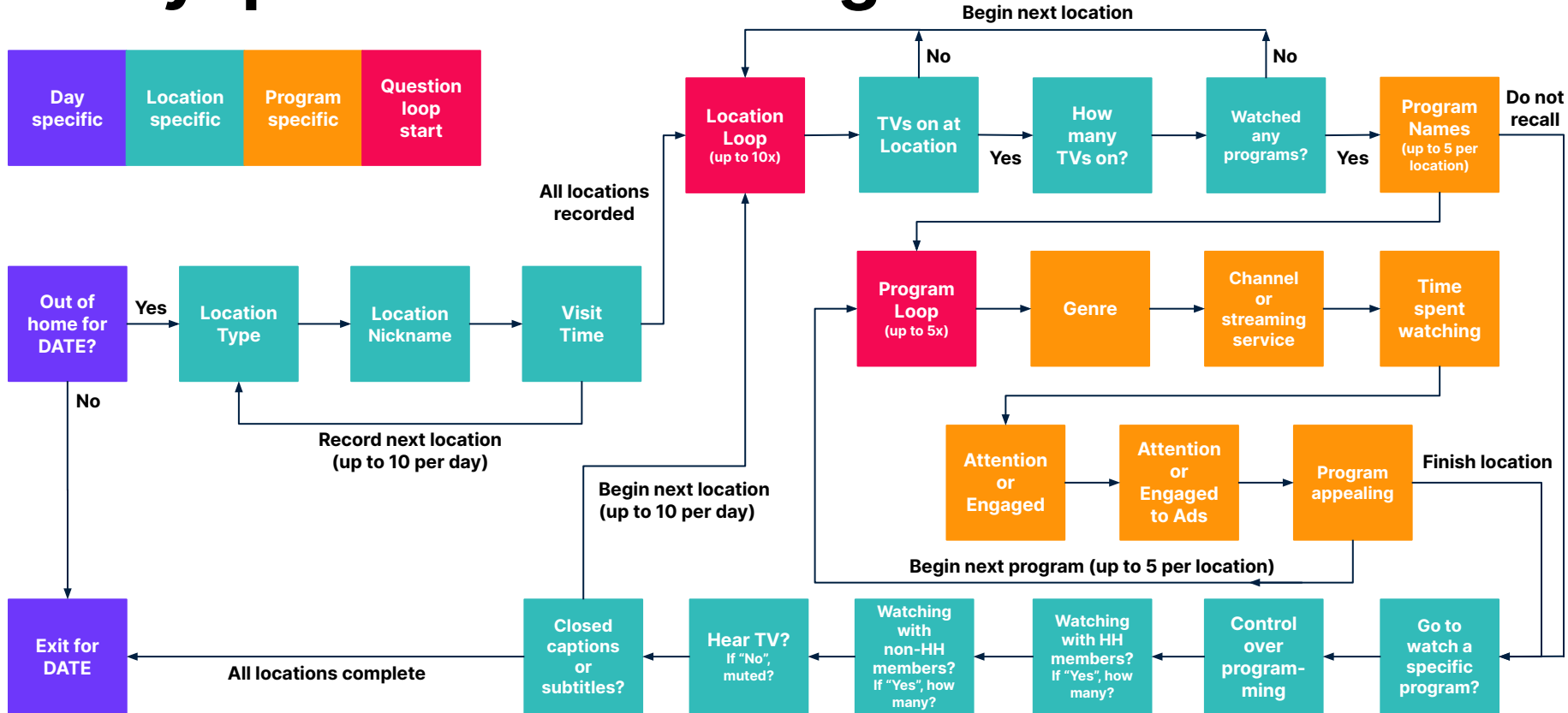| Engagement/Attention to content	Intentional vs incidental viewing	Control over content	Co-viewing	Audio

A little engaged   **Incidental**   **No control**   **2 household members**   **TV muted, CC**

Nielsen

Diary questionnaire design

Day specific	Location specific	Program specific	Question loop start

Begin next location

All locations recorded

Location Loop (up to 10x) → **TVs on at Location** —No—↑ / —Yes→ **How many TVs on?** → **Watched any programs?** —No—↑ / —Yes→ **Program Names (up to 5 per location)** —Do not recall→

Out of home for DATE? —Yes→ **Location Type** → **Location Nickname** → **Visit Time**

No → **Exit for DATE**

Record next location (up to 10 per day)

Begin next location (up to 10 per day)

Program Loop (up to 5x) → **Genre** → **Channel or streaming service** → **Time spent watching**

Attention or Engaged → **Attention or Engaged to Ads** → **Program appealing** **Finish location**

Begin next program (up to 5 per location)

Closed captions or subtitles? ← **Hear TV?** If "No", muted? ← **Watching with non-HH members?** If "Yes", how many? ← **Watching with HH members?** If "Yes", how many? ← **Control over programming** ← **Go to watch a specific program?**

All locations complete ← **Exit for DATE**

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Data and analysis

Persons

2,505 persons x 5-7 days

Locations

Up to 10 locations per day

More than 26,000 OOH events
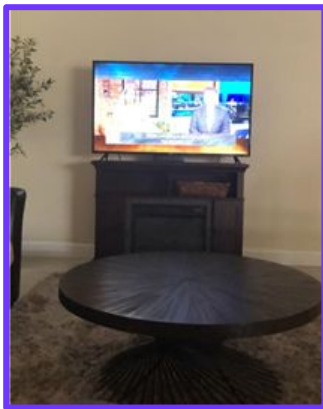
More than 7,000 TV on OOH events

Programs

Up to 5 programs per location

Over 6,000 OOH TV viewing events
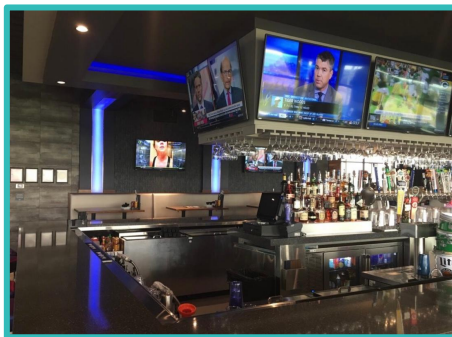
OOH location types

Categorization primarily based on qualitative photo diaries

Residential

Viewing in a location where the viewer does not live. TV is typically in direct, central focus.

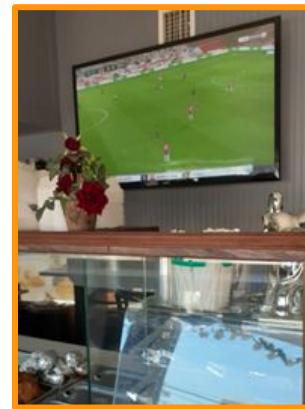**Examples:** Homes of friends and family members.

TV-Oriented

Public locations in which TVs are a primary focus of the space.

Examples: Bars/Restaurants, Laundromat, Medical offices, Salons, Gyms, etc.

Non-TV-Oriented

Public location that does not directly promote, encourage, or facilitate long periods of TV viewing.

