

Improving diary keeping of daily expenditures with online diaries

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Outline

- Overview: Consumer Expenditure (CE) Survey
- Brief Background: CE Redesign
- Proof of Concept Test Design and Diary Protocols
- Results
- Lessons Learned
- Current Research and Future Plans for Diaries



Consumer Expenditure Survey

- Collects Spending Data on the U.S. Population
- Sponsored by the U.S. Bureau of Labor Statistics, collected by the Census Bureau
- Survey participants report dollar amounts for all non-investment purchases. Business expenses and reimbursements are excluded.
- Provide expenditure weights for the U.S. Consumer Price Index (CPI)
- Recall Interview and Diary Survey



What is the CE Redesign?

“...aims to redesign the Consumer Expenditure (CE) survey to improve data quality through a verifiable reduction in measurement error—particularly error caused by underreporting.”

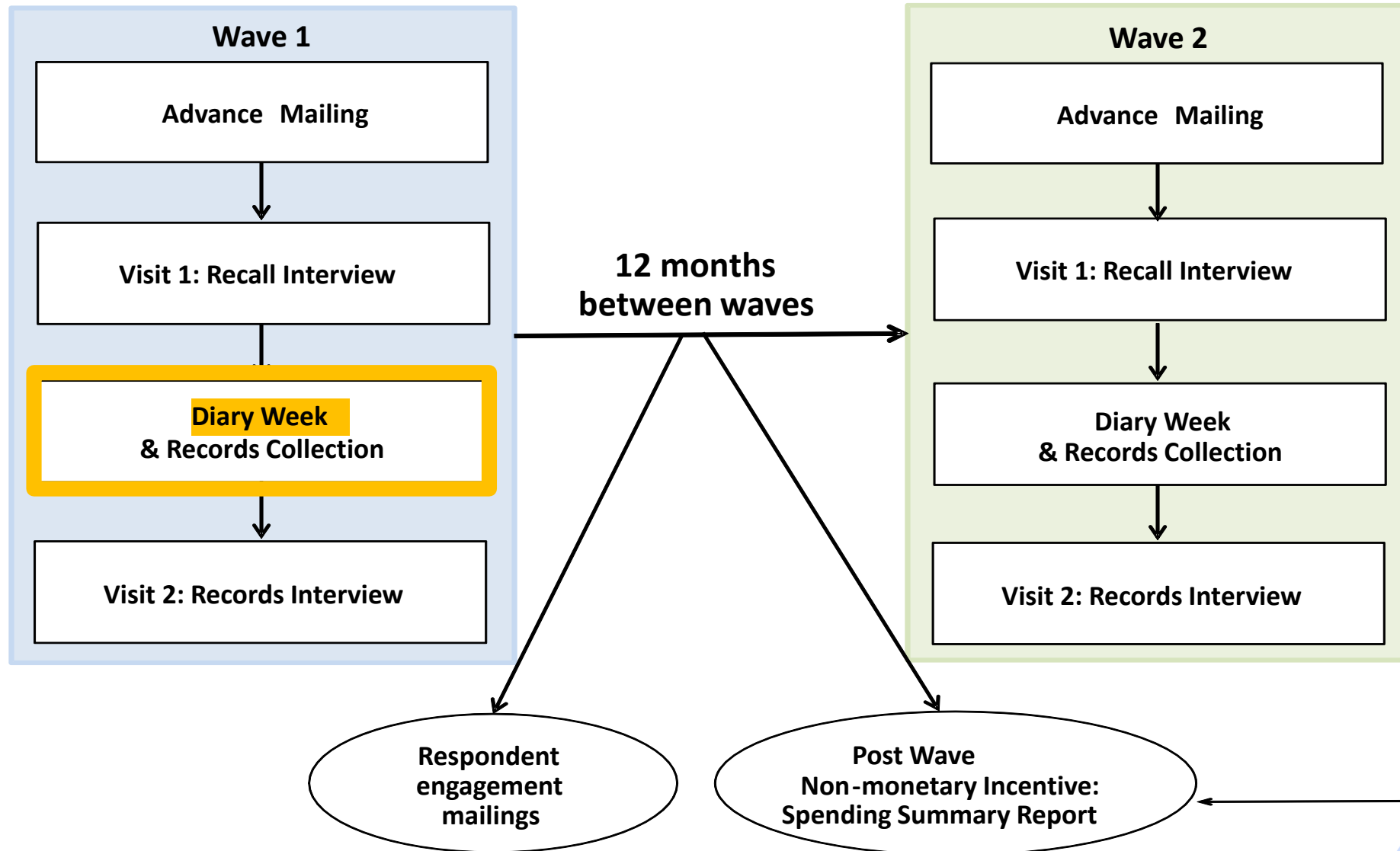


CE is the CE Redesign?

“...aims to redesign the Consumer Expenditure (CE) survey to improve data quality through **a verifiable reduction in measurement error**—particularly error caused by underreporting.”



