



Leveraging Every Door Direct Mail for remote recruitment of a rural Appalachian study Sample: Response rate and representativeness

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ABSTRACT

Every Door Direct Mail (EDDM) is a service of the United States Postal Service (USPS) that delivers non-addressed mail to all postal customers on designated mailing routes. Primarily used for marketing, we describe EDDM's efficacy as a research tool for remotely recruiting a representative convenience sample of rural Appalachian households for a longitudinal survey-based health study. In June 2020, recruitment postcards were sent via EDDM to all residential addresses ($n = 31,201$) within an 18 ZIP code region of Southeastern Ohio. Adults were invited to complete a survey online via QR code or to call for a mailed survey. Respondent demographic characteristics were generated using SPSS and compared with the region's 2019 U.S. Census Bureau statistics. A total of 841 households responded to the invitation, reflecting a response rate higher than marketing estimates (2.7 % vs 2 %). Compared to Census data, a greater proportion of respondents were female (74 % vs 51 %), and highly educated (64 % vs 36 % college graduates); a comparable proportion were non-Hispanic (99 % vs 98 %), white (90 % vs 91 %), and had ≥ 1 adult in the household (1.7 ± 0.9); and a lower proportion had a household income $< \$50$ k (47 % vs 54 %). The median age was higher (56 vs 30 years), and 29 % were retirees. EDDM was a viable method for remote recruitment of a rural geographically-based sample. Further work is needed to explore its efficacy in recruiting representative samples in other contexts and to inform best practices for its use.

1. Introduction

Although no single recruitment strategy has been found to be most effective for recruiting study participants from rural communities in the United States (U.S.), (Young et al., 2015) best practices include intense presence and consistent engagement with the target community. This can be achieved through participating in community events, partnering with community gatekeepers, and building relationships with various stakeholders. (Young et al., 2015; Williams et al., 2011; Thurman and Harrison, 2019) However, these face-to-face interactions were precluded by the travel restrictions and social distancing guidelines imposed by the COVID-19 pandemic, necessitating the shift to remote recruitment for many studies.

While remote recruitment methods may represent a means by which

to enhance geographic and demographic diversity in study samples, (Saberi, 2020; Gaba and Bhatt, 2020) suitability for use in rural communities is unclear due to the unique challenges faced in these areas. Selecting a suitable remote recruitment method can be further complicated when the study objective requires a rural sample from a particular geographic area. Phone-based recruitment for geographically-framed rural samples is not ideal given the move away from landline phone use (Blumberg and Luke, 2020) and the recent increase in household relocation triggered by the pandemic. (Cohn, 2020) Online recruitment via social media and digital health platforms, which has become popular since the start of the pandemic, (Saberi, 2020; Gaba and Bhatt, 2020) may not offer adequate reach for two reasons: the difficulty of identifying eligible individuals living in the geographical area of interest, and the documented internet access barriers of rural America including poor

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connectivity, slow internet speeds, and lower rates of digital communication device ownership among rural residents compared to urban residents. (Drake et al., 2019; Perrin, 2021; Kaur, 2020) Mail-based recruitment, however, is a remote strategy that transcends many of the identified barriers, and remains a reliable means for reaching populations of interest in rural communities. (Miyamoto et al., 2013; Befort et al., 2015) Mail-based recruitment can employ two distinct types of mailings to reach potential participants: addressed mailings, and non-addressed mailings using services such as Every Door Direct Mail (EDDM). A successful tool for marketing, EDDM is relatively underexplored as a research recruitment tool, although it has been noted as suitable for studies with a geographic focus. (Grubert, 2019).

This study aimed to: 1) Describe EDDM's efficacy in recruiting a convenience sample of rural adult consumers (18 + years of age) living within ZIP codes with active healthy food access programs in southeastern Ohio for a survey-based study, and 2) Evaluate EDDM's potential for producing a representative sample by comparing the demographic profile of survey respondents with available population data. The broader study aimed to evaluate relationships between exposure to (i.e., patronage of) community-based healthy food access programs and individual- and household-level diet, health, and food security outcomes among consumers in a predominantly low-income and food-insecure region of Southeastern Ohio.

