Using a web application for the collection of dietary data from older adults: Can behavioral researchers realistically overcome the digital divide?

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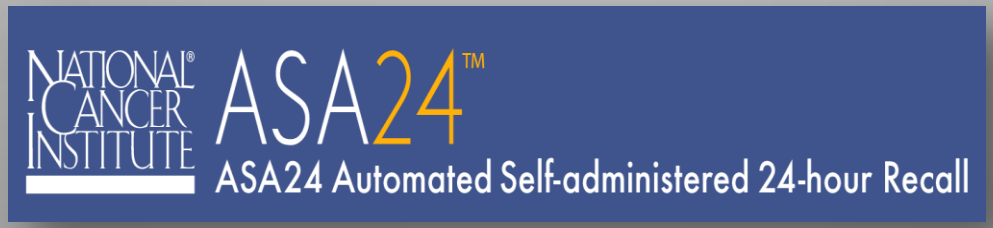
Behavioral Studies and Nutrition

- Measurement of dietary intake
- The 24 hour dietary recall
- Web based tools to measure dietary intake:
  - The ASA24



The Multiethnic Cohort Study

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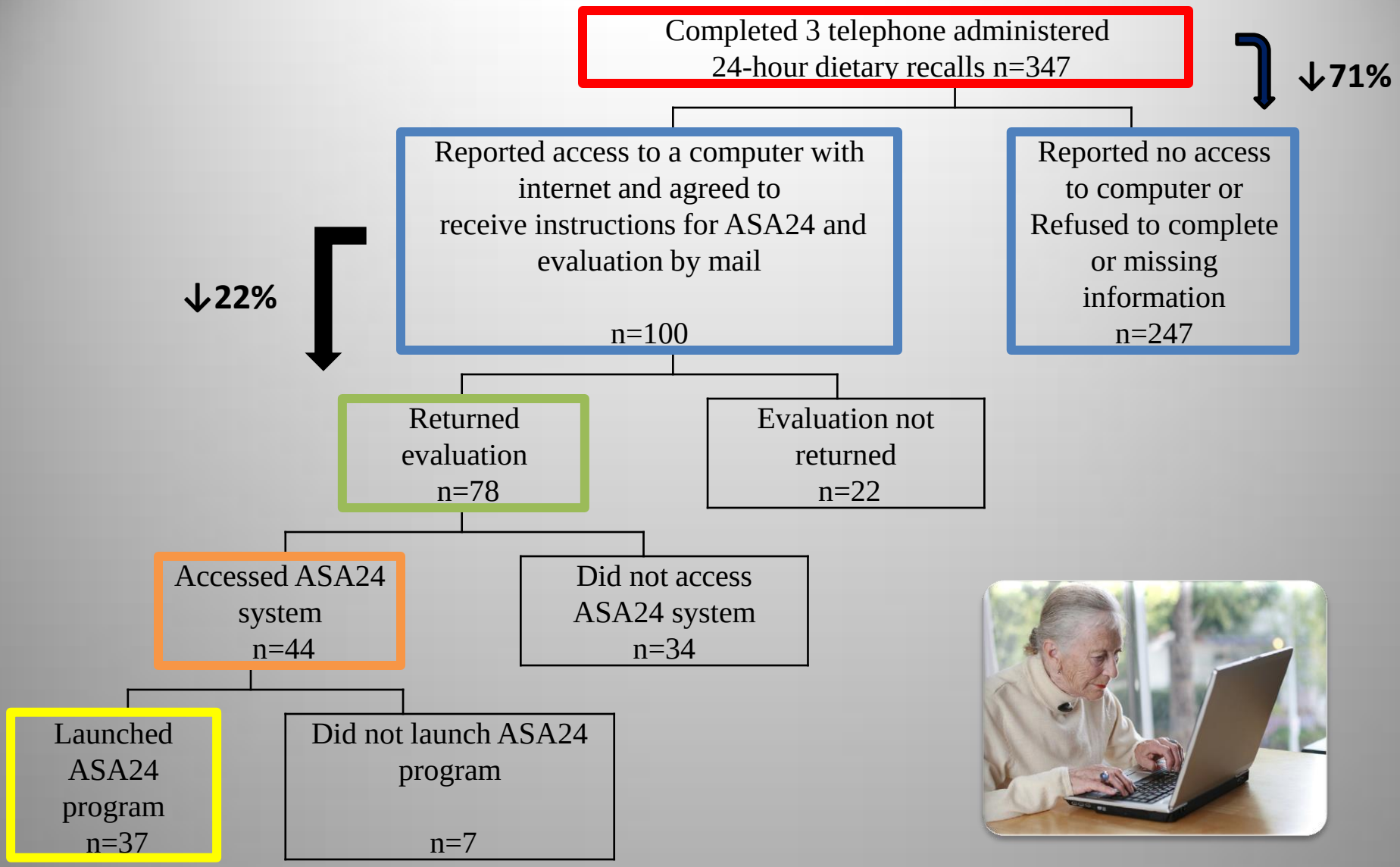
- Begun in 1993-1996
- Over 215,000 US adults (Hawaii and Los Angeles)
- ≥ 45 years at baseline
- 5 ethnic groups
  - African Americans
  - Japanese American
  - Latino
  - Native Hawaiian
  - White
- Diet assessed with Food Frequency Questionnaire
  - Calibrated periodically with 24-hour dietary recalls