CE Redesign Plan



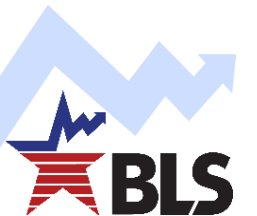
Current vs. Proposed: Diary

Current CE Diary	Proposed CE Diary
Household open-ended paper diary	Online, personal diaries with paper back-ups

Main goals of online diary

- Add flexibility and ease for respondents
- Allow for in the moment reporting
- Allow for midweek monitoring

Proof of Concept Test Design



Proof-of-Concept (POC) Test

- Fielded July 2015 – Sep 2015
- Ensure that the basic underlying structure and components of the new design are feasible
- Designed to mirror the proposed design to the fullest extent possible – one wave of design plan, including 1-week online diary
- Final response rate: 50%



Proof of Concept Test Diary

83° 99% 9:27 AM

Home Info **CE Diary** Logout

June 11, 2015

Enter Description

\$ 0.00

Food and Drink Away from Home

Breakfast **Lunch**
Dinner Snack/Other

Alcohol Included? (Select all that apply)
None Wine Beer Other

Cost of Alcohol: \$ 0.00

Cancel Save

United States **Census** Bureau

CONSUMER EXPENDITURE DIARY SURVEY

Information User Guide User Settings Logout

Enter Your Expense Below

Date: June 15, 2015 Description: Enter Description Cost: 0.00 Category: Clothing, Shoes, Jewelry, and Accessories

Gender: Select One Age: Select One Purchased for someone outside your household

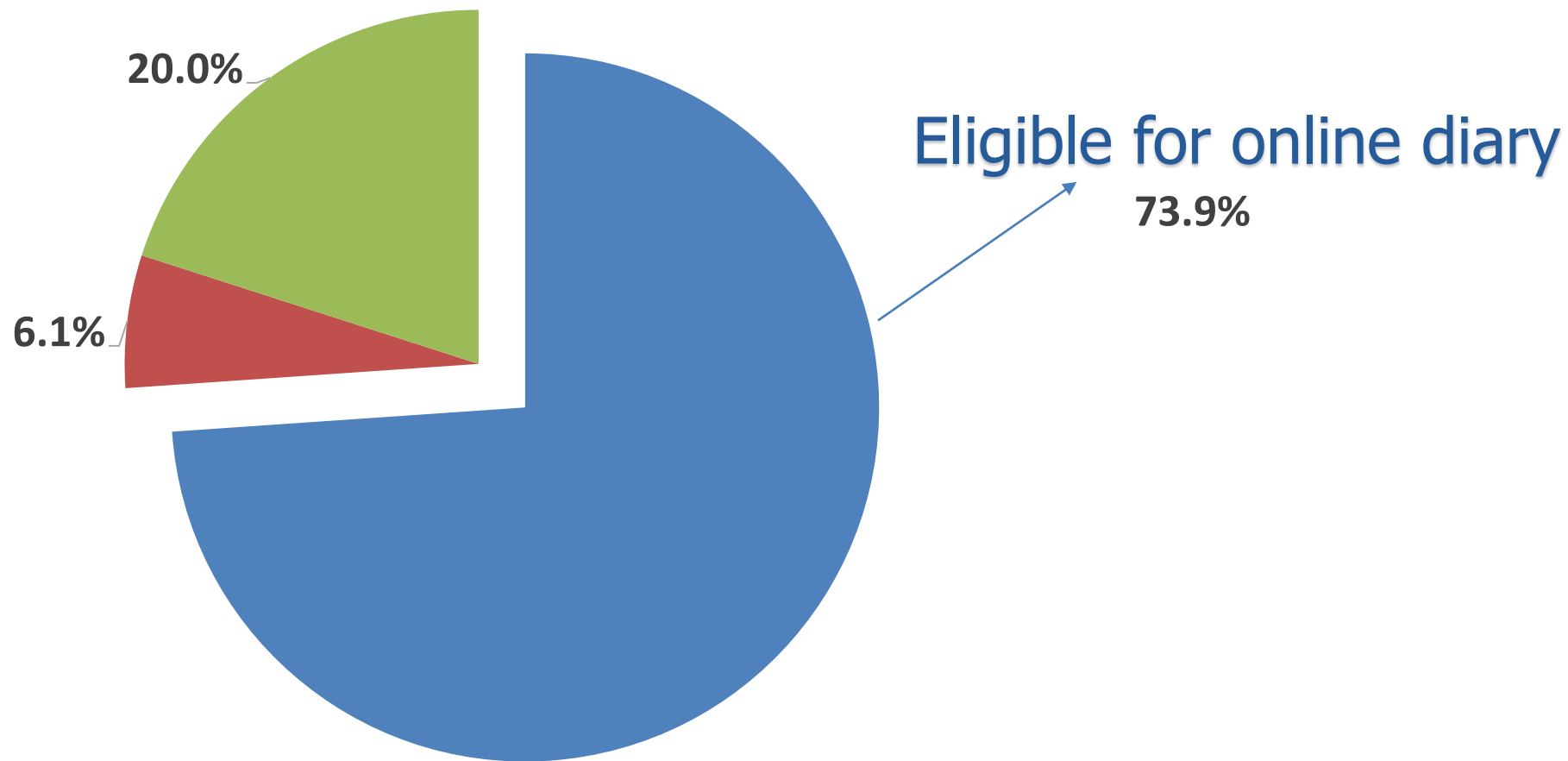
Cancel Save

Summary of Expenses

Date	Description	Cost	Category
June 16	down payment on home	\$150,000.00	All Other Products and Services
June 15	dinner with family	\$345.00	Food and Drink Away from Home
June 15	movie tickets (computer, edited)	\$10.98	All Other Products and Services
June 15	bananas	\$2.53	Food and Drink for Home Consumption