2. Materials and Methods

2.1. Decision to use EDDM

Pivoting to a remote recruitment strategy was necessitated by research restrictions related to the COVID-19 pandemic. However, it was a strategic approach for our study regardless of such restrictions. Remote recruitment offered the benefit of avoiding logistical burdens and inefficiency associated with in-person recruitment at program sites, such as mileage incurred traveling between rural locations and the opportunity costs of staff time spent in low-traffic settings. Using in-person recruitment may have precluded the team's presence at some program sites and limited the team's presence across applicable sites at times when patronage is highest, thereby limiting the sample overall and the inclusion of customers with infrequent program engagement. Based on the above analysis of phone-, online-, and mail-based options, mail-based recruitment was considered most prudent by the study team, inclusive of community partners with knowledge of local communication preferences. Of the two mail-based options (addressed and unaddressed), EDDM was deemed the most suitable given the study's geographic focus, study resource constraints, and concerns regarding the potentially shorter-than-usual shelf life of addressed mailing lists in the context of COVID-19.

EDDM is a service of the United States Postal Service (USPS) via which generic mail items can be sent to all postal customers on designated mailing routes. (USPS) Compared to addressed mailings (including standard postcards), EDDM mailings target specific geographic areas rather than specific recipient demographics, are addressed to "Postal Customer" rather than a resident's full name, and—of note—are less costly to post. (USPS) EDDM is primarily used as a marketing tool; local businesses use it for widespread community advertising and political contenders use it for campaign promotion. (USPS) The census-style of EDDM reach (and recruitment) allowed the opportunity to capture a counterfactual group of program non-users for the sake of comparative analyses, though an undesired tradeoff was the potential for under-sampling program users.

2.2. Sampling frame

Use of EDDM requires specification of 1) the exact mailing routes within each ZIP code across which the generic mailer is to be delivered, and 2) whether the mailer is to be sent to residential and/or business

addresses. In line with the study objective, the team mapped all operating locations of the healthy food access programs that were active as of Spring 2020. Most program locations fell within or near Athens County, OH. A comprehensive list of the county's ZIP codes was prepared, and some ZIP codes representing portions of surrounding counties were included given their proximity to program site locations. The final sampling frame consisted of 18 ZIP codes across 2 counties, with 31,201 residential addresses and an estimated total population of 71,812. (U.S. Census Bureau, 2019; U.S. Census Bureau - Athen's County, 2019) Given that households were the intended unit of analysis for the study's primary outcomes, we aimed for our recruitment postcard to reach all residential addresses in our geographically-based sampling frame.

2.3. Postcard design

The study team, composed of academic researchers and community partners, designed the study recruitment postcard (Fig. 1). The two-sided, fully colored postcard included a visually appealing collage of fresh produce on the front, along with the logos of all study partners. The back of the postcard summarized the study's purpose, the related participant incentive, directions on how to complete the survey, and a thank you from all study team members. An informal and friendly tone was chosen for the language. (USPS, 2022).

The format and design of recruitment materials aligned with evidence-based best practice recommendations for maximizing engagement with mailings. According to The Association of National Advertisers (ANA) 2021 Response Rate Report, postcards produced the best Return on Investment (ROI) compared to other direct mail formats such as envelopes and flyers. (ANA, 2022) Additionally, a national study from the USPS Office of the Inspector General on consumer perceptions and behaviors regarding household mail reported that QR codes were the most widely recognized and utilized digital innovation by mail recipients. (USPS, 2022) Other study findings supported utilizing high-quality materials, appealing visuals, attractive colors, brief text, and friendly language to enhance recipient engagement with mail materials.