Examples: Stores, Bars/Restaurants, Mini Supermarkets, etc.

Categorizing OOH locations

Broad categorization to better understand overall trends by location

- **Residential** locations only include the homes of friends, family, etc.
- **TV-Oriented** locations standardly have waiting rooms or multiple TVs
- **Non-TV-Oriented** locations standardly either don't have TVs or don't encourage long periods of TV watching
  - Don't know details on **work/school** locations so assumed to not be
- **Bars/restaurants** depend on type of establishment
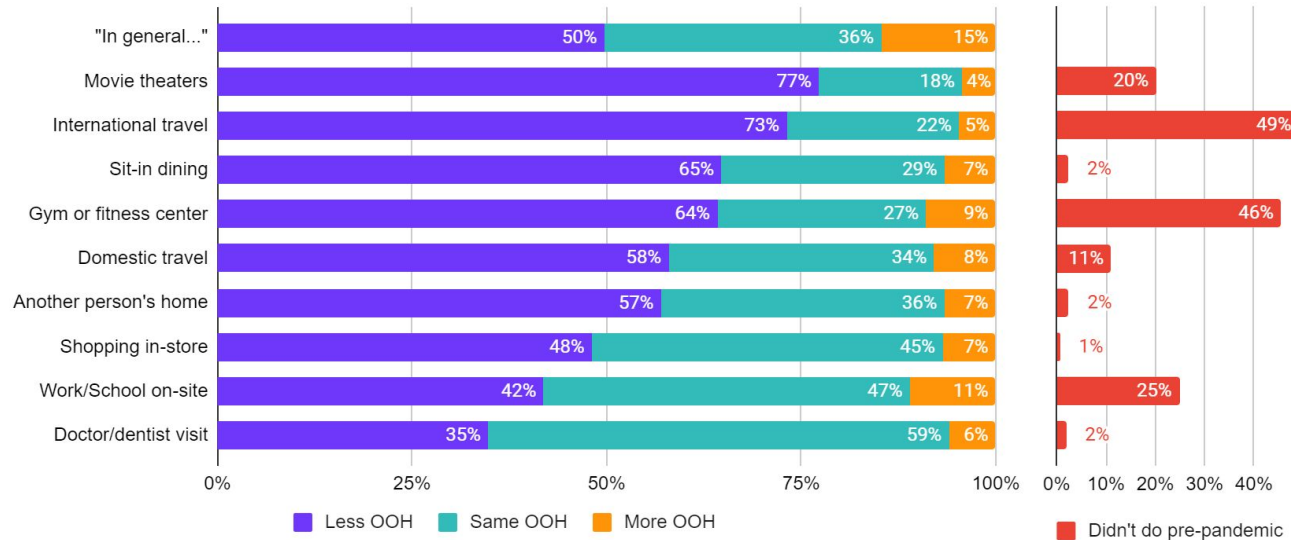 - Ultimately assigned based on presence of TV at the location

Location Type	Location
Residential	Friend, family, or another person's home
TV-Oriented	Airport
	Auto repair shop
	Doctor, dentist, hospital, pharmacy, or other health facility
	Gym or fitness center
	Hotel or other living accommodation (Airbnb, Vrbo, etc.)
	Laundromat or dry cleaner
	Salon or barber shop
Non-TV-Oriented	Bank or credit union
	Church or other place of worship (temple, synagogue, mosque, etc.)
	Convenience store or gas station
	Grocery, department, or retail store
	Market or bakery
	Other
	Park, recreation area, or other outdoor location
	Public building or government office (post office, library, DMV, etc.)
	Work or school
If TV on, **TV-Oriented**; otherwise, **Non-TV-Oriented**	Bar or restaurant

Results

Waiting on the return to normal

Many OOH activities have not returned to pre-pandemic levels yet

How does the amount of time you spend out of your home now, compare to before the start of the pandemic...?

Activity	Less OOH	Same OOH	More OOH	Didn't do pre-pandemic
"In general..."	50%	36%	15%	
Movie theaters	77%	18%	4%	20%
International travel	73%	22%	5%	49%
Sit-in dining	65%	29%	7%	2%
Gym or fitness center	64%	27%	9%	46%
Domestic travel	58%	34%	8%	11%
Another person's home	57%	36%	7%	2%
Shopping in-store	48%	45%	7%	1%
Work/School on-site	42%	47%	11%	25%
Doctor/dentist visit	35%	59%	6%	2%

■ Less OOH ■ Same OOH ■ More OOH   ■ Didn't do pre-pandemic

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A differential return to normal

Many factors influencing how soon we are getting back out of our homes

OOH return to normal by race/ethnicity

	Less OOH	Same OOH	More OOH
Black Non-Hispanic	57%	22%	21%
Hispanic	53%	30%	17%
Other	54%	29%	17%
White Non-Hispanic	47%	40%	13%

OOH return to normal by political party

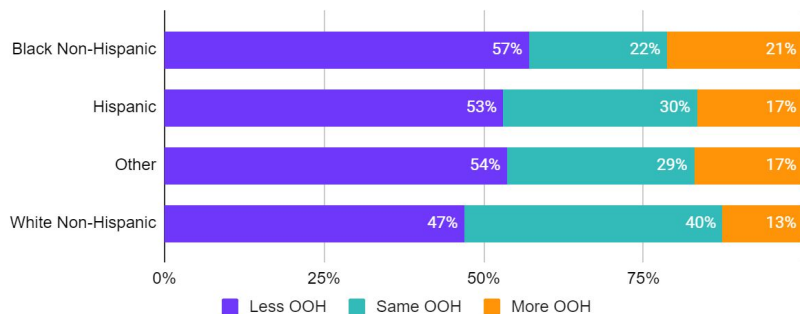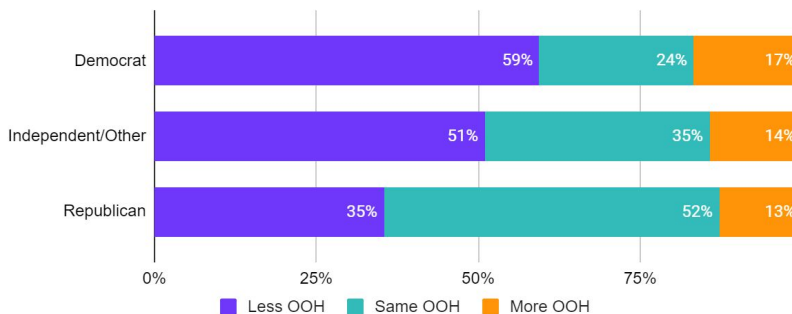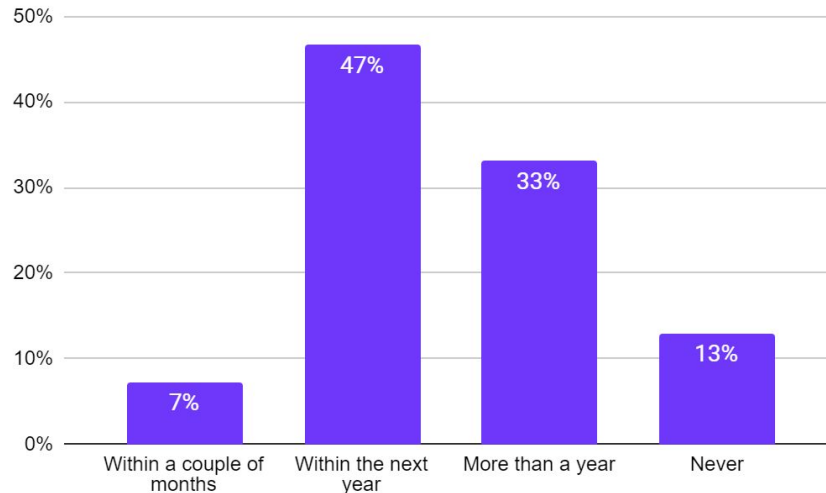|	Less OOH	Same OOH	More OOH
Democrat	59%	24%	17%
Independent/Other	51%	35%	14%
Republican	35%	52%	13%