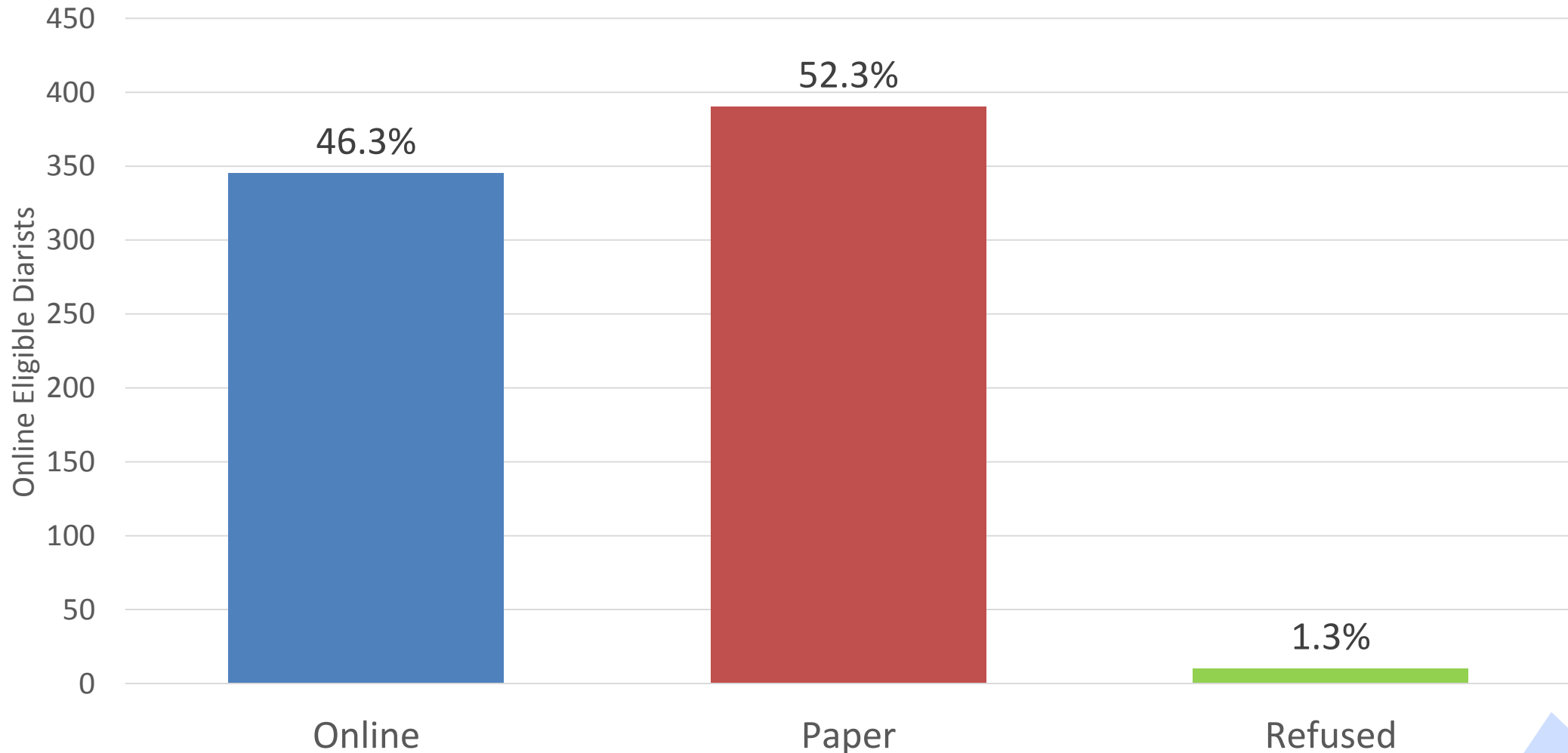


Online Diary Eligibility (N=1,008)



■ Home Internet Access - Frequent Use ■ Home Internet Access - Infrequent Use ■ No Home Internet Access

Mode Choice for Online Eligibles (N= 747)



Interviewer Observations on Paper Choice

“...they felt expenses would be captured **more accurately & completely w/hands on booklet.**”