2.4. Postcard mailing

Our team's Principal Investigator opted to contract with a third-party vendor, Printing for Less (PFL), to manage the paperwork and logistics of printing, packaging, and shipping the postcard bundles to all applicable post office locations for delivery to each mailing route within the selected ZIP codes. PFL was selected from among various third-party vendors that specialize in mass printing and mailing operations, based on estimated cost, perceived ease of use, customer service, and online reviews. To minimize costs, and to meet the limited postcard dimension options dictated by the USPS for EDDM, the study team opted for a 6.25" x 9" postcard with free gloss aqueous coating. For reference, a standard postcard size is 4.25" x 6", and acceptable minimum dimensions for EDDM postcards are 6.125" in height, or 10.5" in length. (USPS, 2012).

On June 25, 2020, PFL mailed the postcards in bundles to each applicable post office location, with the expectation that the postcards would arrive in residential mailboxes within approximately one week. The postcards were delivered to 31,201 residential households for a total expense—including printing, bundling by route, mailing bundles to applicable post offices, and mailing to residential addresses—of \$9,868.10, or \$0.32 per postcard.

2.5. Eligibility and study enrollment

This census-style, one-time recruitment method aimed to attract a convenience sample of adult consumers (18 + years of age) living within ZIP codes with active healthy food access programs. Individuals interested in study enrollment could access the survey by 1) scanning the QR code; 2) visiting the brief weblink; or 3) calling or emailing a study



Fig. 1. Study Recruitment Postcard.

representative for a printed and mailed survey with a postage-paid and self-addressed return envelope. Preceded by a brief eligibility screener, a study welcome letter (with complete investigator details), and an informed consent script, the survey took approximately 20 min or less to complete. The survey was designed to capture demographic characteristics and assess food sourcing practices, public and private food assistance use, household food security, and perceived health. The survey marked the first of four that were distributed on a quarterly basis during the year-long study. Responses were accepted over a three-week window. Those who opted to provide contact information were entered into a raffle drawing for one of one hundred \$25 grocery store gift cards and were invited to take subsequent surveys via the contact method of choice (either an emailed link or mailed paper survey with postage-paid and self-addressed return envelope). All study procedures were approved by Ohio State University's Institutional Review Board (protocol #2020E0579).

2.6. Statistical analysis

Demographics were prepared via descriptive univariate analysis conducted using IBM SPSS Statistics for Windows, Version 27.0, and when applicable, compared with data from the U.S. Census Bureau demographics and housing estimates (2019), (U.S. Census Bureau, 2019; U.S. Census Bureau - Athen's County, 2019) or other sources of regional demographics such as the United States Department of Agriculture (USDA) household food security estimates (2020). (Coleman-Jensen et al., 2020).

3. Results

The first aim was to evaluate EDDM's efficacy in recruiting a convenience sample of rural Appalachian adults living in a specified geographic area. A total of 841 respondents initiated the survey and a total of 627 provided complete data across all variables of primary interest, reflecting a response rate of 2.0–2.7 %, depending on the variable. Responses were returned from all 18 targeted zip codes, with 45 % of responses coming from the largest and most populated ZIP code in Athens County (Fig. 2). Ninety-six percent of responses were completed online, and the remaining 4 % were returned via mail (Fig. 3).

The second aim was to assess EDDM's potential for producing a rural sample representative of population demographics. Respondents were predominantly female (73.8 %), non-Hispanic (99.1 %), and White (90.5 %). Median age was 56 years, and over half were married (53.5 %) and highly educated (64.3 %). A large proportion were either employed (31.5 %) or retired (25.4 %), with an average reported household annual income of USD 62,654. Households averaged 1.7 adults and 0.6 children. While most households reported high food security status (72.8 %), low or very low food security was reported by 15.6 % of households (Table 1).

