APM
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LAB

Survey transparency disclosures[1]

Minnesota's Diverse Communities Survey, conducted April 29-June 14, 2021

1. What survey firm conducted the poll? [TI, RC]	SSRS of Glen Mills, Pennsylvania
2. How were respondents interviewed – by live interviewers on the phone, interactive voice response (IVR), online, self-administered questionnaire, or another method? Selected via Random Digit Dial (RDD), opt-in or some other method? [TI, RC] Where possible/applicable, include information about use of incentives (amount and type).	Mixed method: 88% online (1,353 of 1,532 total), 12% on the phone (179 of 1,532). A majority of online respondents were identified via address-based sampling and recruited via a mailing that included a $1.25 cash pre-incentive (1,229).
3. Who paid for the survey (both sponsor and original source of funding if different) and why was it done? [TI, RC]	Major funding from the State of Minnesota Legacy Amendment's Arts & Cultural Heritage Fund, as well as support from the Bush Foundation and the Saint Paul & Minnesota Foundation. The survey was done to better understand the experiences and opinions of Minnesotans, with a special focus on attaining as representative a sample as possible from several racial and ethnic groups.

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[1] Most of the transparency disclosures are summarized from the detailed methodology report, attached below.
For findings from this survey and others, see https://www.apmresearchlab.org/collections/surveys

Transparency questions are from "CNN's transparency questionnaire for polling standards" (released July 9, 2019; https://www.cnn.com/2019/07/09/politics/read-cnn-transparency-questionnaire-polling/index.html), adapted to include all requirements of the American Association for Public Opinion Research's Transparency Initiative related to surveys (noted [TI]; released October 4, 2017 (https://www.aapor.org/AAPOR_Main/media/MainSiteFiles/TI-Terms-and-Conditions-10-4-17.pdf), as well as the Roper Center's Transparency and Acquisition Policy (noted [RC]; https://ropercenter.cornell.edu/roper-center-transparency-and-acquisitions-policy).

4.	How many people (unweighted) were interviewed for this survey? [RC]	1,532
5.	In what language(s) were respondents interviewed? [TI, RC]	Online respondents could respond to the survey translated into Spanish, Hmong, or Somali. Twenty-two respondents opted for Spanish, 3 for Hmong (Lus Hmoob), and 4 opted for Somali (Soomaali).
6.	Please provide a copy of the full text and interviewer instructions/programming for all questions included in this survey release. Include preceding interviewer or respondent instructions and any preceding questions that might reasonably be expected to influence responses to the reported results. [TI, RC]	Since results are being released over time, the full text of the questions is included in the relevant reports.
7.	When was the survey conducted? [TI, RC]	April 29-June 14, 2021
8.	What is the source of your sample for this survey (named provider, if relevant), and by what method were respondents selected? Please be as specific as possible, and if via web panel(s), please include a description of how the panelists were recruited, including any within-household procedures. If your study was conducted online and included respondents chosen via routers, approximately what percentage of respondents were directed to the survey via routers? The description of the sampling frame and sample design should include sufficient detail to determine whether the respondents were selected using probability or non-probability methods. [TI, RC]	Sampling procedures are detailed extensively in the methodology report, below. In summary, however, respondents were recruited as follows: • 1,229 from address-based sample targeting (1) Census block groups with high concentrations of target populations (Black, Indigenous, Latinx, Asian, and specifically Hmong Minnesotans), and (2) households likely to be target populations based on either surname or proprietary computer modeling, including those outside of high concentration Census block groups. • 161 from SSRS's national online Opinion Panel. Panelists were originally recruited from a random national USPS address-based sample provided by Marketing Systems Group, supplemented with underrepresented demographic groups identified via SSRS's national bilingual Omnibus telephone survey (80% cell, 20% landline). • Separately, 135 of the respondents to this survey were directly identified from SSRS's national bilingual Omnibus telephone survey (80% cell, 20% landline).

	• 7 respondents were recruited from a cellular telephone sample from Marketing Systems Group, targeted to reach Latinx households in Minnesota.
9. If any quotas were applied to sampling or interviewing, at what stage were they applied, what variables and targets were used, and what is the source of your estimate of the target quota? [TI]	Quotas were not applied in the traditional sense, but the sample was carefully monitored to maximize representation of several racial and ethnic groups given the time and funding constraints of the project.
10. What is the universe of people you are trying to survey, and what makes you confident that the sample source represents that universe? Include both a definition of the population under study and its geographic location. [TI, RC]	Target population = Minnesota adults, including representative samples of Black, Indigenous, Latinx, Asian, and specifically Hmong Minnesotans. The sampling procedures outlined above, coupled with the weighting procedures outlined below, provide confidence that the results of this survey are representative of the target population, so long as attention is paid to the margins of error associated with the findings.
11. A description of the sampling frame(s) and its coverage of the target population, including mention of any segment of the target population that is not covered by the design. This may include, for example, exclusion of Alaska and Hawaii in U.S. surveys; exclusion of specific provinces or rural areas in international surveys; and exclusion of non-panel members in panel surveys. If possible, the estimated size of non-covered segments will be provided. If a size estimate cannot be provided, this will be explained. If no frame or list was utilized, this will be indicated. Include sample size (by frame if more than one was used). [TI, RC]	Please see answer to #9, above.