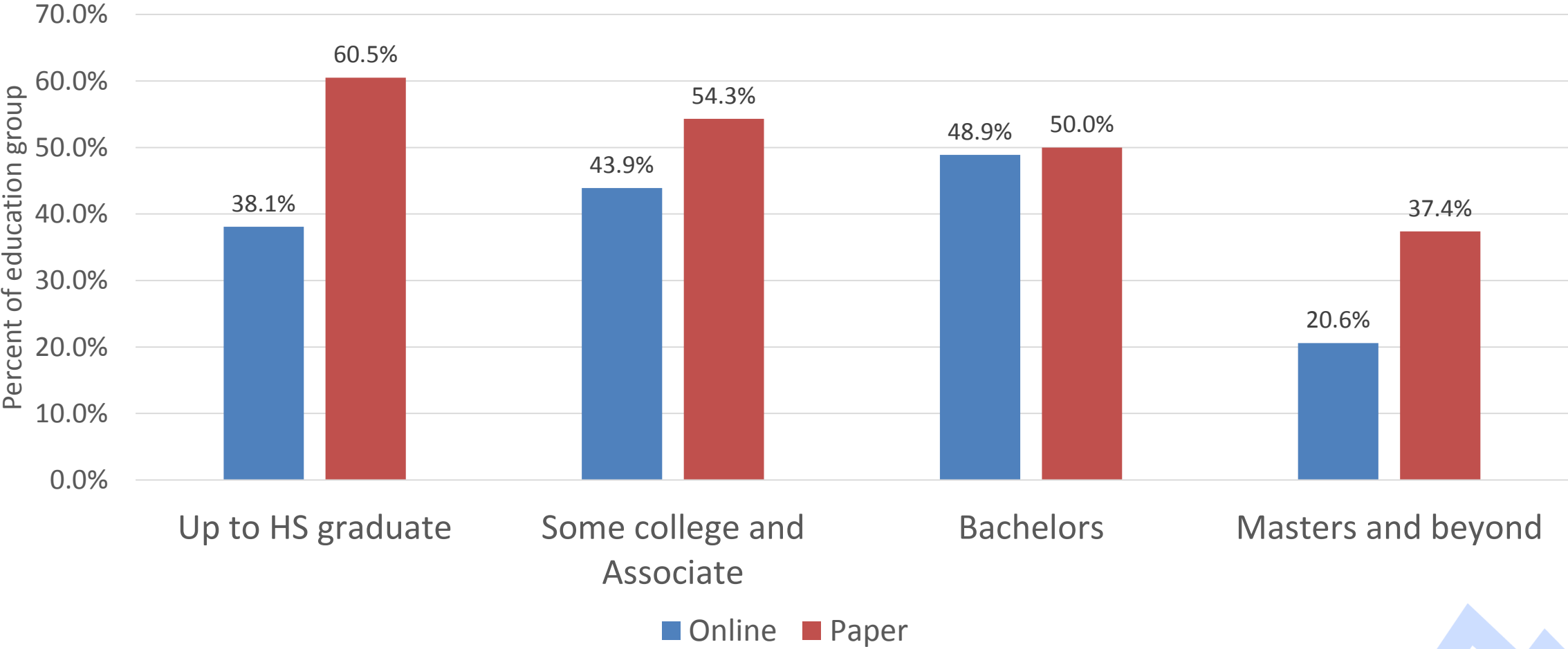
“...**thought it would be too much**”

“Respondents have a **prepaid data** plan on iPhone - **preferred not to use it for CED**”

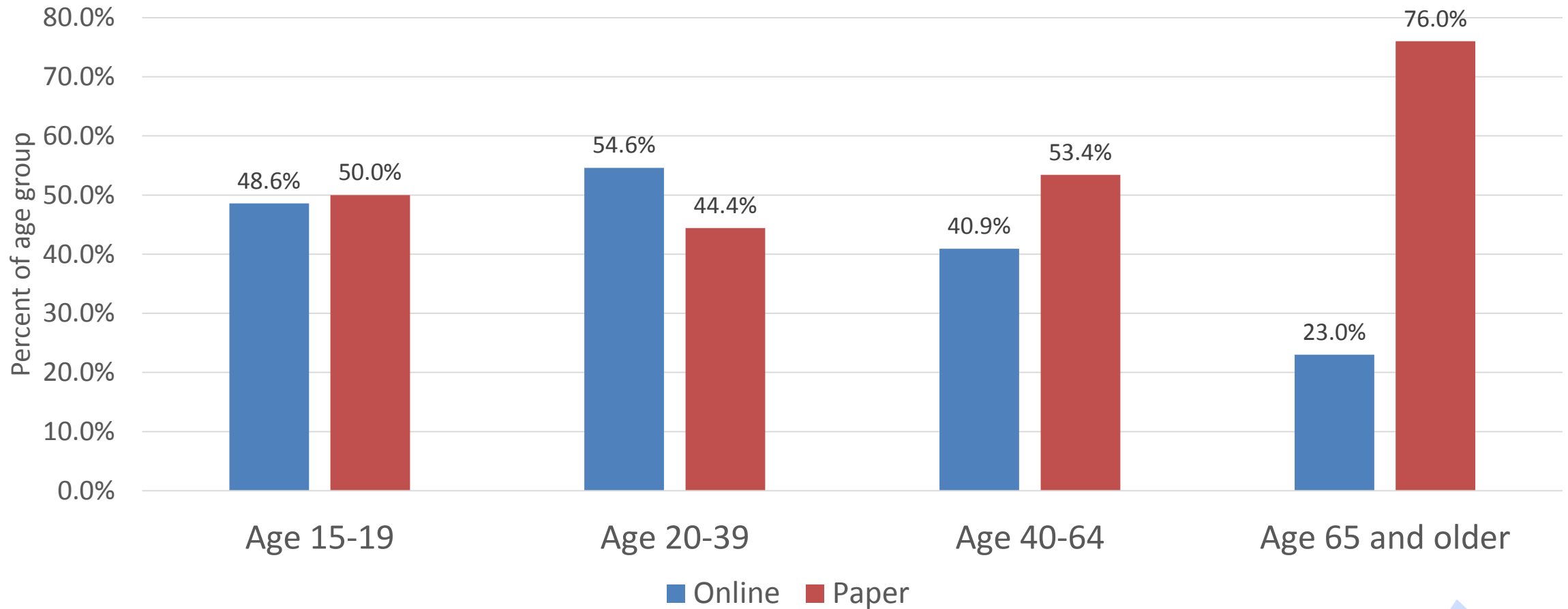
“She was web savvy but preferred paper as **didn't want to do anymore log ins**”