Compared to the U.S. Census Data (2019), our sample closely matched population proportions for non-Hispanic ethnicity (99.1 % vs 98.1 %) and White race (90.5 % vs 91.5 %). The average number of adults in the household was identical in our sample and the Census (1.7 ± 0.9). While our sample had a lower proportion of Black or African American people (1.2 % vs 2.9 %) and Asian people (1.1 % vs 2.7 %)

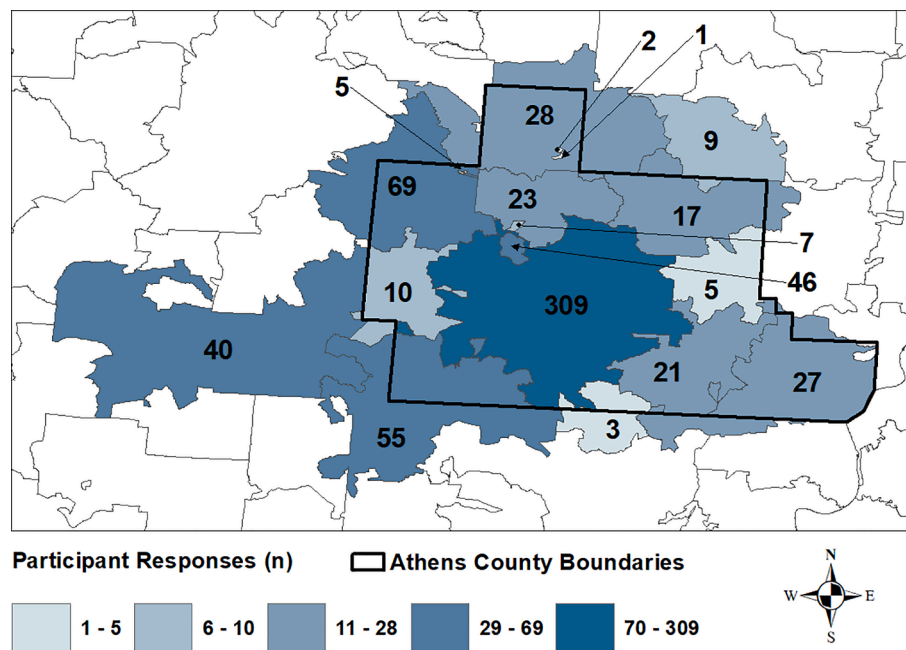


Fig. 2. Distribution of Participant Responses across the Sampling Frame among those with Complete ZIP Code Data (n = 677)^a. ^aAll ZIP codes included in the sampling frame fell, at least partially, within the boundaries of Athens County, OH except for one ZIP code in Vinton County, OH.

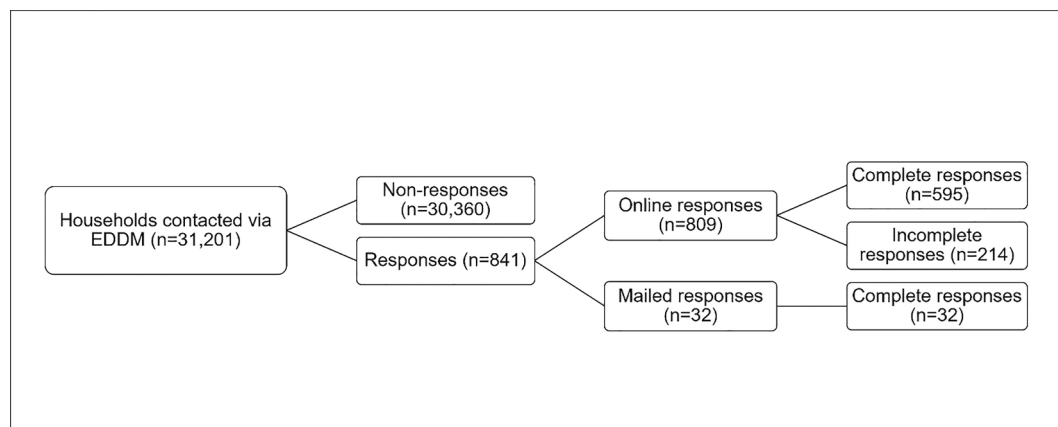


Fig. 3. CONSORT Diagram of Every Door Direct Mail-based recruitment and enrollment of rural Appalachian adults for a survey-based health study.