12. If surveys were conducted by telephone, what percentage of interviews were conducted via calls to cellphones? If surveys were conducted online, were respondents allowed to complete the survey via mobile browsers, and approximately what share of your respondents did so? [RC]	Of the 179 surveys completed via Telephone, 44 were completed via landline, 98 were completed via cell phone, and the remaining 37 are unknown. The unknowns are those who were recruited via address-based sampling, who opted to respond to the survey by calling in instead of completing the survey via web. Of the 1,353 respondents who completed the survey via web, 769 (57%) did so on a desktop or laptop or other large screen device, and 584 (43%) did so on a smart phone or other mobile device.
13. If surveys were conducted by telephone, how many callback attempts did a sampled number receive before being retired?	Typically, a sample number was retired after 5 attempts.
14. If surveys were not conducted by a live interviewer, what do you do to ensure your respondents are real people and are paying attention to the survey?	Telephone interviews were conducted via live interviewer. The recruitment process for those completing the survey via web ensured that the survey was completed by human respondents (not completed by bots).
15. What is your estimate of this survey's error, how is it calculated, and why is this an appropriate error estimation for your survey? If you are reporting a margin of sampling error, has it been adjusted for design effects? For probability samples, the estimates of sampling error will be reported, and the discussion will state whether or not the reported margins of sampling error or statistical analyses have been adjusted for the design effect due to weighting, clustering, or other factors. Disclosure requirements for non-probability samples are different because the precision of estimates from such samples is a model-based measure (rather than the average deviation from the population value over all possible samples). Reports of non-probability samples will only	For the sample overall, the design effect=3.68 and the margin of error = ± 4.8 percentage points. For the racial and ethnic sub-samples, the design effects and margins of errors are as follows: Black 1.92 ± 8.1 Indigenous 1.75 ± 9.9 Latinx 1.63 ± 9.2 Asian (non-Hmong) 1.92 ± 11.3 Hmong 1.68 ± 8.0 White 1.66 ± 5.6

provide measures of precision if they are accompanied by a detailed description of how the underlying model was specified, its assumptions validated and the measure(s) calculated. To avoid confusion, it is best to avoid using the term "margin of error" or "margin of sampling error" in conjunction with non-probability samples. [TI]	
16. If your survey has been weighted, please list the weighting variables and the source of the weighting parameters. If your survey has not been adjusted for education, please explain why and provide an unweighted frequency for education distribution among your respondents. [TI, RC]	As outlined in greater detail in the methodology report below, the reported data are weighted by a variety of factors, including: Base weighting that account for survey mode (including landline versus cell phone weights, household size adjustments, adjustments to account for disproportionate sampling across block groups), and post-stratification weighting by racial and ethnic group as well as sex by age and education derived from U.S. Census Bureau 2019 American Community Survey data for Minnesota. Weighting allows for representation of overall statewide results despite the oversampling of racial and ethnic groups.
17. Is there a minimum unweighted sample size you require before releasing any subset estimates, and if so, what is it?	No fewer than 50.
18. Does this report rely on multiple samples or multiple modes? (If the results reported are based on multiple samples or multiple modes, the preceding items will be disclosed for each.) [TI]	Yes, as outlined in response to question #8, above.

19. Response Rate/Participation Rate: Response rate calculated to AAPOR standards, or sample disposition data adequate for the calculation of AAPOR-standard response rates. When AAPOR-standard response rates or sample disposition data cannot be calculated or provided, completion or participation rates shall be provided using another method that is fully disclosed. [RC] Where possible, also include Breakoff Rate (i.e., the percent of respondents who start the survey but do not finish it).	As outlined in more detail in the methods report below, the overall weighted response rate for the survey is 12.4%. Response rates by sample source: Address based sample: 13.5% (RR3) SSRS Opinion Panel: 2.4% (composite) Omnibus call back: 34.4% (RR3; 1.4% when factoring in the 4% response rate from the original Omnibus survey) Listed cell: 4.6% (RR3)
20. Contact for obtaining more information about the study. [TI]	Craig Helmstetter, Managing Partner of the APM Research Lab (chelmstetter@apmresearchlab.org or 651-290-1219)

Frequencies for key variables used in the analysis

Weighted data are used in the analysis. Unweighted data are shown here as a measure of transparency.

	Unweighted		Weighted	
ALL	1,532	100%	1,532	100%
Black	278	18%	84	5%
Indigenous	170	11%	12	1%
Latinx	185	12%	70	5%
Asian (all)	397	26%	75	5%
Hmong	252	16%	20	1%
Asian (excluding Hmong)	145	9%	55	4%
BIPOC (all)	1,030	67%	242	16%
White	502	33%	1290	84%
Female	802	52%	766	50%
BIPOC	549	36%	120	8%
White	253	17%	647	42%
Male	705	46%	741	48%
BIPOC	461	30%	118	8%
White	244	16%	622	41%
Twin Cities 7-County region*	1,127	74%	841	55%
Greater Minnesota	404	26%	690	45%
Age 18-29	229	15%	228	15%
Age 30-49	646	42%	531	35%
Age 50-64	387	25%	433	28%
Age 65+	270	18%	339	22%
High school graduate or less	344	22%	457	30%
Some college/ Associate's degree	490	32%	508	33%
Bachelor's degree or more	687	45%	563	37%
Republican/ leans Republican	366	24%	591	39%
Independent/other/don't know	128	8%	99	6%
Democrat/ leans Democrat	1,038	68%	841	55%
Child under age 18 in home	627	41%	514	34%
No child in home	873	57%	999	65%
Immigrant	369	24%	124	8%
Not immigrant, but child of an immigrant	263	17%	98	6%
Not an immigrant	887	58%	1,304	85%

* Resident of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, or Washington county.

