



Comparison of recruitment and retention among demographic subgroups in a large diverse population study of diet



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ARTICLE INFO

Keywords:

Recruitment
 Retention
 Experimental design
 Diet survey
 Automated nutritional assessment
 Population

ABSTRACT

Objective: We examined the feasibility of conducting a longitudinal study of diet among diverse populations by comparing rates of response throughout recruitment and retention phases by demographic and other characteristics.

Methods: Using quota sampling, participants were recruited from 3 geographically and demographically diverse integrated health systems in the United States. Overall, 12,860 adults, ages 20–70, were invited to participate via mail. Participation first required accessing the study's website and later meeting eligibility criteria via telephone interview. Enrollees were asked to provide two 24-h dietary recalls, either interviewer-administered or self-administered on the web, over 6 weeks. Stepped monetary incentives were provided.

Results: Rates for accessing the study website ranged from 6% to 23% (9% overall) across sites. Site differences may reflect differences in recruitment strategy or target samples. Of those accessing the website, enrollment was high ($\geq 87\%$). Of the 1185 enrollees, 42% were non-Hispanic white, 34% were non-Hispanic black, and 24% were Hispanic. Men and minorities had lower enrollment rates than women and non-Hispanic whites, partially due to less successful telephone contact for eligibility screening. Once enrolled, 90% provided 1 recall and 80% provided both. Women had higher retention rates than men, as did older compared to younger participants. Retention rates were similar across race/ethnicity groups.

Conclusions: While study recruitment remains challenging, once recruited most participants, regardless of race/ethnicity, completed two 24-h dietary recalls, both interviewer-administered and self-administered on the web. This study demonstrates the feasibility of collecting multiple 24-h recalls including less expensive automated self-administered recalls among diverse populations.

1. Introduction

Dietary intake is assessed in the ongoing National Health and Nutrition Examination Survey with the 24-h dietary recall (24HR). The current state-of-the-art protocol for conducting the 24HR is the interviewer-administered Automated Multiple Pass Method (AMPM) [1]. However, a major limitation of this protocol is cost, due to the requirement for trained interviewers and coders. The Automated Self-

Administered 24-h Assessment Tool (ASA24) [2] is a web-based, automated data collection and processing instrument developed by the National Cancer Institute in conjunction with Westat [3]. ASA24 is an adaption of the AMPM, developed to be a convenient, self-administered and low-cost alternative.

The Food Reporting Comparison Study (FORCS) compared the self-administered ASA24 recall to the interviewer-administered AMPM recall with respect to mean nutrient and food group intakes and

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<http://dx.doi.org/10.1016/j.conctc.2017.04.002>

Received 14 October 2016; Received in revised form 17 March 2017; Accepted 8 April 2017

Available online 10 April 2017

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Abbreviations

24HR	24-h dietary recall
AMPM	Automated Multiple Pass Method
ASA24	Automated Self-Administered 24-h Recall
BMI	body mass index

FORCS	Food Reporting Comparison Study
HFHS	Henry Ford Health System/Health Alliance Plan
KPNC	Kaiser Permanente Northern California
MC	Marshfield Clinic
U.S.	United States

participant preferences. Thompson et al. found that mean nutrient and food group intakes for AMPM recalls and ASA24 recalls were similar; participants strongly preferred the ASA24 to the AMPM [4], citing the convenience of the web-based instrument, consistent with other studies [5].

While challenges with accrual to research studies are well known [6–9], few report participation and retention rates throughout the course of the enrollment and retention processes [6,10,11], particularly in dietary recall surveys. The purpose of this analysis is to examine the recruitment and retention rates in FORCS by study site, demographic group and data collection method in order to inform strategies for the design of large population studies collecting multiple administrations of dietary recalls. We also provide cost comparison data for the 2 different recruitment strategies used.

2. Materials and methods

2.1. Study sample

The FORCS sample was drawn from 3 integrated health systems that are diverse geographically and by race/ethnicity: Kaiser Permanente Northern California (KPNC) in California, Henry Ford Health System/

Health Alliance Plan (HFHS) in Michigan, and the Marshfield Clinic (MC) Security Health Plan in Wisconsin. A quota-sampling plan enacted in 2012 at each site ensured a final diverse study sample. Using available demographic information, sites randomly selected current members between ages 20 and 70 years and assigned them to sampling strata defined by sex, age (20–34, 35–54, and 55–70 years), and race/ethnicity (non-Hispanic white, non-Hispanic black, and Hispanic).