relative to the population reported in the U.S. Census, the proportion of multiracial individuals was higher (3.7 % vs 2.0 %). Our sample exceeded population proportions for female sex (73.8 % vs 50.7 %), median age (56 years vs 30.5 years), and attainment of higher education (64.3 % vs 36.3 % college graduates). In addition, while the overall annual household income was higher than population estimates (46.8 % of our sample had an annual household income of < 50 k vs 53.8 % in Census estimates), our sample was below population proportions for employment (36.6 % vs 64.9 %, including wage and salary workers and self-employed individuals). This may have been an effect of the pandemic rather than recruitment bias. The rate of food insecurity (i.e. low or very low food security) in our sample was 15.6 %, falling between the Athens County food insecurity estimate reported by the USDA (2018–2020), (Coleman-Jensen et al., 2020) and that of Feeding America (2019) (Feeding America, 2019) at 11.6 % and 18.9 %, respectively.

4. Discussion

Although our use of a remote recruitment strategy, and EDDM

specifically, was in response to COVID-19 restrictions, our experience suggests it is a viable tool for recruiting a rural Appalachian study sample remotely at a reasonable cost. In addition to the fact that rural samples are generally deemed “hard-to-reach,” (Young et al., 2015) the two healthy food access initiatives of focus in our study operate in a manner that can render the patron unaware of utilization (for example, by offering fresh produce on the shelves of existing corner stores without program-related signage), deeming the sample potentially hard to identify. Furthermore, we were interested in the temporal patterns of food sourcing practices as we aimed to capture the dynamic reality of consumer engagement with local healthy food access programming in Southeastern Ohio. Such patterns would have been difficult to capture using randomized sampling approaches. (ScienceDirect, 2022) The need for a large analytical sample related to expected food sourcing pattern diversity coupled with the lack of pre-identified program utilizers and the desire to maximize capture of a control, or non-program using group, drove our choice of EDDM-based census-style sampling over address-based sampling (ABS); in ABS, addresses are randomly selected from a listing of residential addresses for which coverage may be lower in rural versus urban settings. (Link, 2008) EDDM granted us the opportunity to

Table 1
Demographic Characteristics of Survey Respondents (n = 841).

Demographic Variable ^a	Sample Statistic	Population Value ^c
Age (years), median	56	30.5
Sex (Female), n (%) ^b and %	497 (73.8)	50.7
Non-Hispanic, n (%) ^b and %	657 (99.1)	98.1
Race, n (%) ^{b,d} and %		
White	619 (90.5)	91.5
Black/African American	8 (1.2)	2.9
Asian Indian	3 (0.4)	Total Asians: 2.7
Japanese	2 (0.3)	
Chinese	1 (0.1)	
Other Asian	2 (0.3)	
Multiracial	25 (3.7)	2.0
Other	5 (0.7)	0.1
Prefer not to answer	19 (3.7)	n/a
Marital Status, n (%) ^b and %		
Married	356 (53.5)	44 (6.6)
Separated	6 (0.9)	n/a
Divorced	96 (14.4)	n/a
Never married	110 (16.5)	n/a
Widowed	54 (8.1)	n/a
Member of an unmarried couple (i.e., cohabitating)	44 (6.6)	10.4
Education, n (%) ^b and %		
College graduate	435 (64.3)	36.3
Some college	158 (23.3)	25.5
High school graduate	67 (9.9)	38.3
Employment Status, n (%) ^b and %		
Employed for wages	265 (31.5)	64.9
Self-employed	43 (5.1)	6.5
Out of work for 1 year or more	12 (1.4)	n/a
Out of work for < 1 year (not COVID-related)	11 (1.3)	n/a
Out of work due to COVID-19	18 (2.1)	n/a
Less work due to COVID-19	22 (2.6)	n/a
Homemaker	39 (4.6)	0.2
Student	21 (2.5)	n/a
Retired	214 (25.4)	n/a
Unable to work	35 (4.2)	n/a
Household Composition, mean (SD)		
Number of Adults	1.7 (0.9)	1.7 (0.9)
Number of Children	0.6 (1.1)	n/a
Household Annual Income, n (%) ^b and %		
Less than \$50,000	310 (46.8)	53.8
\$50,000 - \$99,999	222 (33.5)	26.5
\$100,000 or more	130 (19.6)	19.6
Household Food Security Status, n (%) ^{b,e} and %		
High	481 (72.8)	n/a
Marginal	77 (11.6)	n/a
Low or Very Low	103 (15.6)	11.6 ^f - 18.9 ^g

