

Mixed-Method Approach for Understanding Question Performance in a 3MC Context

Kristen Miller, Ph.D.

Collaborating Center for Question Design and Evaluation Research

National Center for Health Statistics, NCHS

What this presentation will do

Mixed-Method approach being used at NCHS to
identify measurement error and examine
comparability

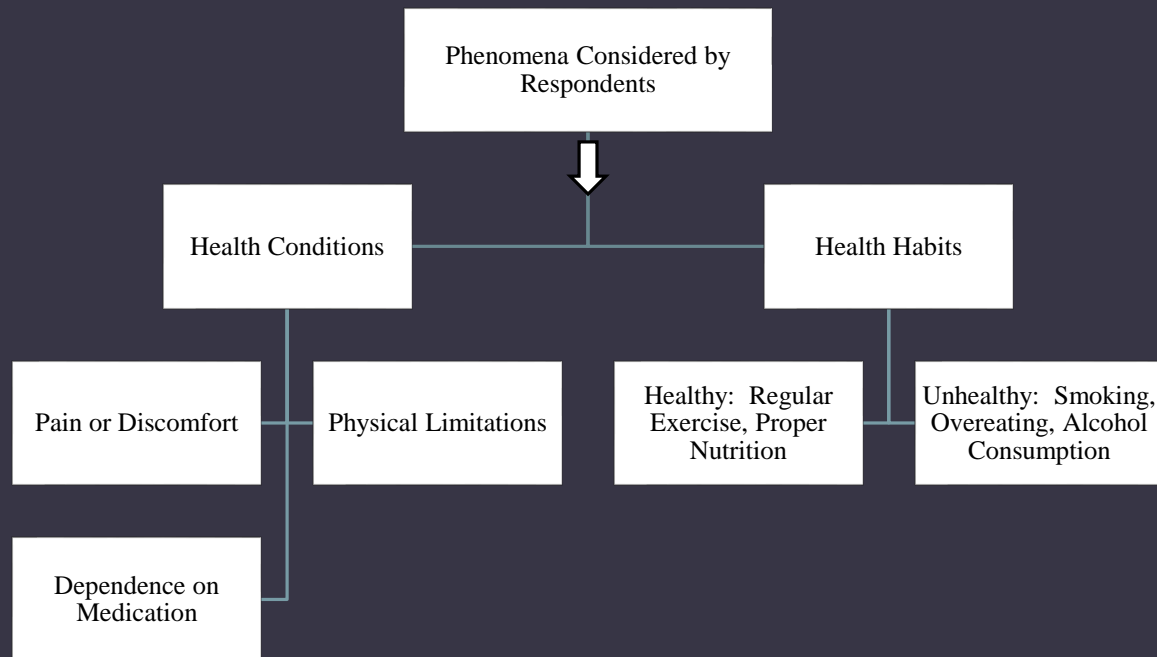
- 1) Cognitive interviewing Methodology
- 2) Web survey with structured probes

Cognitive Interviewing: A Study in Validity

Identifies the constructs captured by individual questions by identifying the **specific phenomena** that **account for respondents' answers**.

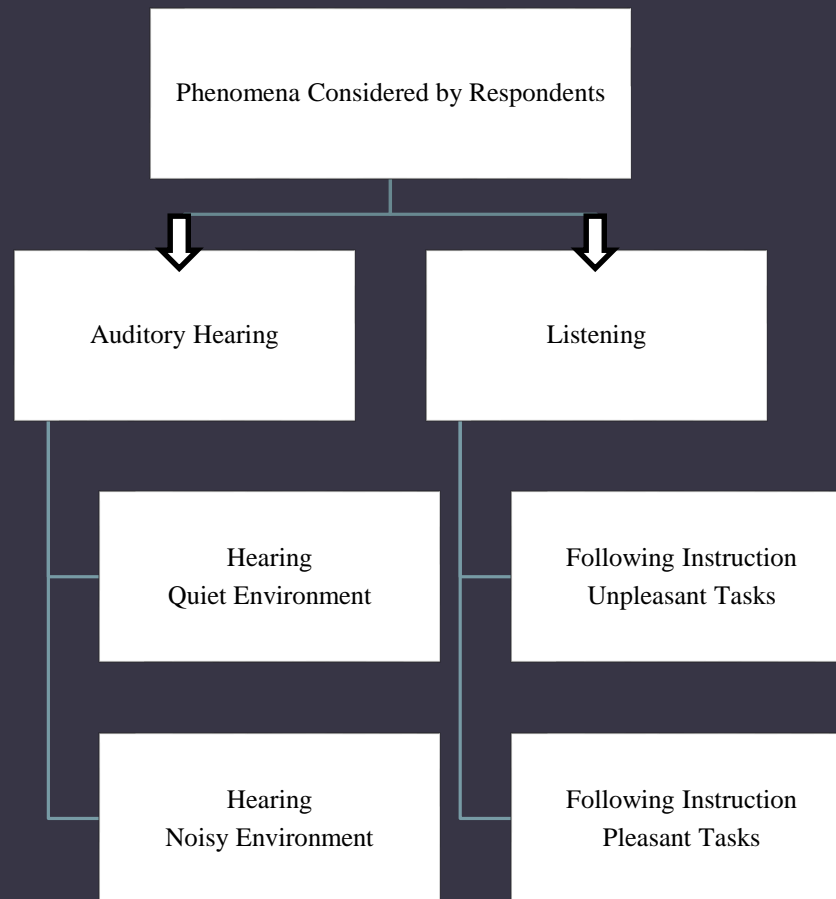
Visual Representation of Construct Schema