Source: Fall 2021 OOH Recruitment Survey. Reminder that the survey took place between mid-October and mid-November 2021. Note: Analyses unweighted.

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Return to normal could be soon… or not

Near 50/50 split on if return to pre-pandemic levels is this year or beyond

Of those who said their out of home activity was less than before the pandemic…
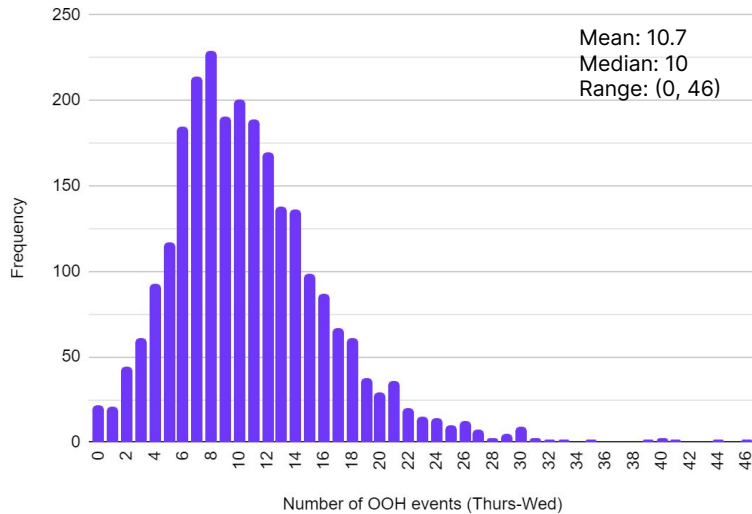**When do you think the amount of time you spend out of home will return to pre-pandemic levels?**

Source: Fall 2021 OOH Recruitment Survey. Reminder that the survey took place between mid-October and mid-November 2021. Note: Category "Within a couple of weeks" combined here with "Within a couple of months" due to low sample size. Analyses unweighted.

Out-of-home activity

People are out of home multiple days a week, going to multiple locations

Number of OOH events per week

Mean: 10.7
Median: 10
Range: (0, 46)

Frequency (y-axis)
Number of OOH events (Thurs-Wed) (x-axis)

Days OOH per week

Days	Out of home	Out of home (excluding work/school)
0	1%	1%
1	1%	4%
2	3%	7%
3	6%	12%
4	10%	18%
5	16%	19%
6	25%	21%
7	38%	19%

Days (x-axis)

■ Out of home   ■ Out of home (excluding work/school)

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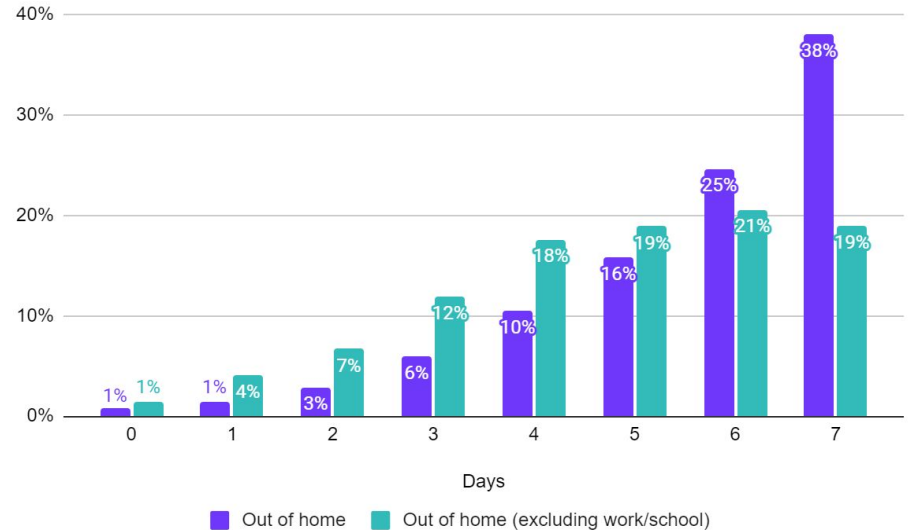
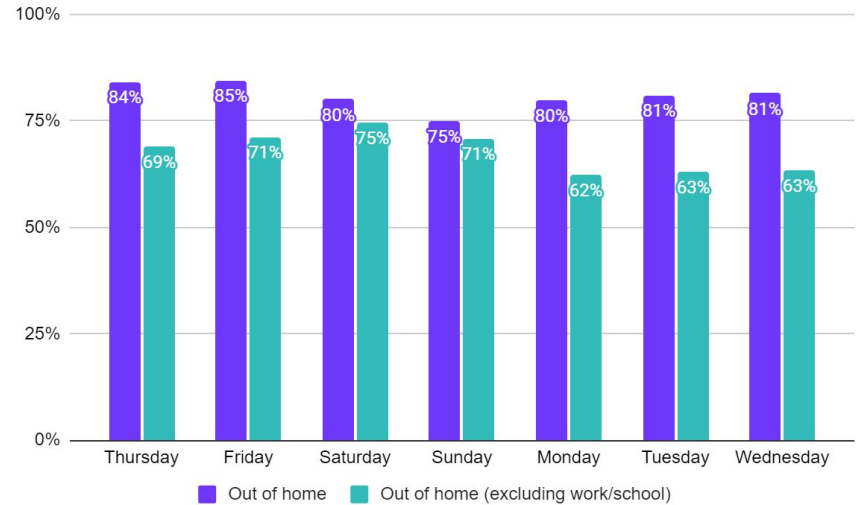# Non-work/school out-of-home activity

Weekends are the busiest times to be OOH when excluding work/school

Number of non-work OOH events per week

Mean: 8.6
Median: 8
Range: (0, 41)

Frequency

Number of non-work OOH events (Thurs-Wed)

Percent OOH by day

Day	Out of home	Out of home (excluding work/school)
Thursday	84%	69%
Friday	85%	71%
Saturday	80%	75%
Sunday	75%	71%
Monday	80%	62%
Tuesday	81%	63%
Wednesday	81%	63%