METHODOLOGY REPORT:
MINNESOTA DIVERSE COMMUNITIES SURVEY

Prepared for APM Research Lab

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Overview

The APM Research Lab (APM) engaged SSRS to conduct the Minnesota Diverse Communities (MDC) Survey. APM initiated this survey to help better understand thoughts and opinions of various racial and ethnic groups in Minnesota with regards to the COVID-19 pandemic, experiences with policing/criminal justice, and other topics of daily life. APM was interested in surveying adults who live in Minnesota within each of the following racial and ethnic groups:

- African American (U.S.-born Black)
- Somali (all, including both U.S.-born and immigrant)[1]
- Asian American (all, including both U.S.-born and immigrant)
- Hmong American (all, including both U.S.-born and immigrant)
- Indigenous/American Indian
- Latino (all, including both U.S.-born and immigrant)
- Non-Hispanic White (all, including both U.S.-born and immigrant)

For the MDC survey, APM wanted to optimize sample representativeness for each of the above groups within the budget and time constraints of the project. Since each of the non-White populations are very low incidence and therefore harder to reach, SSRS designed the methodology to maximize response with these subgroups in the most cost-efficient way possible. Table 1, below, shows the distribution of completes by each subgroup in the final data.

Table 1: Distribution of Completed Interviews

	Total
AA/Somali American[2]	278
Hmong American	252
Native American/American Indian	170
Hispanic American	185
Asian American (excluding Hmong American)	145
Non-Hispanic White American	502
Total	1,532

The MDC Survey was conducted online and over the phone. Most interviews were completed via an address-based sample. Additional interviews were completed through the SSRS Opinion Panel, SSRS Omnibus callback sample and listed cell sample. Data collection was conducted from April 26 to June 14, 2021.

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[2] Notably, because of lower than anticipated incidence among Somali respondents, the final data collapsed this group with African American respondents in order to ensure a sufficient sample for analysis.

This report provides information about the sampling procedures and the methods used to collect, process, and weight data for the MDC Survey.

SSRS Profile

SSRS is a full-service survey and market research firm managed by a core of dedicated professionals with advanced degrees in the social sciences. SSRS designs and implements research solutions for complex strategic, tactical, public opinion, and policy issues in the U.S. and in more than 40 countries worldwide. The SSRS team specializes in creative problem-solving and informed analysis to meet its clients' research goals. SSRS provides the complete set of analytical, administrative and management capabilities needed for successful project execution. We partner with clients interested in conducting high-quality research. In the industry, SSRS is renowned for its sophisticated sample designs and its experience with all facets of data collection, including those involving multimodal formats. SSRS also has extensive statistical and analytical capabilities for extracting important insights from the survey data and suggesting strategies based on those insights.

Sample Design

This project required significant numbers of interviews with very low incidence groups across the state. Due to the challenge of reaching such rare and diverse groups, a combination of sample sources was used. These included address-based sample (ABS), SSRS Opinion Panel sample, Omnibus callback sample and listed cell sample. The distribution of interviews in the final data, by sample source is provided in Table 2.

Table 2: Final Interviews by Sample Type

Sample Source	Interviews
Address-Based Sample (ABS)	1,229
SSRS Opinion Panel	161
SSRS Omnibus Callbacks	135
Listed Cell Sample	7
Total Interviews	**1,532**

ABS Sample

The majority of interviews came from address-based sample (ABS) generated from the United States Postal Service (USPS) Computerized Delivery Sequence File (CDSF). The CDSF is a computerized file that contains information on all delivery addresses serviced by the USPS, with the exception of general delivery. The CDSF is updated weekly and contains home and apartment addresses as well as Post Office boxes and other types of addresses for mail delivery. Sample was pulled from all Minnesota residential records with the exception of addresses coded as vacant, seasonal (vacation), and PO boxes other than those defined as OWGM (only way to get mail), which avoided duplication of Minnesota residents in the sample selection. The main

advantage of the CDSF is that is the most complete frame available for general population surveys as it covers virtually all households.

Using the CDSF, separate random samples of addresses were drawn for each racial/ethnic group, each targeted to the Census Block Groups (CBGs) with the highest concentrations of the target group. CBGs were chosen to maximize incidence while covering approximately 25 percent of the target population.

A second ABS sample was pulled from a subset of the ABS sample frame that was enhanced with race/ethnic data. The race/ethnic data used to enhance the ABS frame came from two sources. One was surname-based and the other was model-based using proprietary models built on ethnic and geographic data using a unique analytical process that identifies likely ethnic origin and language preference. The use of this enhanced, or target, portion of the frame, allowed us to target the groups more effectively. This second sample from the CDSF was pulled from all CBGs, not just the ones targeted in the previous sample.

Because of the focused targeting of strata for the non-White racial and ethnic groups in the ABS frame, any White respondents who completed from the targeted racial and ethnic ABS strata are considered to not be representative of the White Minnesota population. Given this, only White respondents from the state-wide strata were included in the final data, so that this sample was as representative of this group as possible. This resulted in 1,744 interviews from the ABS frame being excluded from the final data.

SSRS Opinion Panel

The SSRS Opinion Panel sample was used primarily to obtain interviews among non-Hispanic whites. Of the 502 non-Hispanic white completes, 27% (n=137) came from the SSRS Opinion Panel. In addition, we maximized the number of possible interviews with African-Americans, Asian-Americans, Indigenous/American Indians and Hispanics through the panel.