Question: In general, would you say your health is excellent, very good, good, fair or poor?



Visual Representation of Construct Schema

Question: Does your child have difficulty hearing?



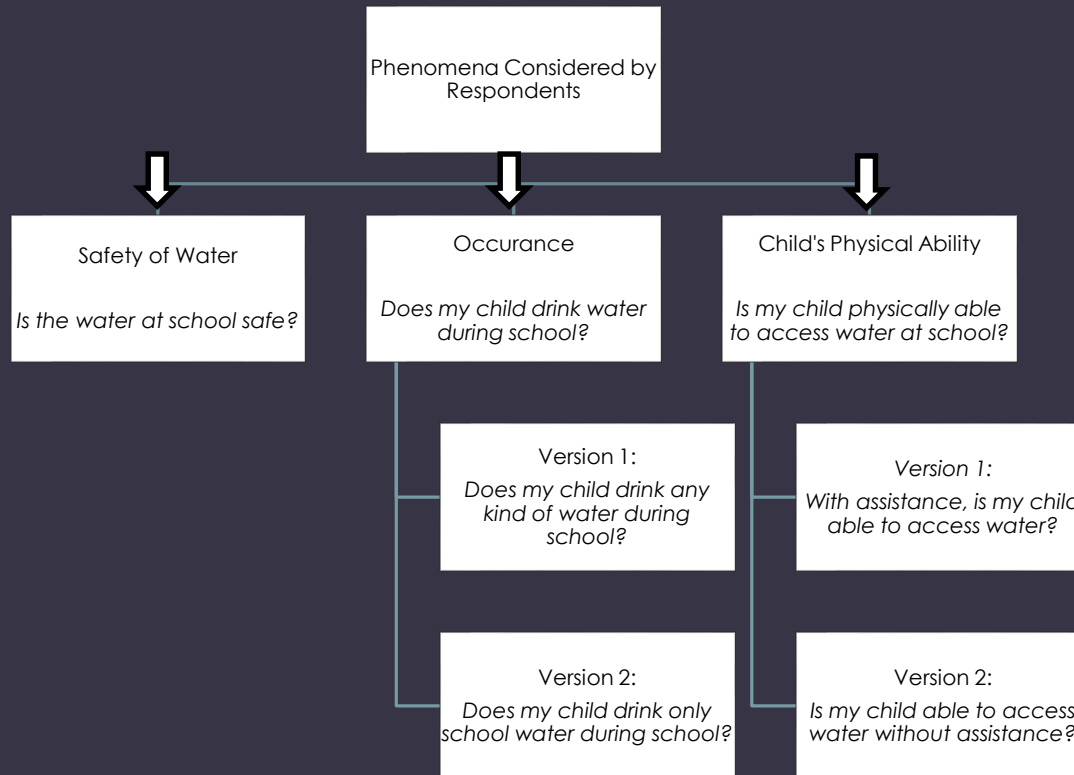
Cognitive Interviewing: A Study in Comparability

Determines whether constructs are consistently captured across salient respondent groups.

Visual Representation of Construct Schema

United States/English, Jamaica/English: Does your child use drinking water facilities at school?