Out of home · Out of home (excluding work/school)

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Out-of-home viewing

~30% of OOH visits result in a viewing event, averaging 1 event per week

Number of OOH viewing events per week

Mean: 2.0
Median: 1
Range: (0, 18)

Frequency

Number of OOH viewing events (Thurs-Wed)
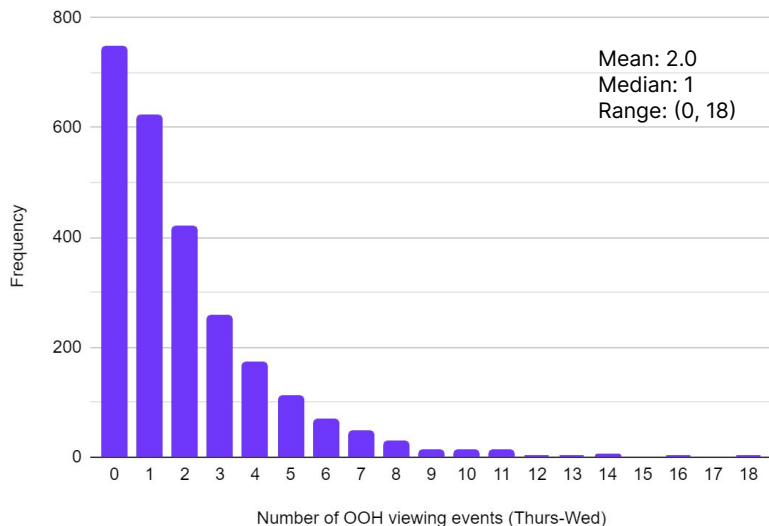
Viewing events by day of the week

	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
Out of home	84%	85%	80%	75%	80%	81%	81%
Viewing event	24%	27%	28%	25%	23%	22%	24%

Nielsen
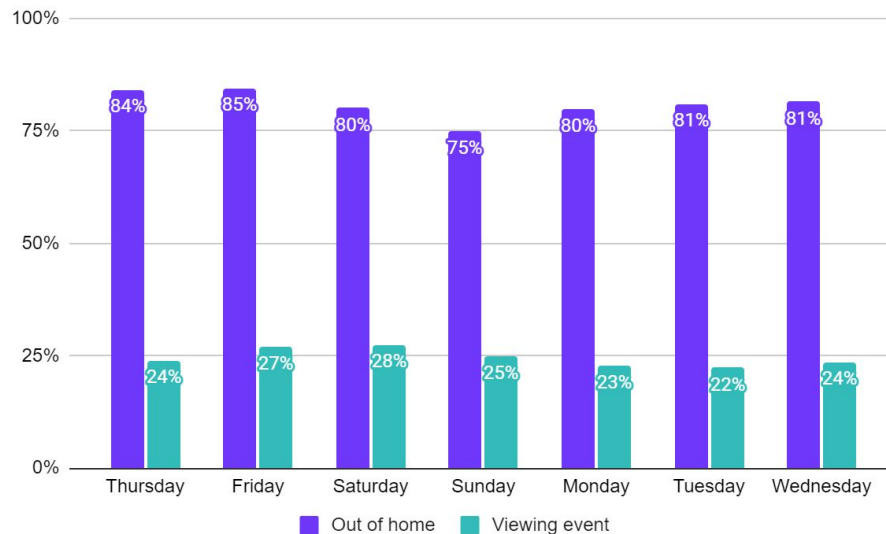
Location level analysis
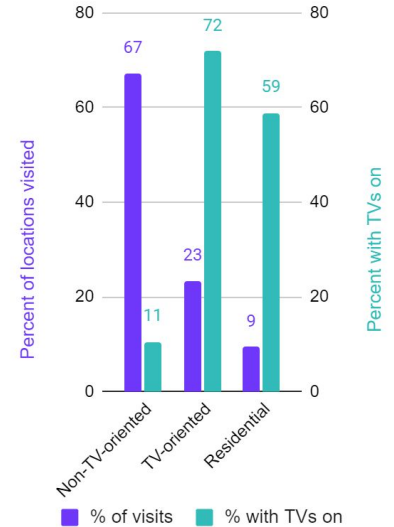
Where people go and encounter TVs

Places where TVs are on are generally less frequented

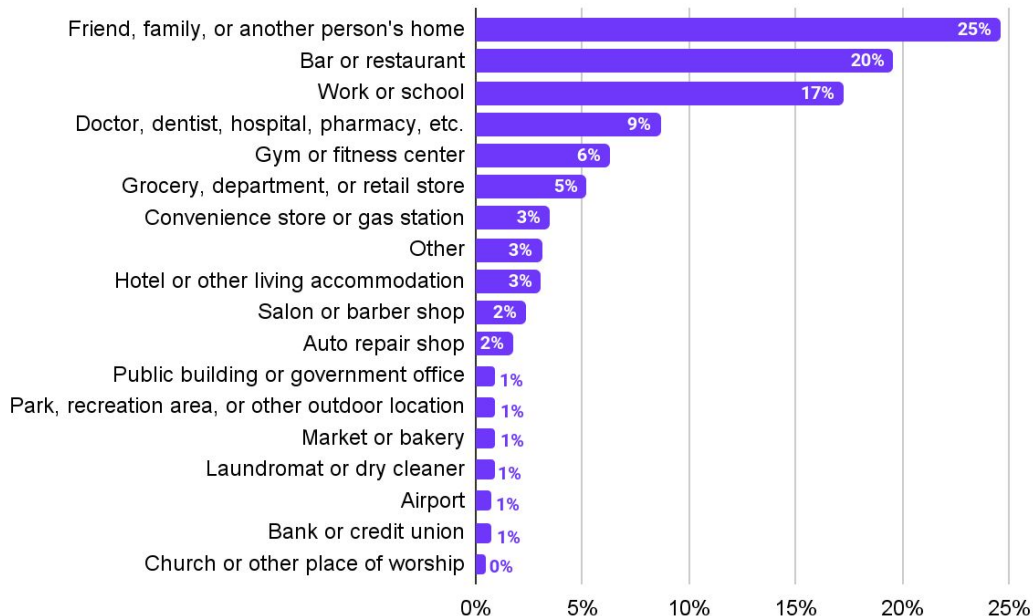**Specific locations**
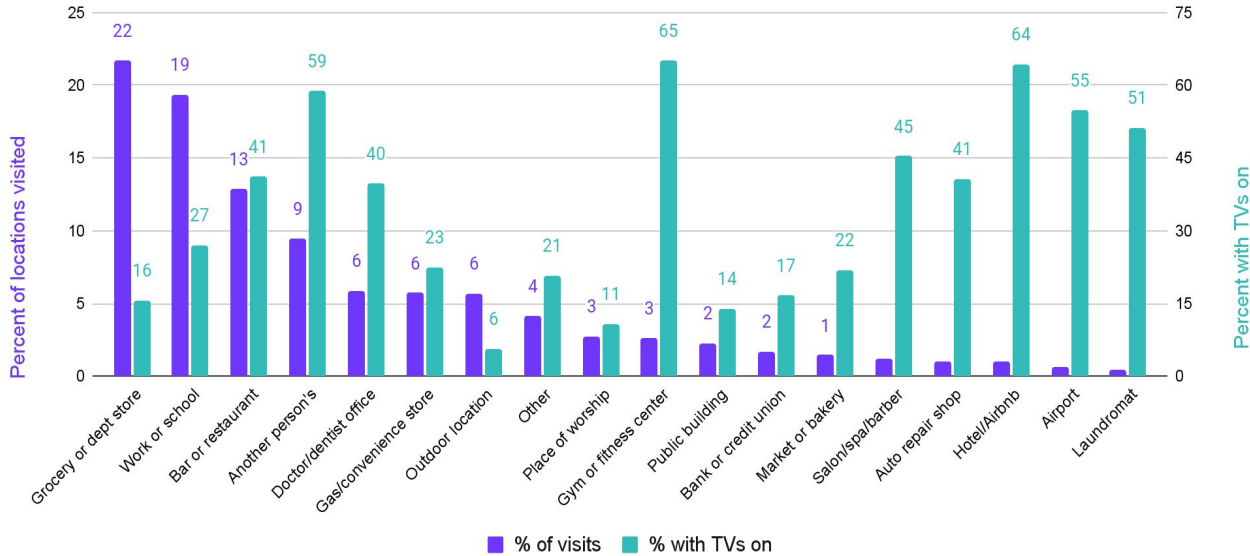
Location type