Panelists in the SSRS Opinion Panel are recruited randomly based on a nationally representative ABS (Address Based Sample) design (including Hawaii and Alaska). Addresses are randomly sampled by our sister company, Marketing Systems Group (MSG), through the U.S. Postal Service's Computerized Delivery Sequence (CDS), a regularly-updated listing of all known addresses in the U.S. For the Opinion Panel, known business addresses are excluded from the sample frame.

Additionally, the SSRS Opinion Panel recruits hard-to-reach demographic groups via our Omnibus survey platform.[3] The SSRS Omnibus survey is a nationally representative (including Hawaii and Alaska) bilingual telephone survey designed to meet standards of quality associated with custom research studies. The SSRS Omnibus completes more than 50,000 surveys annually with 80% cell allocation.

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[3] Prior to July 2019, the SSRS Opinion Panel was recruited entirely from the SSRS Omnibus.

The advantage of this recruiting design is that it relies on a high-quality ABS design that yields a higher response rate. Additionally, it leverages the SSRS Omnibus platform to ensure adequate representation of typically under-represented groups in public opinion polls such as Hispanics, African Americans, lower educated, or lower income populations.

SSRS Omnibus Callback Sample

The third sample source that we used was callback sample from the SSRS Omnibus[4] for individuals/households who previously completed the SSRS Omnibus survey and based on their responses had identified as living in Minnesota and being African-American, Asian American, Indigenous/American Indian, or Latino. We recontacted these individuals/households to boost the sample of completed interviews with these harder to reach non-White groups. Some additional interviews were also completed with non-Hispanic Whites in Minnesota through this sample.

Listed Cell Sample

The final sample used was a small amount of cellular telephone sample targeted to reach Hispanic respondents in Minnesota. This sample was drawn from MSG's Advanced Cell frame and limited to records flagged as being Hispanic.[5] Similar to the ABS sample, because of the focused targeting of this sample, White respondents from this source (n=5) were excluded from the final weighted data.

Questionnaire Design

APM developed the survey instrument in collaboration with SSRS. Questionnaire development occurred between March 24 and April 2, 2021, with APM providing an initial draft and SSRS supplying survey feedback. The SSRS team provided feedback regarding question wording, order, clarity, and other issues pertaining to questionnaire quality. Together, SSRS and the APM team worked to finalize the questionnaire.

An important aspect of the questionnaire development stage included determining the best way to screen respondents into their respective race/ethnic group since the core questionnaire included questions about experiences in Minnesota as they relate to their race/ethnicity. Thus, respondents who reported being more than one race were asked to choose the race/ethnicity they most identified with, and follow-up questions that focused on their experiences were asked in the context of that group.[6]

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[4] The SSRS Omnibus is a national, weekly, dual-frame bilingual telephone survey that collects reaches 1,000 adults nationwide each week.

[5] https://www.m-s-g.com/Pages/genesys/cell_sample

[6] Due to the lower incidence of Somali and Hmong populations in Minnesota relative to other races/ethnicities, any respondents who identified as being those ethnicities moved forward in the survey answering about experiences in these groups even if they reported being multiple races/ethnicities. Toward the end of fieldwork, this was also extended to any respondents who identified as being Native American or Latinx.

Upon final approval, SSRS formatted and translated the survey instrument into Spanish, Somali and Hmong. The study was then programmed into SSRS' Confirmit system for completion online and over the phone[7]. Additional steps were employed to ensure a quality experience in survey administration regardless of the device utilized by respondents, whether a desktop computer, tablet or phone. Prior to the field period, extensive checking of the program was conducted to assure skip patterns followed the design of the questionnaire.

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[7] The survey was offered online in English, Hmong, Somali and Spanish and over the phone in English and Spanish.

Data Collection

Address-based Sample

ABS respondents were sent an invitation letter followed by a reminder postcard and a final reminder letter asking them to participate in the study. The invitation letter included a one-page letter, including an APM Research Lab logo, inviting respondents to participate in an important research study. To increase participation, the invitation letter included a $1.25 cash pre-incentive, a FAQ sheet, and a toll-free number for respondents to call to complete the survey with a trained interviewer. A reminder postcard was sent to all respondents two days after mailing the invitation letter, reminding them to complete the survey.

One to two weeks after the reminder postcard mailing, a final reminder was sent to those who had not yet responded. This letter notified respondents that the survey was closing soon and encouraged them to participate.

Sample was released in two waves. This allowed us to monitor sample performance after the first wave and make any necessary adjustments to reach our targets in each racial/ethnic group.

The majority of mailing materials were English only, however, a small selection of mailings determined to have a higher likelihood of being non-English speaking were double-sided (either English/Hmong, English/Somali, or English/Spanish). The reminder postcard included translations for non-English speakers, following the same procedure as the letters[8].

For the MDC Survey, the survey administration schedule for ABS respondents was as follows:

Table 3: ABS Fieldwork Schedule

Touchpoint	Date
Wave 1 Invitation letter mailed	April 26, 2021
Wave 1 Reminder postcard mailed	April 28, 2021
Wave 1 Reminder letter mailed	May 10, 2021
Wave 2 Invitation letter mailed	May 25, 2021
Wave 2 Reminder postcard mailed	May 27, 2021
Wave 2 Reminder letter mailed	June 1, 2021
Field Close	June 14, 2021

SSRS Opinion Panel

All SSRS Opinion Panel members drawn for the MDC Survey were adult panelists who were known to be living in Minnesota.[9]

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[8] Sections of the postcard text were translated into either Hmong, Somali, or Spanish.
[9] Panel information included a flag to identify the state where the panelist resided. Prior to completing the survey, panelists had to confirm the state where they currently lived.