India/Hindi: क्या (नाम) स्कूल में की पानी पीने की सुविधा को आसानी से इस्तेमाल कर सकता/ सकती है?

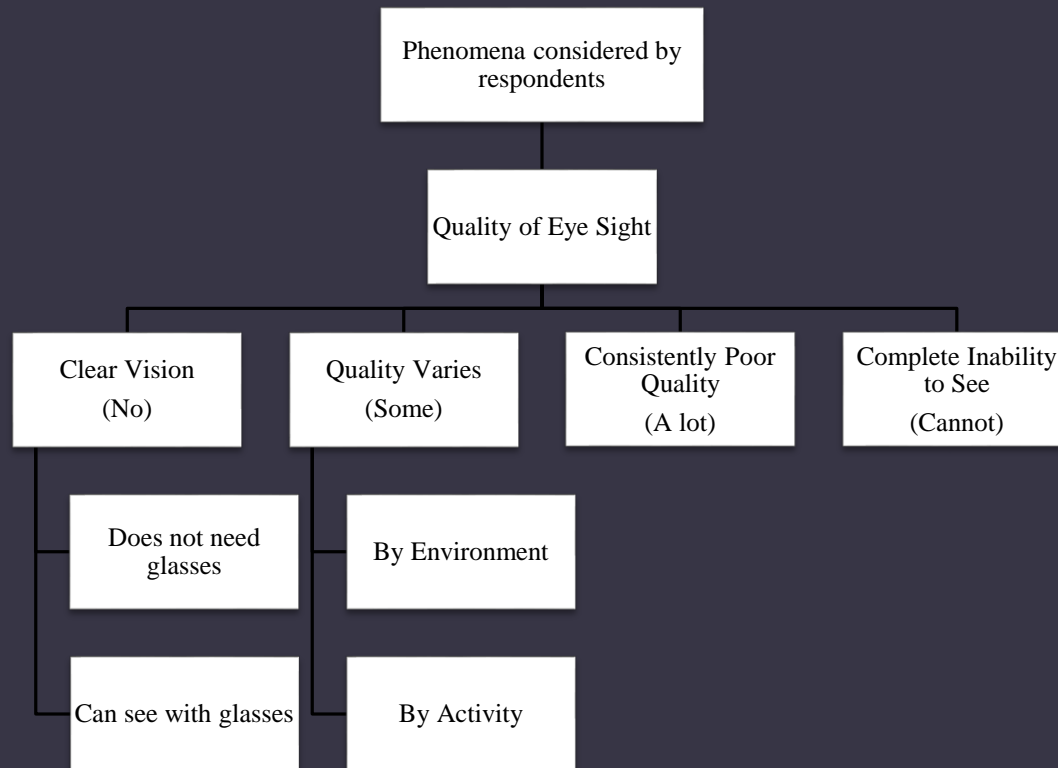


Cognitive Interviewing: A Study of Scale

Identifies the distinguishing characteristic or construct of each response category as they are used by respondents.

Do you have difficulty seeing, even if wearing glasses?

- 1) No, no difficulty
- 2) Yes-some difficulty
- 3) Yes- a lot of difficulty
- 4) Cannot do at all?



Research and Methodology Survey (RANDS)

NCHS Web survey:

- (1) To assess the feasibility of supplementing traditional surveys with lower-cost web surveys
- (2) To provide survey data allowing for a mixed-method approach to identify measurement error and examine comparability across
 - Different groups of respondents
 - Different questions

NCHS Research and Development Survey (RANDS)

- RANDS I (completed Winter 2016)
 - Used Gallup Panel
 - Panel is probability-based, drawn mainly from Gallup's RDD Daily Tracker
 - 2 rounds; Each round collected over 2,000 completed interviews
 - Sampling scheme specified by DRM
 - Strata include Race/Ethnicity, Age, Education
- RANDS II (Winter, 2018)
 - Similar approach, but using GfK and 1 round 5,000 interviews
 - Learn from mistakes in RANDS I
 - Focus more on identifying response error and question/scale comparisons

Close-ended Probes: Method for Studying Measurement Error & Comparability Using Web Panels

Embedded close-ended probes

1. based on previous qualitative research
2. to identify and quantify phenomena counted by respondents