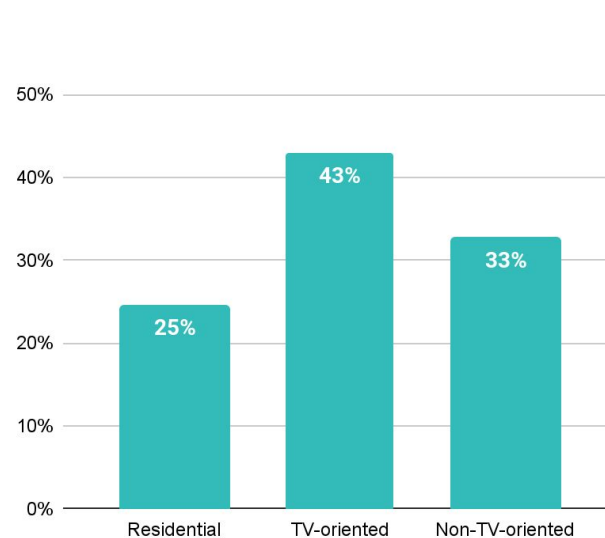Source: Fall 2021 OOH Diary. Note: Analyses unweighted.

Where people watch OOH when a TV is on

Another person's home is the most common, specific location to view OOH

Specific locations

Location	Percentage
Friend, family, or another person's home	25%
Bar or restaurant	20%
Work or school	17%
Doctor, dentist, hospital, pharmacy, etc.	9%
Gym or fitness center	6%
Grocery, department, or retail store	5%
Convenience store or gas station	3%
Other	3%
Hotel or other living accommodation	3%
Salon or barber shop	2%
Auto repair shop	2%
Public building or government office	1%
Park, recreation area, or other outdoor location	1%
Market or bakery	1%
Laundromat or dry cleaner	1%
Airport	1%
Bank or credit union	1%
Church or other place of worship	0%

Location type

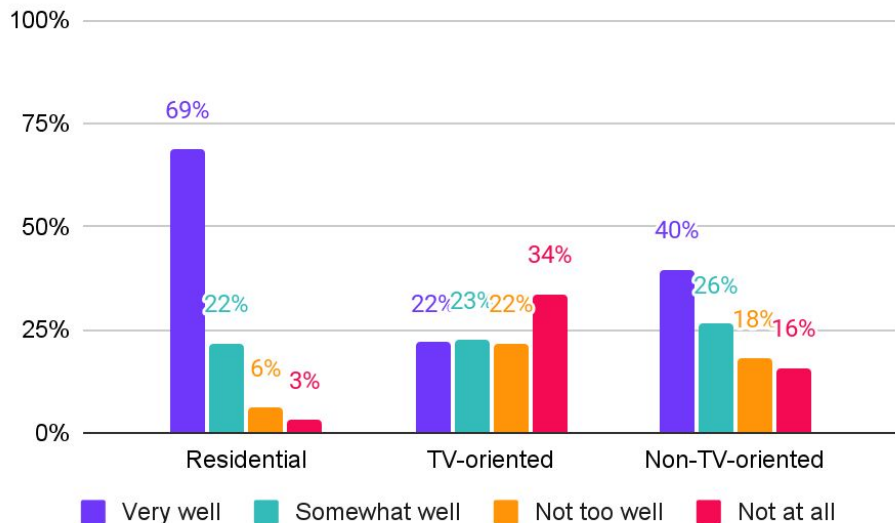| Type	Percentage
Residential	25%
TV-oriented	43%
Non-TV-oriented	33%

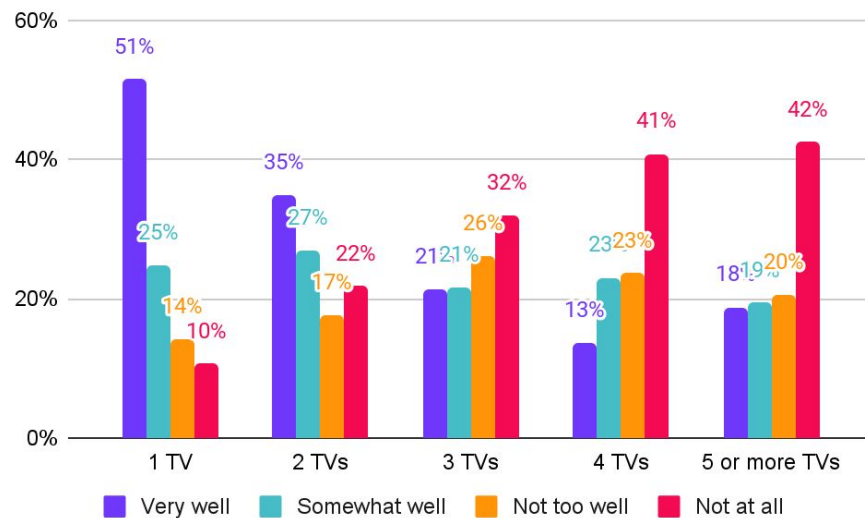Source: Fall 2021 OOH Diary. Note: Analyses unweighted.