n/a: not applicable or available in regional population data sources.

^a Combined percentage may not equal 100% for all variables due to omission of infrequent categories.

^b Indicates use of Valid Percent value to account for missingness.

^c Unless otherwise indicated, comparable population values were obtained from the U.S. Census Bureau demographics and housing estimates (2019).

^d Indicates respondents could select multiple options.

^e Measured using the ten-item USDA Adult Food Security Survey.

^f Average prevalence of household food insecurity estimate in Athens County, USDA (2018–2020).

^g Estimated food insecurity rate in Athen's County, Feeding America (2019).

maximize reach and sample identification in a resource-efficient manner by requiring less time, fewer personnel, and lower total cost compared to our estimates for in-person recruitment.

Whether or not our response rate of 2.7 % reflects efficacious recruitment is debatable, as the available estimates for EDDM response rates vary and this rate reflects those who engaged with the study but did not necessarily provide complete data. Only one study has reported a comparative analysis of EDDM versus addressed mailings for recruitment of a survey study sample. (Grubert, 2019) Grubert's analysis

reported an EDDM response rate of 5.2 % and demonstrated a statistically insignificant difference from the addressed mailing response rate of 6.1 %. Notable differences in Grubert's sample include a smaller size (6,897 EDDM mailings), and a multi-state recruitment frame. Further, the sample was not composed exclusively of rural communities and the included ZIP codes appear to span a wider range of the socioeconomic spectrum. As EDDM is primarily used for marketing, we also compared our response rate with marketing reports. According to the ANA, response rates from direct mailings to prospect lists (potential clients with whom there isn't an existing relationship) can reach 4.9 %, with "direct mailings" used as a blanket term for various services, including EDDM. (ANA, 2018) For EDDM mailings specifically, various third-party vendors suggest that an average response rate of 2 % can be anticipated. (McCarthy and King Marketing, Inc., 2022; EDDMstore, 2021) Both conditions were met in our study, and our response rate met or exceeded the estimate.

We speculate that recruitment might have been affected negatively by the pandemic's influence on our remote relationship with the target community, as well as the changes it brought to daily life. Trust is particularly important when recruiting hard-to-reach populations, (Thurman and Harrison, 2019) and our hindered ability to communicate directly with our target community created a missed opportunity to foster trust, which is typically associated with a stronger desire for interaction and support. To mitigate this deficiency, we intentionally included the logos of our local agency partners—what Dillman et al. would refer to as "legitimate and trusted sponsor[s]"—to highlight our collaborative partnerships within the community and promote a sense of trust. (Dillman et al., 2014) We also included the names of all team members, opting to forgo full names in favor of including all community partners on the limited space available on the postcard.

Additionally, it is likely that recruitment was impacted by the behavior and lifestyle alterations brought on by the COVID-19 pandemic, as the study was conducted during its initial peak in summer 2020. Caution when touching materials brought in from outside the home, along with unpredictable and frequent shifts in daily schedules may have reduced people's interest in engaging with our recruitment postcard and unnecessary tasks in general.