“Mrs. was not present. She uses internet but he asked paper diary for her since he **will not able to explain recording on line.**”

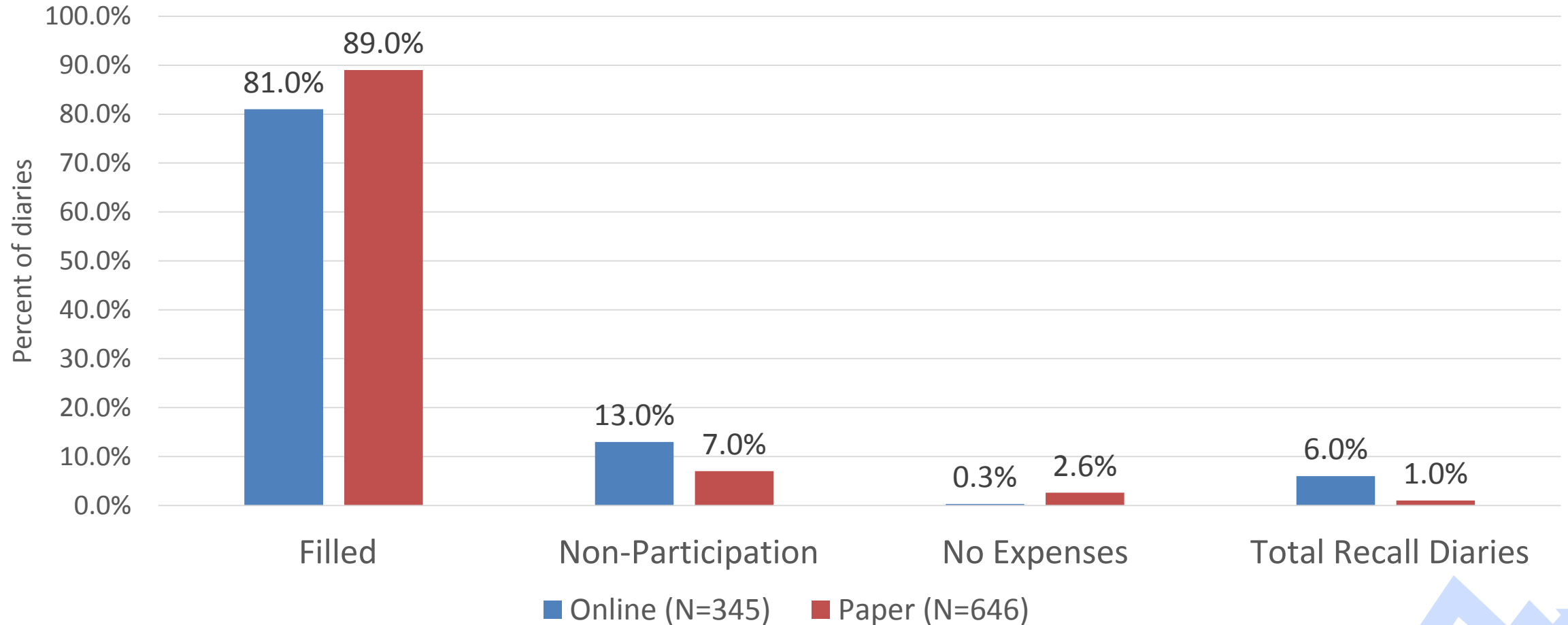
Mode Choice by Education Level