Panelists were emailed an invitation, that included a unique passcode-embedded link, to complete the survey online. In appreciation for their participation, panelists received a modest incentive (in the form of an electronic gift card). All respondents who did not respond to their first invitation received up to four reminder emails or text reminders.

A "soft launch" inviting a limited number of panelists to participate was conducted on May 5th. After checking soft launch data to ensure that all questionnaire content and skip patterns were correct, the remaining sample was released to maximize the number of completed surveys.

For the MDC Survey, the survey administration schedule for Panelists was as follows:

Table 4: SSRS Opinion Panel Fieldwork Schedule

Touchpoint	Date
Soft launch invitation	May 5, 2021
Full launch invitation	May 6, 2021
Field Close	May 24, 2021

SSRS Omnibus Callback & Listed Cell Sample

Surveys for the callback sample were fielded from May 10 to June 10, 2021. Prior to the start of the study, interviewers received both written materials on the survey and formal training on conducting the survey. SSRS's project team briefed and trained interviewers on the issues specific to the study, explaining the study's overall objectives, specific procedures, and questionnaire content. In addition to conducting the initial training, SSRS supervisors and interviewing staff constantly monitored the interviewing staff and conducted follow-up training, as necessary.

SSRS carried out several strategies to maximize survey response by minimizing non-response and maximizing refusal conversion. The survey fielding enacted the following best-practice procedures:

- The call rule included one initial call plus an average of four additional attempts
- To increase the probability of completing an interview, a differential call rule was established that required that call attempts be initiated at different times of day and different days of the week.
- Landline sample was power-dialed, using a computer to dial the number, to reduce dialing errors. Cell phone sample was dialed manually in keeping with Telephone Consumer Protection Act regulations.
- Specially-trained interviewers were utilized to attempt refusal conversions.
- Respondents were permitted to schedule call-back times.

Spanish-Language Interviewing

SSRS utilizes a staff of Spanish-speaking interviewers who offer respondents the option of completing the survey in Spanish or in English. For the Callback sample, respondents who previously completed the Omnibus survey in Spanish were called by a bilingual interviewer. All listed cell sample was dialed by bilingual interviewers, since that was designed to target Hispanic households.

Overall, the mean length of the MDC Survey was 17 minutes online and 22 minutes over the phone.

Household and Respondent Selection

In each sampled landline household where more than one adult 18 and older resides, the respondent, age 18 or older, was selected using an at-home respondent selection. This within-household selection procedure reduces the bias created when the person responding to the survey is the one more likely to answer the phone or be present at the time of the call.

Cell phones are considered individual devices rather than belonging to a household, and therefore the person answering the cell phone was the one who was interviewed, provided they were an adult.

For the ABS sample, respondents followed a similar selection procedure as the landline frame, asking the respondent, age 18 and older, who was currently living in the household and had the most recent birthday to complete the survey.

Weekly Updates

Throughout the field period, SSRS provided APM with weekly updates with key information that tracked overall progress of the study. These reports, designed to provide snapshot information of key variables of interest, included tables for completes per sample type and by racial and ethnic group.

During the field period, SSRS and APM also participated in bi-weekly calls, where we discussed the updates and addressed APM's questions and concerns.

Data Processing and Integration

SSRS implemented several quality assurance procedures in data file preparation and processing. Prior to launching data collection, extensive testing of the survey was completed to ensure it was working as anticipated. Data were checked using multiple methods in all programs. Data were checked after the first night of interviewing and throughout the field period to confirm that skip patterns were correctly followed.

The data file programmer implemented a "data cleaning" procedure in which web survey skip patterns were created in order to ensure that all questions had the appropriate numbers of cases. This procedure involved a check of raw data by a program that consisted of instructions

derived from the skip patterns designated on the questionnaire. The program confirmed that data were consistent with the definitions of codes and ranges and matched the appropriate bases of all questions. The SSRS team also reviewed preliminary SPSS files and conducted an independent checking of all created variables to ensure that all variables were accurately constructed.

As a standard practice, quality checks were incorporated into the survey. Quality control checks for this study included a review of "speeders", reviewing the internal response rate (number of questions answered divided by the number of questions asked). Respondents who failed the quality checks were not included in the final data set. No cases were removed due to quality control checks.

Weighting

The data consists of six race groups within the Minnesota adult population: Black[10], Asian Non-Hmong, Hmong, Indigenous/American Indian Alaska Native (AIAN), Latinx or Hispanic, and White Non-Hispanic Minnesotans. All race groups besides White Minnesotans were oversampled. The data were weighted individually with the following six subgroups: Black, Asian Non-Hmong, Hmong, AIAN, Hispanic, and White Non-Hispanic Minnesotans.

Base Weight Adjustments

The first step in weighting was the application of a base weight. Respondents were assigned different base weights depending on their sample source, which consists of SSRS Probability Panel, Omnibus Callback, ABS, and listed cell samples.

SSRS Probability Panel Sample

The panel base weight (PBW) was computed differently depending on whether the panelist was recruited from the SSRS Omnibus or from ABS.

The base weight for the Omnibus recruits is the original base weight assigned at the time of the original Omnibus interview.