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Audible content differs by location, number of TVs

Non-residential location TVs are less audible, more TVs reduce audiblity

How well could they hear the TV by location type

Residential: Very well 69%, Somewhat well 22%, Not too well 6%, Not at all 3%
TV-oriented: Very well 22%, Somewhat well 23%, Not too well 22%, Not at all 34%
Non-TV-oriented: Very well 40%, Somewhat well 26%, Not too well 18%, Not at all 16%

Legend: Very well | Somewhat well | Not too well | Not at all

How well could they hear the TV by number of TVs on

1 TV: Very well 51%, Somewhat well 25%, Not too well 14%, Not at all 10%
2 TVs: Very well 35%, Somewhat well 27%, Not too well 17%, Not at all 22%
3 TVs: Very well 21%, Somewhat well 21%, Not too well 26%, Not at all 32%
4 TVs: Very well 13%, Somewhat well 23%, Not too well 23%, Not at all 41%
5 or more TVs: Very well 18%, Somewhat well 19%, Not too well 20%, Not at all 42%

Legend: Very well | Somewhat well | Not too well | Not at all

Program level analysis

Content source by location

Church, other's homes, work/school popular places for streaming content

## Content source based on program and channel
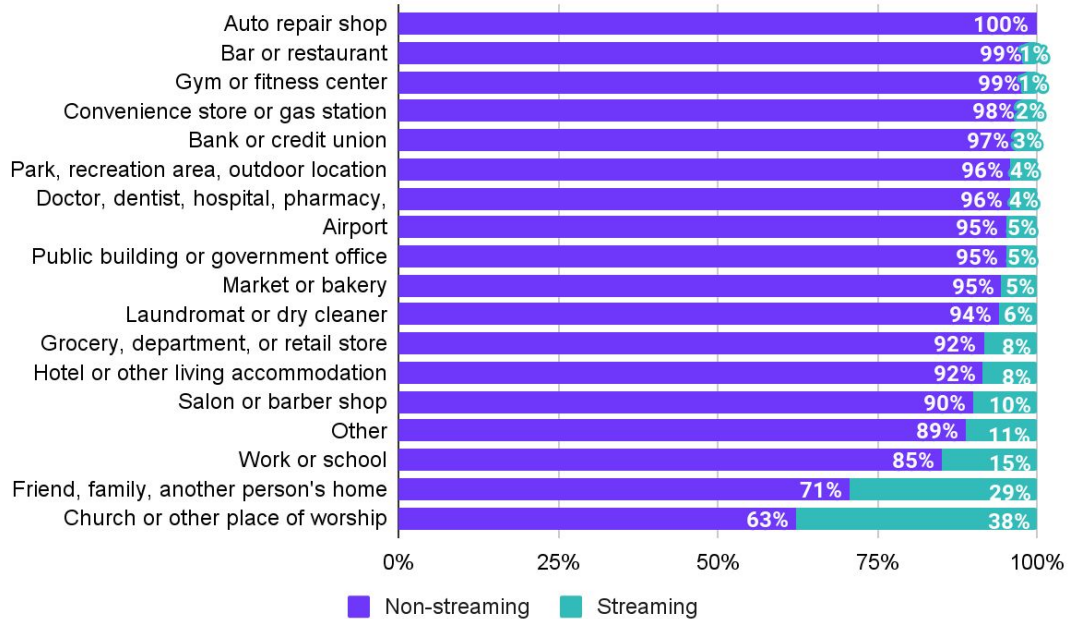
Location	Non-streaming	Streaming
Auto repair shop	100%	
Bar or restaurant	99%	1%
Gym or fitness center	99%	1%
Convenience store or gas station	98%	2%
Bank or credit union	97%	3%
Park, recreation area, outdoor location	96%	4%
Doctor, dentist, hospital, pharmacy,	96%	4%
Airport	95%	5%
Public building or government office	95%	5%
Market or bakery	95%	5%
Laundromat or dry cleaner	94%	6%
Grocery, department, or retail store	92%	8%
Hotel or other living accommodation	92%	8%
Salon or barber shop	90%	10%
Other	89%	11%
Work or school	85%	15%
Friend, family, another person's home	71%	29%
Church or other place of worship	63%	38%

■ Non-streaming ■ Streaming

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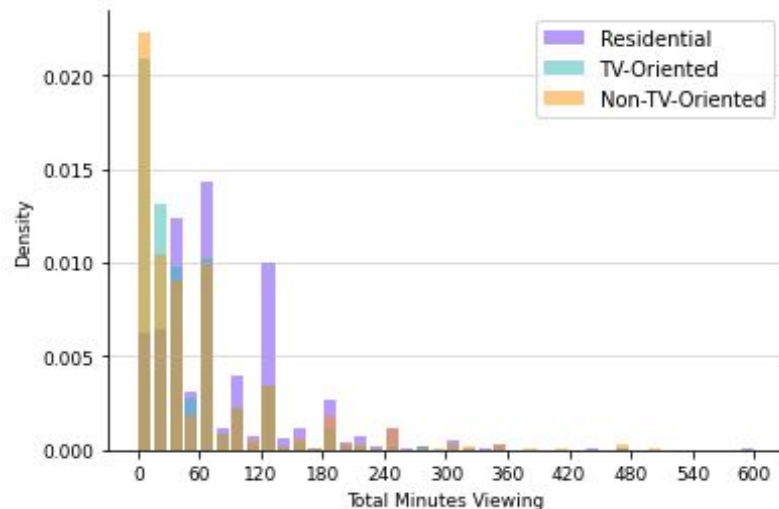# Duration of viewing event

Median viewing event is 30 minutes, mode of less than 15 minutes

Program viewing duration

Mean: 52.7
Median: 30
Range: (0, 600)
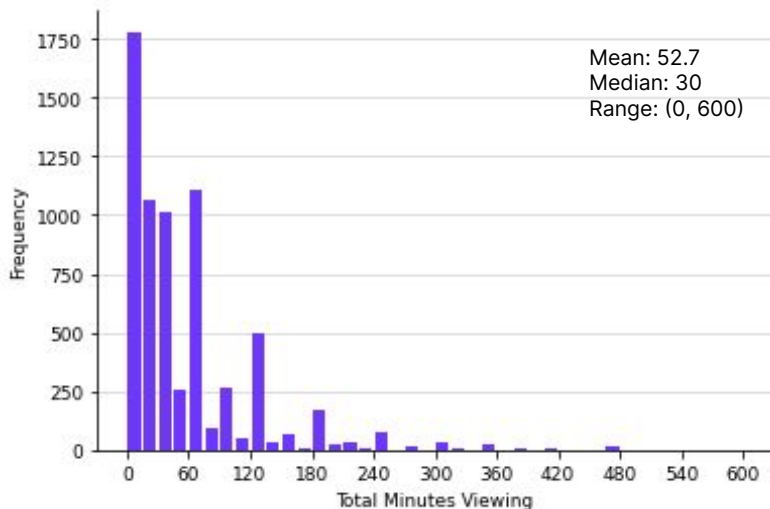
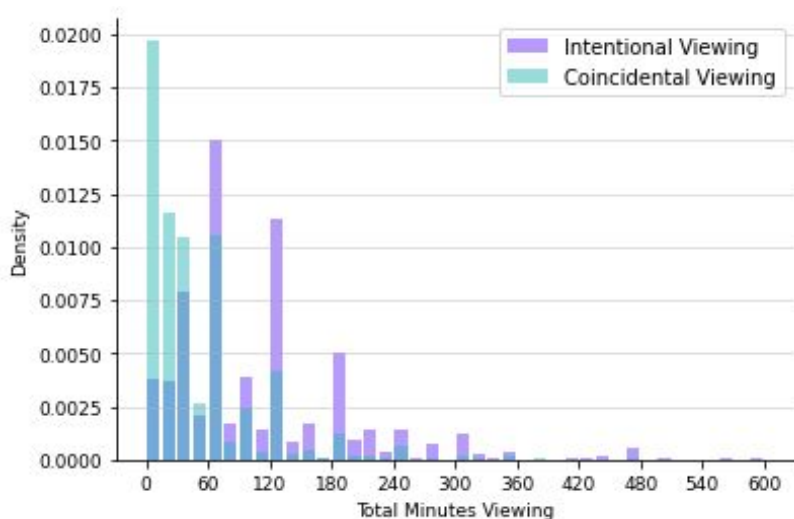**Program viewing duration by location type**