Progression from completing telephone administered 24-hour dietary recalls to launching the ASA24 among the Multiethnic cohort calibration study participants.

Characteristics of study participants by those completing the TA-24HDR, reporting access to a computer with internet access, returning the evaluation and successfully accessing the ASA24

	Completed three TA-24HDR n=347	Access to a computer with internet n=100	Returned evaluation n=78	Accessed ASA24 successfully n=44
Characteristics				
	n(%)			
Ethnic group	*P*<0.0001			
White	72 (21)	33 (33)	25 (32)	15 (34)
Japanese American	62 (18)	25 (25)	22 (28)	13 (30)
Native Hawaiian	67 (19)	21 (21)	15 (19)	9 (21)
African American	76 (22)	12 (12)	11 (14)	5 (11)
Latino	70 (20)	9 (9)	5 (6)	2 (5)
Education	*P*=0.001			
High School or less	85 (25)	12 (12)	9 (12)	4 (9)
Voc./ Some College	116 (34)	34 (34)	23 (30)	12 (27)
College Grad or more	144 (42)	54 (54)	46 (59)	28 (64)

Characteristics of study participants by those completing the TA-24HDR, reporting access to a computer with internet access, returning the evaluation and successfully accessing the ASA24

	Completed three TA-24HDR n=347	Access to a computer with internet access n=100	Returned evaluation n=78	Accessed ASA24 successfully n=44
Characteristics				
	n(%)			
Age group (years)	*P*=0.001		*P*=0.27	
56-65	114 (33)	45 (45)	37 (47)	26 (59)
66-71	120 (35)	36 (36)	30 (38)	15 (34)
72-80	113 (33)	19 (19)	11 (14)	3 (7)

*No differences by sex or BMI in completion activities.

Ettienne-Gittens R et al. Procedia Food Sci, in press

Participant voices…

Usability

"The system was easy to understand, but going back and forth took more time than sharing the previous day's meals with a person."

" I am not computer/ internet literate"

"…My wife did this for me. I am not that proficient on a computer. She is. She stated that she felt it would be hard for me"

Dohan, M.S., Tan, J. (2011) Electronic food and exercise diaries: knowledge gaps and future research. *AMCIS 2011 Proceedings.*

Participant voices continued

Adoption

"I prefer paper access to complete this survey"

"Call me and we'll complete one over the phone. I tried."

Utility

"It took me several tries to finally do the online questionnaire. It took me over an hour to complete as I'm not good with the computer. Sorry for the delay in completing the questionnaire via email…"

Summary of the Results

- Older participants (72-80y) less likely to report computer or internet access
- Younger participants (56-65y) significantly more likely to successfully gain access to the ASA24 system
- Reduction in participation primarily associated with age

Discussion

Remembering usual intake (and other complex behaviors)

The **telephone recall** took about **10 minutes** to complete; the **online system took 30 minutes** to complete.

Although the system was easy to understand and use, the **multiple screens** necessary to complete to adequately describe the items consumed required an **extensive amount of time** to complete."

Web apps, behavioral research and the digital divide

- Rise of the silver surfers
- Nutritional epidemiologists and the collection of data from older adults utilizing web tools

"…neither race nor gender are themselves part of the story of digital differences in its current form. Instead, age (being 65 or older), a lack of a high school education, and having a low household income…are the strongest negative predictors for internet use."

Zickuhr K, Smith A. Digital differences. Washington, DC: Pew Internet & American Life Project; Apr 13, 2012.

Available at: http://www.pewinternet.org/Reports/2012/Digital-differences.aspx.

Reference

Further reading on this research :

Ettienne-Gittens R, Boushey CJ, Au D, Murphy S, Lim U, Wilkens LR. Evaluating the feasibility of utilizing the Automated Self-administered 24-hour (ASA24) dietary recall in a sample of multiethnic older adults. *Procedia Food Sci*, in press.