The Omnibus base weight, PBW_{Omni} can be expressed as a function of the size of the landline and cell phone sample frames (F_{LL} and F_{CELL}), the size of the landline and cell phone samples(S_{LL} and S_{CELL}), and the number of adults in each household (AD) as follows.[11]

$$PBW_{Omni} = \big((LL \times AD \times S_{LL}/F_{LL}) + (CP \times S_{CELL}/F_{CELL}) \\ - (LL \times AD \times CP \times S_{LL} \times S_{CP}/(F_{LL} \times F_{CP}))\big)^{-1}$$

Where $LL = 1$ if the respondent has a landline phone and $LL = 0$ otherwise and $CP = 1$ if the respondent has a cell phone and $CP = 0$ otherwise.

The base weight for ABS recruits is the product of a sampling weight and a household size adjustment. The sampling weight accounts for selection probabilities of addresses across the 16 ABS strata and the probability of selection of one adult in each sampled household.

The ABS base weight, PBW_{ABS}, can be expressed as a function of the proportion of the ABS frame in stratum i, P_i, the proportion of the ABS sample that was pulled from stratum i, p_i and the number of adults in household j as follows.

$$PBW_{ABS} = (P_i/p_i) \times AD_{ij}$$

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[10] We originally oversampled Black and Somali separately, but the two were combined to make up the entire Black sample.
[11] Buskirk, T. D., & Best, J. (2012). Venn Diagrams, Probability 101 and Sampling Weights Computed for Dual Frame Telephone RDD Designs. Journal of Statistics and Mathematics, 15, 3696-3710.

SSRS Omnibus Callback Sample

The callback sample comes from the SSRS Omnibus poll which is a nationally representative survey of adults in the United States fielded each week. The Omnibus survey uses an overlapping dual frame RDD sample design. The base weight for the SSRS Omnibus Callback sample is the original base weight assigned at the time of the Omnibus interview (BW_{Omni}). The Omnibus base weight is computed as detailed in the above section.

ABS and Listed Cell Sample

The ABS sample was classified into two types: targeted geographic and targeted flagged samples. The targeted geographic ABS sample includes a random sample of addresses from Census Block Groups or Census Tracts with the highest concentration of the targeted race groups. This sample was assigned a base weight of a product of [1] a sampling adjustment to account for disproportionate sampling and responses across block groups or tracts and [2] sampling within household. The flagged ABS sample comes from surname-based and model-based proprietary models and was assigned a base weight of 1. The listed Advanced Cell sample was also given a base weight of 1.

Final Base Weight

The base weights were then trimmed and standardized by the six subgroups (Black, Asian Non-Hmong, Hmong, AIAN, Hispanic, White Non-Hispanic).

Post-Stratification

The next step in the weighting is balancing sample demographics to population benchmark distributions within each race group (Black, Asian Non-Hmong, Hmong, AIAN, Hispanic, White Non-Hispanic).

To handle missing data among some of the demographic variables we employ a technique called hot decking. Hot deck imputation replaces the missing values of a respondent randomly with another similar respondent without missing data. These are further determined by variables predictive of non-response that are present in the entire file. We use an SPSS macro detailed in 'Goodbye, Listwise Deletion: Presenting Hot Deck Imputation as an Easy and Effective Tool for Handing Missing Data' (Myers, 2011).

Weighting was accomplished using SPSSINC RAKE, an SPSS extension module that simultaneously balances the distributions of all variables using the GENLOG procedure.

Data were weighted to distributions of sex by age and education. The sex by age and education benchmarks were derived from the 2019 American Community Survey[12] data.

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[12] Steven Ruggles, Sarah Flood, Sophia Foster, Ronald Goeken, Jose Pacas, Megan Schouweiler and Matthew Sobek. IPUMS USA: Version 11.0 [dataset]. Minneapolis, MN: IPUMS, 2021. https://doi.org/10.18128/D010.V11.0

Weights by Race/Ethnic Group

Weights were trimmed within race groups to prevent individual interviews from having too much influence on the final results. Table 5 shows the trimming used for each race group, and tables 6 through 11 compare weighted and unweighted sample demographics distribution to target population parameters.

Table 5: Trim level by Race Group

	Trim %
Black	3%
Asian Non-Hmong	3%
Hmong	2%
AIAN	3%
Hispanic	2%
White Non-Hispanic	2%

Table 6: Weighting Dimensions, Parameters, and Distributions for Black Minnesotans

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-24	6.2%	1.1%	4.4%
Male 25-34	13.2%	8.3%	13.7%
Male 35-44	12.5%	7.2%	13.3%
Male 45-54	6.6%	7.6%	7.0%
Male 55-64	7.0%	8.6%	7.5%
Male 65+	4.2%	7.6%	4.5%
Female 18-24	7.8%	5.4%	6.3%
Female 25-34	13.7%	14.4%	14.6%
Female 35-44	11.9%	10.1%	10.6%
Female 45-54	6.2%	12.2%	6.6%
Female 55-64	5.7%	11.2%	6.1%
Female 65+	4.9%	6.5%	5.2%
Education			
Less than High School	18.3%	5.8%	15.4%
High School Grad	30.9%	19.4%	31.1%
Some College	31.1%	40.6%	32.4%
College +	19.7%	34.2%	21.1%