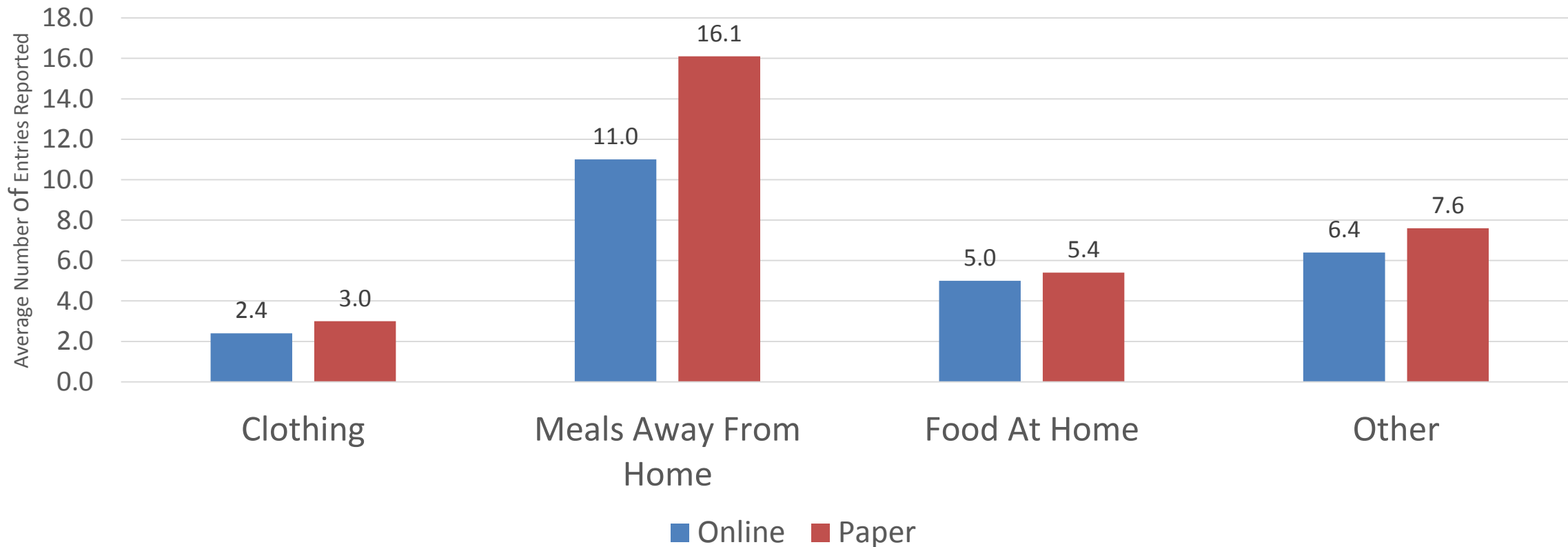
Mode Choice by Age Group



Diary Completion Rates



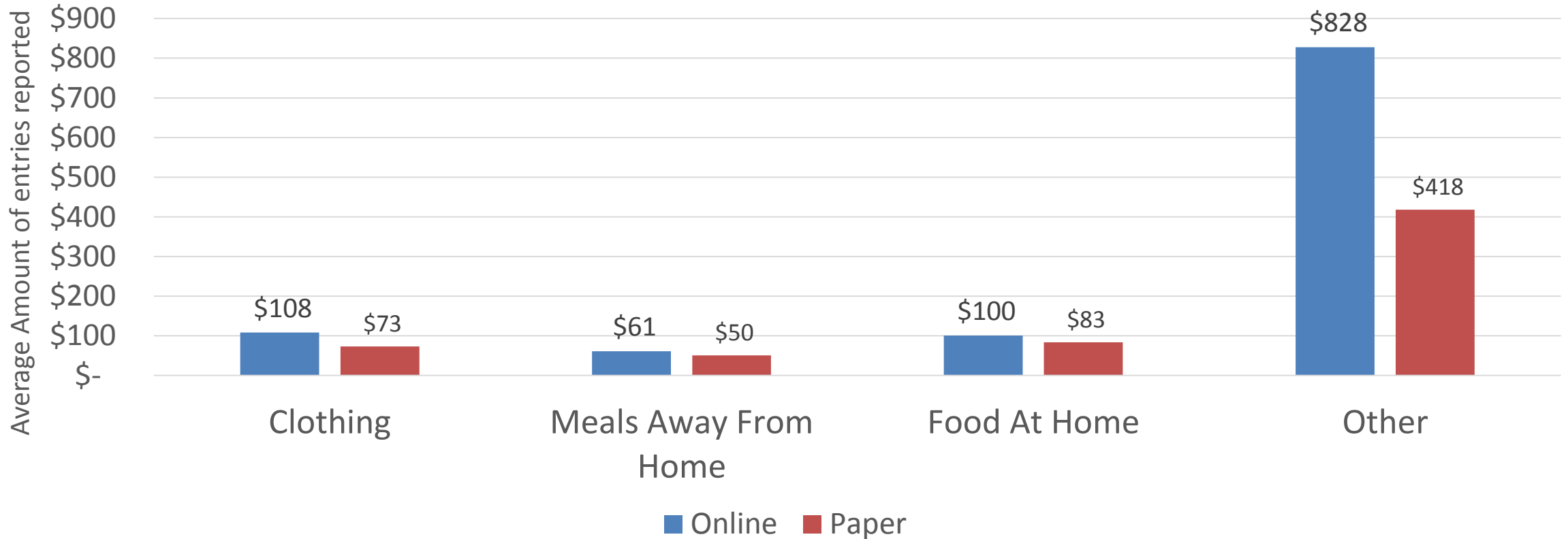
Average Number of Entries by Mode



Note: does no control for demographics.