2.2. Study design and procedures

Selected individuals were sent an invitation letter, on center-specific letterhead, signed by the site investigator and postmarked locally using metered postage to increase the recipient's confidence in the invitation [12]. The letter explained the purpose, procedures, and incentive structure of the FORCS study and provided a link to access the FORCS website. On that website, interested individuals consented to a telephone interview to assess their eligibility. Reminder letters were sent 10–14 days after the initial mailing to those not accessing the FORCS website (HFHS and MC) or to all invitees (KNPC). Additional waves of invitations were initiated as needed (1 additional wave for HFHS and MC, and 2 additional waves for KPNC), at 3- to 7-week intervals. In Wave 2, reminder letters were sent to nonresponders by HFHS and MC;

Table 1
Enrollment status of invitees by demographic characteristics for each study site: FORCS, 2012.

Site and demographic characteristics	Invited N (1)	Invitees accessing website N (% of [1]) (2)	Agreed to telephone interview N (% of [2]) (3)	Successfully reached N (% of [3]) (4)	Eligible N (% of [4])	Enrolled eligible and consented N (% of [2]; % of [1])
KPNC						
Total	8712	504 (5.8)	491 (97.4)	406 (82.7)	381 (93.8)	371 (73.6; 4.3)
Sex						
Males	5082	243 (4.8)	232 (95.5)	193 (83.2)	181 (93.8)	177 (72.8; 3.5)
Females	3630	261 (7.2)	259 (99.2)	213 (82.2)	200 (93.9)	194 (74.3; 5.3)
Age group, y						
20–34	3253	171 (5.3)	165 (96.5)	136 (82.4)	129 (94.9)	129 (75.4; 4.0)
35–54	2515	143 (5.7)	142 (99.3)	116 (81.7)	104 (89.7)	101 (70.6; 4.0)
55–70	2942	188 (6.4)	182 (96.8)	152 (83.5)	148 (97.4)	141 (78.7; 4.8)
Race/ethnicity^a						
Non-Hispanic white	668	86 (12.9)	85 (98.8)	77 (90.6)	74 (96.1)	74 (86.0; 11.1)
Non-Hispanic black	903	40 (4.4)	40 (100.0)	33 (82.5)	31 (93.9)	31 (77.5; 3.4)
Hispanic	7132	369 (5.2)	357 (96.7)	287 (80.4)	269 (93.7)	261 (70.7; 3.7)
HFHS						
Total	2540	579 (22.8)	557 (96.4)	471 (84.6)	443 (94.1)	433 (74.8; 17.1)
Sex						
Males	1466	289 (19.7)	272 (94.1)	225 (82.7)	212 (94.2)	209 (72.3; 14.3)
Females	1074	290 (27.0)	285 (98.3)	246 (86.3)	231 (93.9)	224 (77.2; 20.9)
Age group, y						
20–34	849	179 (21.1)	174 (97.2)	145 (83.3)	137 (94.5)	135 (75.4; 15.9)
35–54	819	182 (22.2)	179 (98.4)	154 (86.0)	148 (96.1)	144 (79.1; 17.6)
55–70	872	218 (25.0)	204 (93.6)	172 (84.3)	158 (91.9)	154 (70.6; 17.7)
Race/ethnicity^a						
Non-Hispanic white	225	75 (33.3)	71 (94.7)	58 (81.7)	58 (100.0)	54 (72.0; 24.0)
Non-Hispanic black	2296	485 (21.1)	467 (96.3)	394 (84.4)	377 (95.7)	371 (76.5; 16.2)
Total: HFHS and KPNC	11,252	1083 (9.6)	1048 (96.8)	877 (83.7)	824 (94.0)	804 (74.2; 7.1)
MC^b (total)	1608	–	485 (—)	430 (88.7)	395 (91.9)	381 (96.5; 23.7)
Total all sites^b	12,860	–	1533 (—)	1307 (85.3)	1219 (93.3)	1185 (97.2; 9.2)

FORCS, Food Reporting Comparison Study; HFHS, Henry Ford Health System; KPNC, Kaiser Permanente Northern California; MC, Marshfield Clinic.

^a Those with race/ethnicity classified as other/mixed (n = 9 in KPNC and n = 19 in HFHS) are not included. Sex, age, race/ethnicity created from screener data and, if unavailable, from site data.

^b Data were not available from MC (—) to estimate the number of people accessing the website and the relevant rates.

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