Table 7: Weighting Dimensions, Parameters, and Distributions for Asian Not-Hmong

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-24	4.3%	3.4%	4.5%
Male 25-34	13.1%	13.8%	12.0%
Male 35-44	11.8%	12.4%	12.4%
Male 45-54	7.8%	10.3%	8.2%
Male 55-64	5.4%	9.7%	5.7%
Male 65+	4.9%	4.1%	5.1%
Female 18-24	5.3%	4.1%	5.6%
Female 25-34	15.5%	11.0%	16.2%
Female 35-44	12.2%	17.2%	10.5%
Female 45-54	7.8%	6.2%	7.4%
Female 55-64	5.6%	4.8%	5.9%
Female 65+	6.3%	2.8%	6.6%
Education			
Less than High School	13.9%	2.8%	11.5%
High School Grad	14.0%	6.2%	12.9%
Some College	21.3%	19.3%	22.3%
College +	50.8%	71.7%	53.2%

Table 8: Weighting Dimensions, Parameters, and Distributions for Hmong Minnesotans

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-24	10.4%	6.0%	10.5%
Male 25-34	18.2%	17.1%	18.4%
Male 35-44	7.3%	12.3%	7.4%
Male 45-54	9.0%	6.3%	9.1%
Male 55-64	2.8%	2.8%	2.8%
Male 65+	3.3%	2.4%	3.3%
Female 18-24	9.3%	6.3%	9.4%
Female 25-34	14.1%	20.6%	14.3%
Female 35-44	11.6%	18.7%	11.7%
Female 45-54	7.0%	6.0%	7.1%
Female 55+	7.1%	1.6%	6.0%
Education			
Less than High School	20.9%	8.3%	19.9%
High School Grad	26.6%	17.5%	26.9%
Some College	33.5%	36.5%	33.9%
College +	19.0%	37.7%	19.2%

Table 9: Weighting Dimensions, Parameters, and Distributions for Indigenous

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-34	18.0%	7.6%	15.3%
Male 35-44	7.1%	4.1%	7.6%
Male 45-54	9.4%	7.1%	8.9%
Male 55-64	6.9%	11.8%	7.4%
Male 65+	6.7%	8.2%	7.2%
Female 18-34	18.7%	10.6%	17.8%
Female 35-44	7.2%	13.5%	7.7%
Female 45-54	10.7%	14.7%	11.5%
Female 55-64	6.6%	12.9%	7.1%
Female 65+	8.7%	9.4%	9.4%
Education			
Less than High School	25.1%	8.2%	19.4%
High School Grad	25.9%	22.4%	27.8%
Some College	34.6%	36.5%	37.2%
College +	14.5%	32.9%	15.6%

Table 10: Weighting Dimensions, Parameters, and Distributions for Hispanic Minnesotans

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-24	9.0%	6.5%	9.0%
Male 25-34	12.0%	12.4%	11.8%
Male 35-44	12.3%	13.5%	12.3%
Male 45-54	9.4%	9.7%	9.4%
Male 55-64	4.3%	5.9%	4.3%
Male 65+	2.3%	3.2%	2.3%
Female 18-24	9.7%	5.9%	9.6%
Female 25-34	13.8%	16.8%	13.8%
Female 35-44	12.2%	11.4%	12.2%
Female 45-54	7.0%	4.9%	7.0%
Female 55-64	5.3%	4.3%	5.3%
Female 65+	2.8%	5.4%	2.9%
Education			
Less than High School	25.9%	10.8%	25.6%
High School Grad	26.5%	24.9%	26.6%
Some College	27.9%	28.1%	28.0%
College +	19.8%	36.2%	19.9%

Table 11: Weighting Dimensions, Parameters, and Distributions for White Non-Hispanic

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-24	4.6%	1.2%	3.4%
Male 25-34	8.1%	4.0%	8.0%
Male 35-44	8.1%	8.8%	8.4%
Male 45-54	7.9%	8.4%	8.1%
Male 55-64	9.5%	10.0%	9.8%
Male 65+	11.0%	16.9%	11.3%
Female 18-24	4.5%	1.6%	3.7%
Female 25-34	7.8%	8.6%	8.0%
Female 35-44	7.9%	7.0%	8.0%
Female 45-54	7.9%	7.6%	8.1%
Female 55-64	9.7%	10.2%	9.9%
Female 65+	12.8%	15.9%	13.2%
Education			
Less than High School	4.5%	1.4%	3.6%
High School Grad	24.5%	14.7%	23.8%
Some College	33.4%	29.5%	33.9%
College +	37.6%	54.4%	38.6%

Final Race/Ethnic Group Adjustment

The six weights were then combined, and a final adjustment was made to put the race groups into their proper proportions relative to each other. Table 12 shows the race group distribution prior and post adjustments. Table 13 compares weighted and unweighted sample demographics distribution to overall target population parameters.

Table 12: Race Parameters, Unweighted and Weighted Distribution for Overall

	Parameter	Unweighted	Weighted
Race/Ethnicity			
Black	5.5%	18.1%	5.5%
Asian	3.6%	9.5%	3.6%
Hmong	1.3%	16.4%	1.3%
AIAN	0.8%	11.1%	0.8%
Hispanic	4.6%	12.1%	4.6%
White Non-Hispanic	84.2%	32.8%	84.2%

Table 13: Weighting Dimensions, Parameters, and Distributions for Overall

	Parameter	Unweighted	Weighted
Gender by Age			
Male 18-24	5.0%	3.5%	4.0%
Male 25-34	8.9%	8.4%	8.7%
Male 35-44	8.6%	9.5%	8.9%
Male 45-54	7.9%	8.1%	8.2%
Male 55-64	8.9%	8.2%	9.2%
Male 65+	9.8%	9.0%	10.2%
Female 18-24	5.1%	4.8%	4.3%
Female 25-34	8.8%	11.9%	9.0%
Female 35-44	8.5%	11.7%	8.5%
Female 45-54	7.8%	8.5%	8.0%
Female 55-64	9.1%	8.0%	9.3%
Female 65+	11.6%	8.4%	11.8%
Education			
Less than High School	6.9%	5.4%	5.9%
High School Grad	24.6%	17.3%	24.0%
Some College	32.6%	32.3%	33.2%
College +	35.8%	45.0%	36.9%

Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. SSRS calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from a disproportionate sample design and systematic non-response.