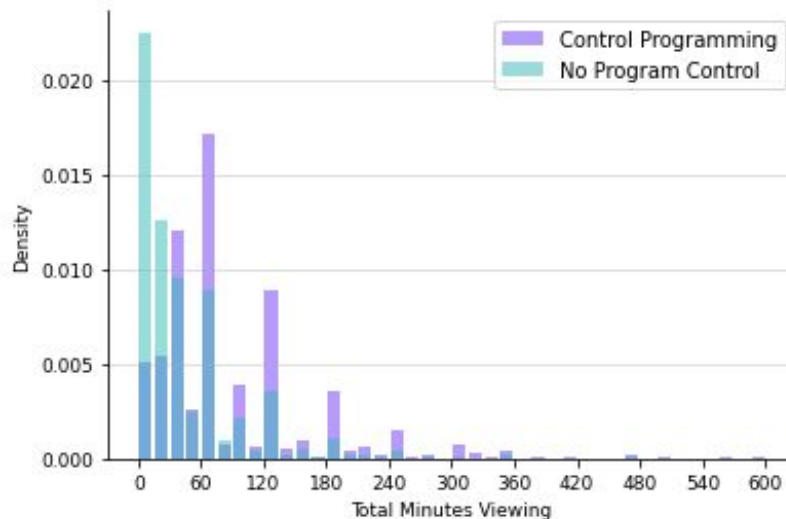Source: Fall 2021 OOH Diary. Note: Analyses unweighted.

Viewing duration impacted by intention, control

Intention to view, control over programming result in longer viewing events

Program viewing duration by viewing intention
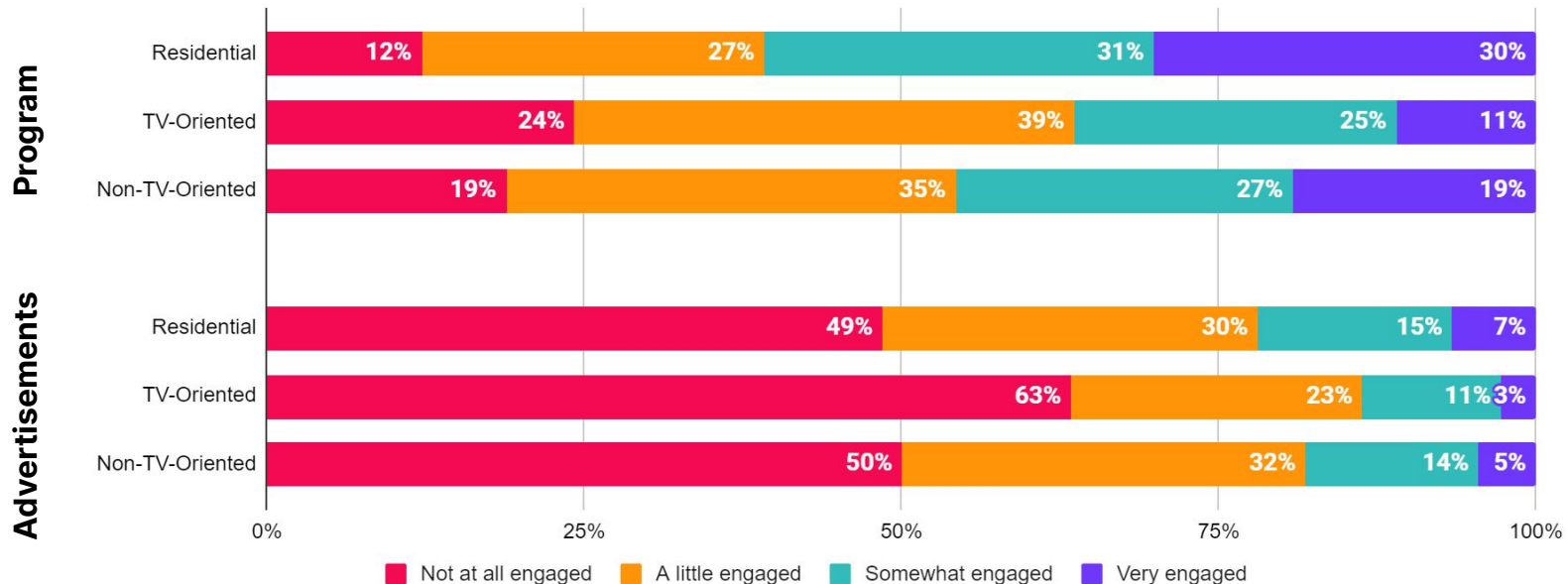
Program viewing duration by programming control

Engagement with programs, advertisements

Viewing at TV-Oriented locations has least engagement with content, ads

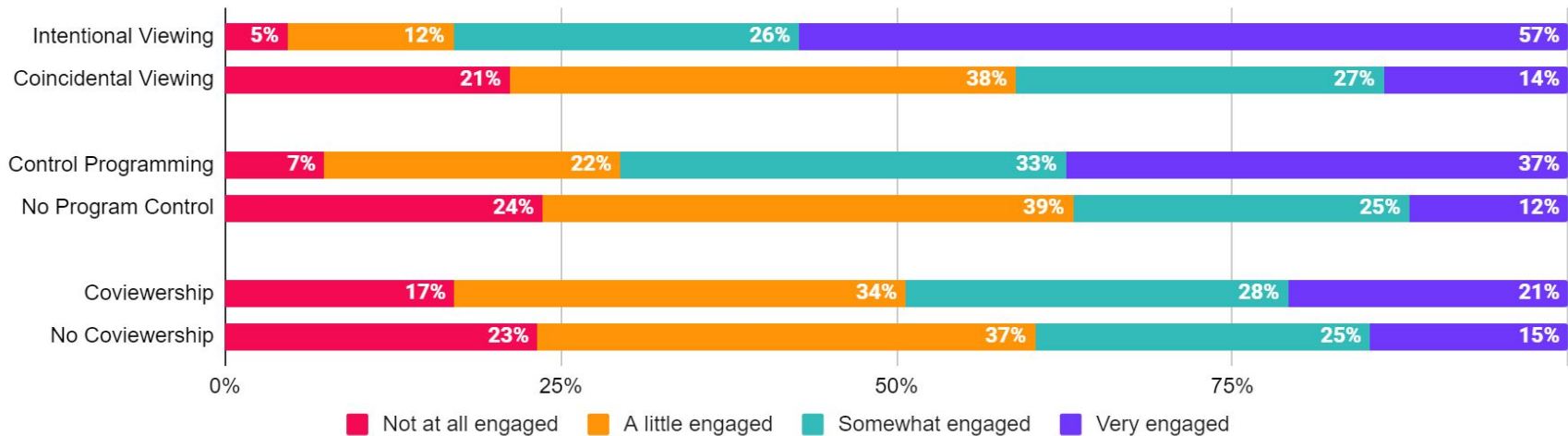**Engagement with program and advertisements by location type**