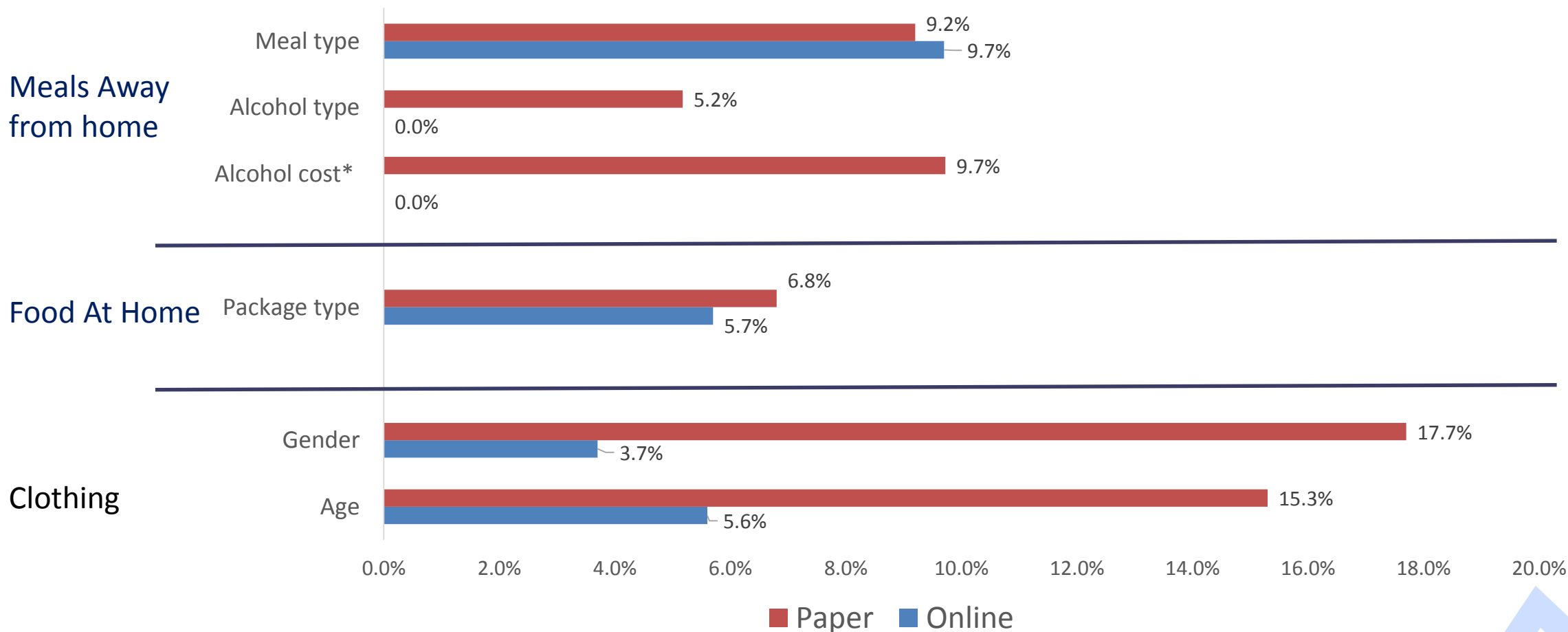
Average Amounts by Mode



Note: does no control for demographics.