It is also plausible that interest was further diminished by the lack of recipients' names on our postcards, as personalizing direct mailings is one of the most effective elements in increasing mail engagement. (USPS, 2022) Budgetary constraint was a main determining factor in opting for a generic non-addressed mailing (i.e., sent to "Postal Customer") over the more expensive formally-addressed mailing (i.e., using the resident's full name). However, we argue that the relocation phenomenon that occurred during the pandemic likely rendered this feature a double-edge sword. Formation of multi-generational households is a known coping mechanism during periods of economic distress (Keene and Batson, 2010) and addressed mailing lists do not reflect such reconfigurations of household compositions in real-time, presenting the potential of being outdated. Considering the timing of our study, the consequential inaccurate personalization would have likely resulted in discarding of the recruitment postcard and lack of response.

We strived to apply numerous evidence-based best practice recommendations for maximizing engagement with mailings. In addition to those described in the methods, we consciously included various options for remote engagement with our study to accommodate variations in resource availability and preferences. (Dillman et al., 2014) To facilitate online survey access for both smartphone and non-smartphone users (including those who access the internet at a local library), we included a QR code and a short web link. Recognizing the potential for absent internet access and/or poor connectivity, we also offered the option to connect and engage via phone with the study coordinator. The email of the study PI was on the postcard as well, for those who find phone calls uncomfortable. We recognize, however, that a quick glance at our postcard might infer that the QR code was the only method for accessing our survey, thereby deterring non-smartphone users and/or those with

no or unreliable internet access. Mitigating that possibility by including a paper copy of the survey was cost prohibitive, not to mention the recommended practice of enclosing a monetary incentive, (Dillman et al., 2014; Vellinga et al., 2020; Singer and Kulka, 2002) which we could not provide. Indeed, the circumstances of our sample (i.e., no known contact information) and study resource constraints precluded adherence to numerous best practices for mixed-mode surveys, such as using multiple modes of communication to reach potential respondents, contacting eligible participants multiple times, avoiding the simultaneous choice of multiple response modes, and thoroughly pilot testing all materials and procedures. (Dillman et al., 2014).

That said, our final sample size was large enough and suitable for modeling the relationships we desired to explore. Over 96 % of our sample chose to access the survey using the online option. This finding suggests that, while online recruitment might not be the best method for reaching a geographically-bound rural sample, once reached, the internet can be an effective tool for facilitating enrollment and data collection. Interestingly, all incomplete responses were online responses (Fig. 3).

In terms of sample representativeness (the focus of Aim 2), EDDM facilitated decent representation of the geographical areas of interest and responses were largely proportional to the size and density of the included ZIP codes. As for sample demographics, we faced the limitation of not having comparable population values in the U.S. Census data (2019) for all our reported demographic variables (as seen in Table 1). For comparable data, sample demographics aligned with population values for the variables race, ethnicity, average household size, and food insecurity rates and diverged from population values for the variables age, sex, educational attainment, annual household income, and employment status.

Characteristics of ethnicity and race were closely matched to population estimates, reflecting an anticipated benefit of this census-style recruitment method. (Saberi, 2020; Gaba and Bhatt, 2020) Characteristics that are particularly valuable for our aim of examining food sourcing practices, such as average household size and food insecurity rates, were also a close match to known population estimates. Still, several other critical covariates diverged from population values. Employing a mixed recruitment strategy, where mass recruitment via EDDM is complemented by a more targeted approach, such as in-person recruitment, may be advantageous for capitalizing on EDDM's reach while minimizing its drawbacks, especially when niche subgroups of the regional population are of particular interest. This strategy aligns with best practices for combining direct mail with other marketing platforms for maximum return on investment. (Dillman et al., 2014; ANA, 2022).

The overrepresentation of individuals who are female, have higher educational attainment, and earn a higher household income compared to Census estimates is commonly encountered in studies using passive recruitment strategies. (Estabrooks et al., 2017) These findings, and that of the higher median age, could be reflective of the presence of a university in the region and procedural differences in sampling; college students are included in Census estimates, but those living in dormitories were not reached via EDDM. However, the overrepresentation of this subpopulation in conjunction with the higher proportion of retirees in our sample invites us to consider the role of incentives.