Table 14: Sample Design Effect and Margin of Errors by race groups

	DEFF	MOE
Black	1.92	± 8.1 percentage points
Asian Non-Hmong	1.92	± 11.3 percentage points
Hmong	1.68	± 8 percentage points
AIAN	1.75	± 9.9 percentage points
Hispanic	1.63	± 9.2 percentage points
White Non-Hispanic	1.66	± 5.6 percentage points
Overall	**3.68**	**± 4.8 percentage points**

SSRS calculates the composite design effect for a sample of size n, with each case having a weight, w, as:[13]

$$deff = \frac{n \sum w^2}{(\sum w)^2}$$

The survey's margin of error is the largest 95% confidence interval for any estimated proportion based on the total sample — the one around 50%. For example, the margin of error for the overall sample is ± 4.8 percentage points. This means that in 95 out of every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 4.8 percentage points away from their true values in the population. Margins of error for subgroups will be larger.

It is important to remember that the sampling fluctuations captured in the margin of error are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording, and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

How to Analyze Data with Oversamples

It is a common practice to oversample certain groups of interest to provide larger sample sizes for analysis. When groups are oversampled, weighting will correct for the oversampling by "weighting down" the groups to their proper proportion of the sample.

It is important for researchers to understand the weighting implications of these oversamples. SSRS typically computes "balancing weights" which means that the weights across the entire sample sum to the total number of interviews. If we have oversampled a group, the sum of that group's balancing weight will then be less than the number of interviews we completed with the group because that groups has been weighted down in the aggregate. If such data were analyzed with a basic statistics package like SPSS, the margin of error for the oversample population would reflect the weighted n-size and not the number of interviews which would lead to an overestimate of the sample variance.

The following table shows an example of population and interview n-sizes when an oversample is used. For this example, a main cross-section sample of 1,000 was combined with an oversample of 800 among some subpopulation of interest. While the researcher did 920 interviews with the oversample population, the statistical software will run statistical tests as though only 216 interviews were completed.

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[13] Kish, L. (1992). Weighting for Unequal Pi. Journal of Official Statistics, Vol. 8, No.2, 1992, pp. 183-200.

Example of Oversample N-Sizes

	Natural Population Distribution (%)	Example Study Sample Completes			
		Main Sample	Over-sample	Total	Weighted N-size
Non-oversample population	88%	880 (88%)	0	880 (49%)	1,584 (88%)
Oversample population	12%	120 (12%)	800	920 (51%)	216 (12%)
Total	100%	1,000	800	1,800	1,800

There are two solutions to this problem. The first is to utilize a statistics package that can apply a Taylor Series Linearization to the data. Under this procedure, the researcher would enter a strata variable[14] into the statistics package that indicates the sample selections upon which under/oversampling occurred. In effect, this will allow the statistics package to calculate proper margins of error for estimates based on the true sample sizes of groups. Taylor Series Linearization will also account for the impact of any complex sample design features, such as stratification, on sample variances. The researcher will also attain a margin of error appropriate to the number of interviews rather than the weighted N-size, which can be a problem in some statistical software packages such as SPSS. Statistics packages with the capability to compute linearized variances estimates include SAS with the survey procedures module, R with the *survey* package, Stata, and SPSS with the Complex Samples module.

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[14] Or a Primary Sampling Unit (PSU) for a multi-stage sample design

Completion Rate/Response Rate

The response rates for this study were calculated using AAPOR's RR3. The SSRS Omnibus response rate was calculated by multiplying the response rate from the callback sample by the average SSRS Omnibus response rate (4%). Web-panel response rates are a product of (1) response rates to the original invitation to participate as a panelist; (2) the completion rate, among panelists, with the invitation to participate in the study.

The total combined response rate for the MDC Survey was 12.4%, which is created as a weighted average of the response rates from each sample type in proportion to their completes. Tables 15 and 16 detail the completion and response rates for each sample type for this study.

Table 15: Response Rate – ABS, SSRS Omnibus Callback, & Listed Cell Samples

Sample Productivity	ABS Sample	Omnibus Callback Sample	Listed Cell Sample
Complete (I)	2,973	135	12
Eligible, non-interview (R)	460	15	6
Unknown eligibility, non-interview (UH)	24,937	826	1,204
Not eligible (IN)	1,173	153	58
Total records contacted	29,543	1,129	1,280
Response Rate (RR3)	13.5%	34.4%	4.6%
Response Rate (RR3) * SSRS Omnibus Survey	--	1.4%	--

Table 16: Completion Rate/Response Rate – SSRS Opinion Panel

Sample Productivity	
Invited to Participate/Total Sample	319
Completed	161
Terminates	4
Survey Completion Rate	51%
Composite Response Rate	2.4%[15]

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[15] Product of the SSRS Opinion Panel recruitment response rates and the MDC Survey completion rate.