Diary Quality – Item Missingness



*Alcohol Cost: excludes entries of '0' from non-response



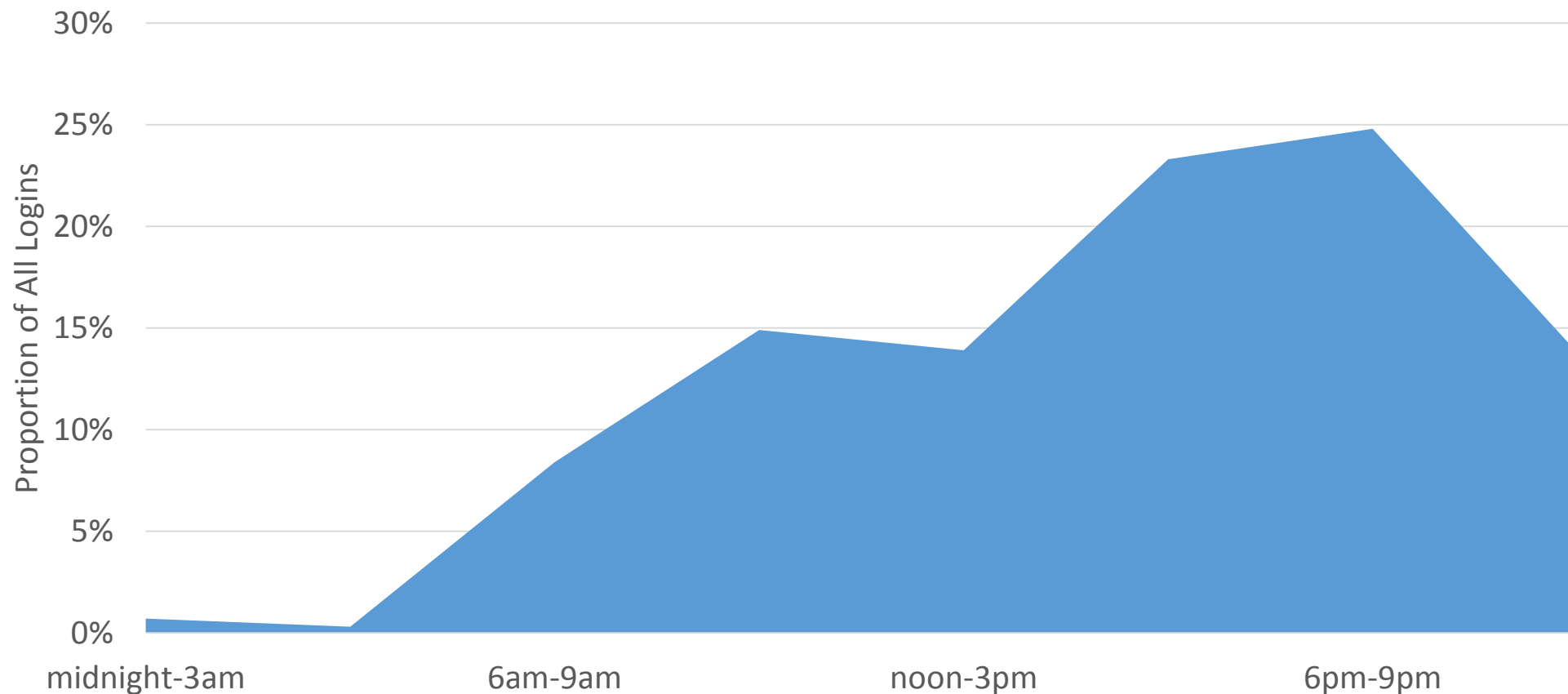
Online Diaries – Login Failures

	N	Mean	Median	Min	Max
Online diarists w/1+ failure	154	3.3	2.0	1	21
All online diarists	326	1.6	0.0	0	21

16% never successfully logged in!!

In the Moment Reporting

- Data showed average online POC diarist had 38% of logins between midnight and 3pm (N=302)



Online Diaries to Record Sensitive Items

- POC records alcohol as a separate expense in the Meals Away from Home section

	N (CUs)	% CUs reporting alcohol	Min. alcohol entries	Max. alcohol entries
Online	190	27.4%	0	10
Paper	318	19.2%	0	6



Lessons Learned

- Younger, more educated respondents more frequently chose online diaries, but overall respondents chose paper
- Ease of logins is important to online diary effectiveness
- Online diaries can improve data quality (in terms of missingness)
- Online diaries can capture data throughout the day (presumably better than paper)
- Online diaries can improve sensitive data collection...maybe



Ongoing/Planned Research

- 2016: Updated the desktop interface to take advantage of screen size.
- 2017: Built a new online diary using open-source code that can take advantage of “future enhancements” (photo capture, scanning, etc)
- 2017-21: (Pending) Large Scale Feasibility Test, incorporating new diary.

Future Enhancements

- Receipt scanning with Optical Character Recognition
- Photo reminders
- Geo-tagging
- Reminders based on location



Online Diaries Improvement Project Diaries - Home Screen



 **Consumer Expenditure Diary** [Log out](#) [Contact us](#) [Help](#)

Add Expenses

Select date of expense:

- 1 Friday, March 17
- 2 Saturday, March 18
- 3 Sunday, March 19
- 4 Monday, March 20
- 5 Tuesday, March 21
- 6 Wednesday, March 22
- 7 Thursday, March 23

My Expenses

[View Members](#)  

Friday, March 17 (0)	▼
Saturday, March 18 (0)	▼
Sunday, March 19 (0)	▼
Monday, March 20 (0)	▼
Tuesday, March 21 (0)	▼
Wednesday, March 22 (1)	▼
Thursday, March 23 (0)	▼

 **CE Diary** [Log out](#) [Contact us](#)

My Expenses

[Help](#)

Friday, Mar 17 (0)	▼
Saturday, Mar 18 (0)	▼
Sunday, Mar 19 (0)	▼
Monday, Mar 20 (0)	▼
Tuesday, Mar 21 (0)	▼
Wednesday, Mar 22 (1)	▼
Thursday, Mar 23 (0)	▼

 [Members](#)  [Filter](#)  [Search](#)  [Add](#)



Online Diaries Improvement Project Diaries – Entry Screen

Add Expenses

Date: Saturday, March 18

Type: Meals, Snacks, and Drinks Away From Home

Details:

Describe meal *i*

Enter description

Total cost (include tax and/or tip) *i*

\$ 0.00

What meal was this?

Breakfast Lunch

Dinner Snack/Other

Select any alcohol included:

None Beer

Wine Other

Clear Save

My Expenses View Members Enter search term

Friday, March 17 (0)

Saturday, March 18 (0)

No expenses reported.

Sunday, March 19 (0)

Monday, March 20 (0)

Tuesday, March 21 (0)

Wednesday, March 22 (1)

Transportation Expenses Gas - 20Gal \$43.98

Thursday, March 23 (0)

BLS CE Diary Log out Contact us

Add Expenses

Date: Saturday, Mar 18

Type: Meals, Snacks, and Drinks Away From Home

Details:

Describe meal *i*

Enter description

Total cost (include tax and/or tip) *i*

\$ 0.00

What meal was this?

Breakfast Lunch

Dinner Snack/Other

Select any alcohol included:

None Beer

Wine Other

Back Clear Save



Contact Information

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