Use of incentives in community health research in general, and for recruiting underserved, low-income and hard-to-reach populations in particular, is a recommended practice. (Singer and Kulka, 2002) Incentives have been shown to improve response rate and quality and enhance sample diversity, consequently improving the generalizability of the results. (Vellinga et al., 2020; Singer and Bossarte, 2006) This is especially true for studies that utilize mailed surveys. (Vellinga et al., 2020; Singer and Kulka, 2002) In this study, we opted for using a raffle drawing, offering one hundred \$25 grocery store gift cards. Although use of prepaid incentives (where all or part of the incentive is included in the recruitment mailing) is known to be more effective for low-income target samples such as ours, (Singer and Kulka, 2002) doing so was

not feasible for us due to the budgetary restraints of this pilot study and our expectation that the response rate could reach 5 %. Our study seemed to attract subjects who were less likely to be subjected to the employment and economic disruptions precipitated by the pandemic and had more disposable time to participate. The amount we offered (\$25) is within the Office of the Assistant Secretary for Planning and Evaluation (ASPE)'s incentive guideline of \$20 – \$30, (Singer and Kulka, 2002) and is considered a midrange value compared to the incentives offered by various Federal Survey Programs (To, 2015). However, whether that amount was adequate to make the incentive-for-time tradeoff attractive for our sample, especially in the context of the pandemic and given it was not guaranteed but dictated via a raffle, begs discussion.

Research suggests that, beyond a certain threshold, larger incentives do not increase subject motivation for participation, (Vellinga et al., 2020; Wertheimer and Miller, 2008) and that relatively lower monetary incentives are needed for recruiting and retaining low income and other marginalized groups. (Singer and Kulka, 2002) In fact, some literature on recruiting rural communities points to altruism as the primary motivator for research participation. (Thurman and Harrison, 2019) As researchers studying rural communities, we can—and should—respectfully leverage relationship-building to capitalize on rural dwellers' desire to help their communities and improve their livelihoods. Heeding Dillman et al.'s guidance regarding social exchange theory in survey design, our recruitment postcard emphasized the potential community and individual benefits of participating. (Dillman et al., 2014) However, it is important that we make equitable valuations of the knowledge and time contributed by our subjects in the context of their needs and be cognizant of how our decisions contribute to perpetuating inequities between low- and high-income households. With growing evidence refuting a long-standing ethical concern of incentives being a form of coercion, (Singer and Bossarte, 2006; Wertheimer and Miller, 2008) and the persistent underrepresentation of rural and low-income communities in health research, (Young et al., 2015; Estabrooks et al., 2017) it is incumbent upon rural health researchers to continue exploring best practices for reaching this population, including the value of and approach to using incentives.

5. Conclusion

Overall, EDDM was a viable method for remote recruitment of a rural sample and can be a useful recruitment tool for community health research. Coupling EDDM with other key strategies for establishing research infrastructure in rural communities, such as the community-academic partnership model employed in this study, may support the effectiveness of this tool. Further work is needed to explore the efficacy of EDDM in recruiting representative samples in other contexts and to inform best practices for its use. Rural communities continue to experience significant health disparities but remain less likely to be included in research studies than urban communities. Reframing our perspective of rural communities from being “hard-to-reach” to “hardly-reached,” (Rural Health Research Toolkit, July 2020) and actively working on finding solutions to overcome the challenges of health discovery for rural communities is paramount.

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Role of the funding source

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CRediT authorship contribution statement

Khawlah S. Al-Muhanna: Writing – original draft, Data curation, Formal analysis, Validation, Visualization. **Katharine Garrity:** Data curation, Validation, Writing – review & editing. **Zoë T. Plakias:** Conceptualization, Funding acquisition, Methodology, Writing – review & editing. **Andrew Hanks:** Conceptualization, Funding acquisition, Methodology, Writing – review & editing. **Kathleen Krzyzanowski Guerra:** Conceptualization, Methodology, Writing – review & editing. **Jennifer A. Garner:** Conceptualization, Funding acquisition, Methodology, Project administration, Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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