	Program	Not at all engaged	A little engaged	Somewhat engaged	Very engaged
Program	Residential	12%	27%	31%	30%
	TV-Oriented	24%	39%	25%	11%
	Non-TV-Oriented	19%	35%	27%	19%
Advertisements	Residential	49%	30%	15%	7%
	TV-Oriented	63%	23%	11%	3%
	Non-TV-Oriented	50%	32%	14%	5%

Legend: ■ Not at all engaged ■ A little engaged ■ Somewhat engaged ■ Very engaged

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Engagement with programs

Intention, programming control, coviewers all result in higher engagement

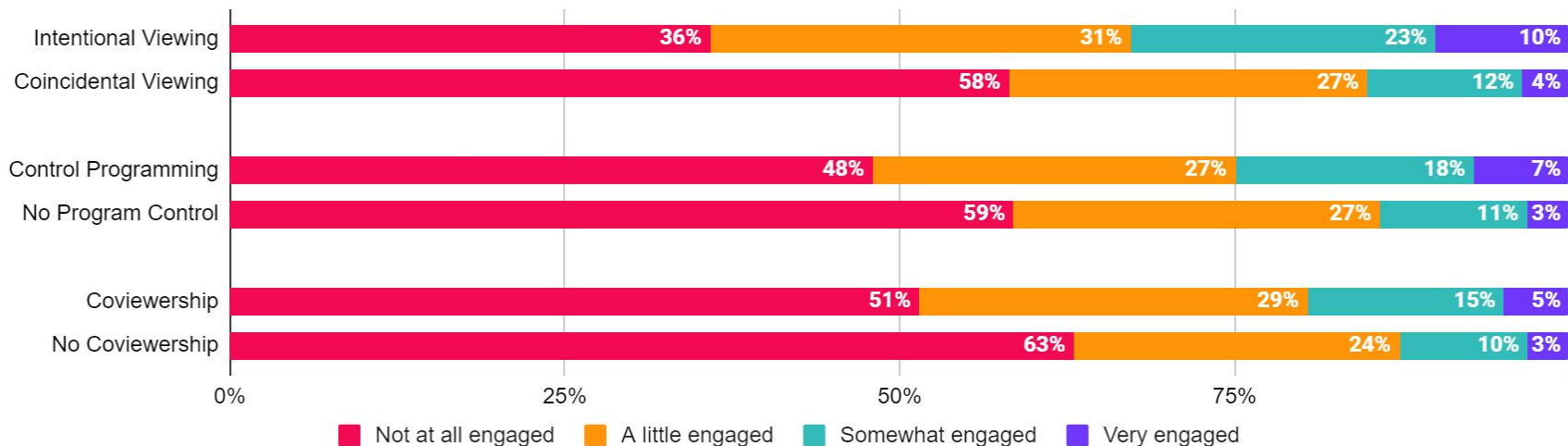**Engagement with programs by intentional viewing, programming control, and coviewership**

Category	Not at all engaged	A little engaged	Somewhat engaged	Very engaged
Intentional Viewing	5%	12%	26%	57%
Coincidental Viewing	21%	38%	27%	14%
Control Programming	7%	22%	33%	37%
No Program Control	24%	39%	25%	12%
Coviewership	17%	34%	28%	21%
No Coviewership	23%	37%	25%	15%

Legend: ■ Not at all engaged ■ A little engaged ■ Somewhat engaged ■ Very engaged

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Engagement with advertisements

Same factors result in higher levels of engagement to ads as to programs

Engagement with advertisements by intentional viewing, programming control, and coviewership

Category	Not at all engaged	A little engaged	Somewhat engaged	Very engaged
Intentional Viewing	36%	31%	23%	10%
Coincidental Viewing	58%	27%	12%	4%
Control Programming	48%	27%	18%	7%
No Program Control	59%	27%	11%	3%
Coviewership	51%	29%	15%	5%
No Coviewership	63%	24%	10%	3%

Legend: ■ Not at all engaged ■ A little engaged ■ Somewhat engaged ■ Very engaged

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Discussion and Takeaways

Finding & implications

KEY FINDING #1

OOH activity, like sit-in dining and visiting others' homes, **is not back to normal (yet)**. The OOH activity and viewing results here are not likely to reflect post-pandemic (or pre-pandemic) activity/viewing.

KEY FINDING #2

The most frequented OOH locations are unlikely to have TVs on. Viewing events only occur 1-2 times per week (on average) despite an average of 10+ locations per week.

KEY FINDING #3

Residential locations are the most common for OOH viewing and have desirable qualities for meterable collection. Non-residential locations often have less audible content and multiple TVs on at once which results in lower engagement with content and advertisements.
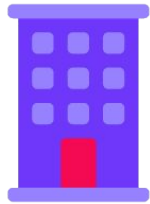
KEY FINDING #4

Intentional viewing and programming control have the largest impact on program engagement and viewing time. This also bleeds over into advertisement engagement.

Future considerations and questions

Measurement challenges and error when discussing OOH TV viewing

Classifying "Work" as a location type

We did not ask where people work so we can't accurately categorize them per our qualitative framework. Given the prevalence of work/school as an OOH location, this makes a big difference in generalizing location.

Definition of "Watch TV"

Is this understood as literally watching a physical TV or is it a more colloquial term for viewing any program typically viewed on TV, regardless of device or source?

Uncommon venues for OOH viewing

While common places to visit, parks/outdoor spaces and churches (for example) had unexpected behavioral differences for OOH viewing.

Knowledge transfer

Advice for others pursuing web-based diary research

- Using an existing probability-based web panel is an effective way to obtain diary sample
  - Does not remove difficulties with obtaining hard-to-persuade and hard-to-interview populations
- Questionnaire design key to effective collection of nested diary data (e.g., program within location within day)
  - Importance of question order and placement of loops
- Final data can be rich, but is complex and messy
  - Good data management is key
- Analysis of multilevel data with person-level weights for sub-person levels (e.g., location and program)
  - Not considered in these analyses