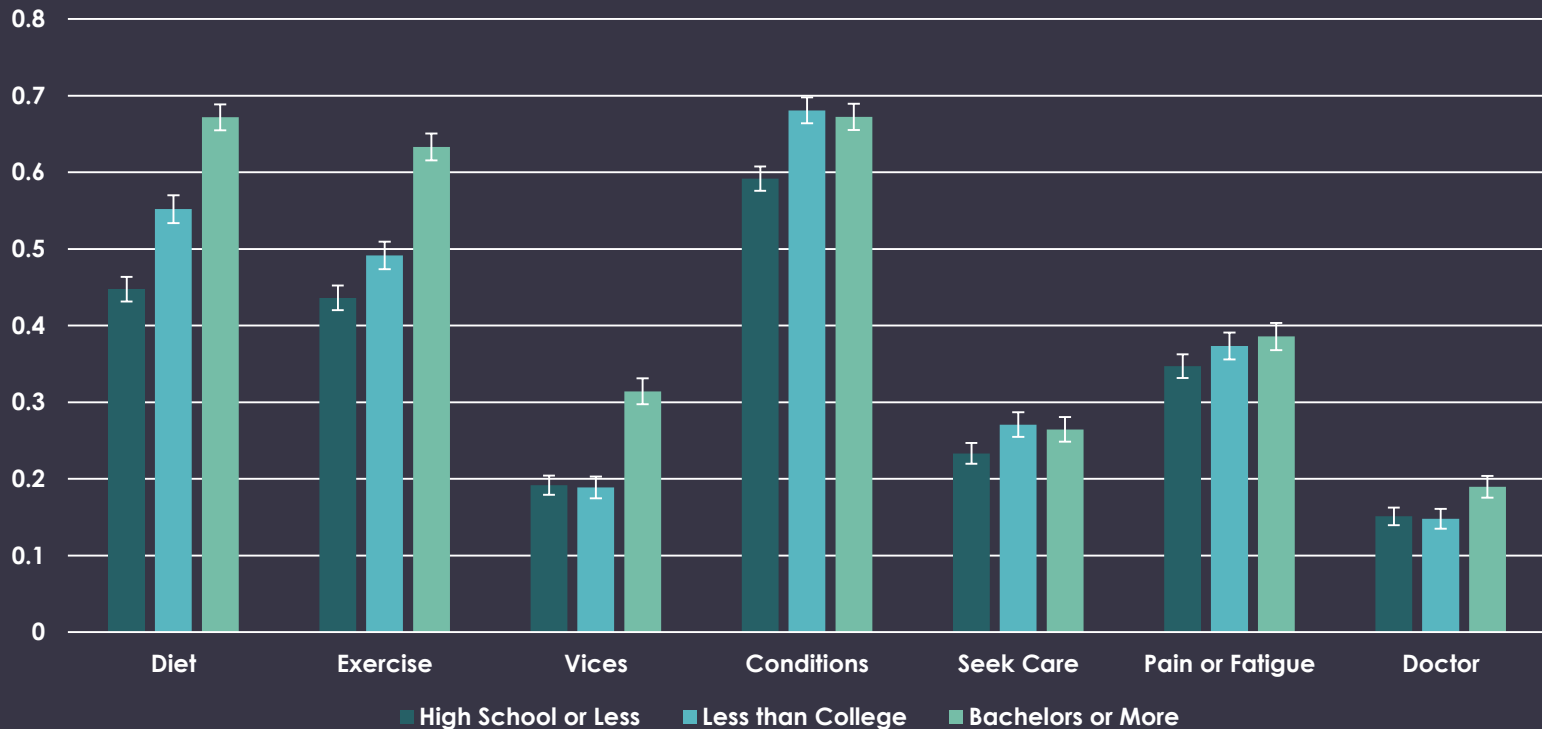
Example

NHIS Question: Would you say your health in general is excellent, very good, good, fair, or poor?

Probe Question: When you answered the previous question about your health, what did you think of?

1. My diet and nutrition
2. My exercise habits
3. My smoking or drinking habits
4. My health problems or conditions
5. The amount of times I seek health care
6. The amount of pain or fatigue I have
7. My conversations with my doctor

General Health Interpretation by Educational Attainment



$\chi^2=40$, $df=10$, $p\text{-value}=2e-04$

RANDS I (round 2) $n=2628$

Psychological Distress Scale

During the past 30 days, how often did you feel...

So sad that nothing could cheer you up?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

Nervous?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

Restless or fidgety?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

Hopeless?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

That everything was an effort?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

Worthless?

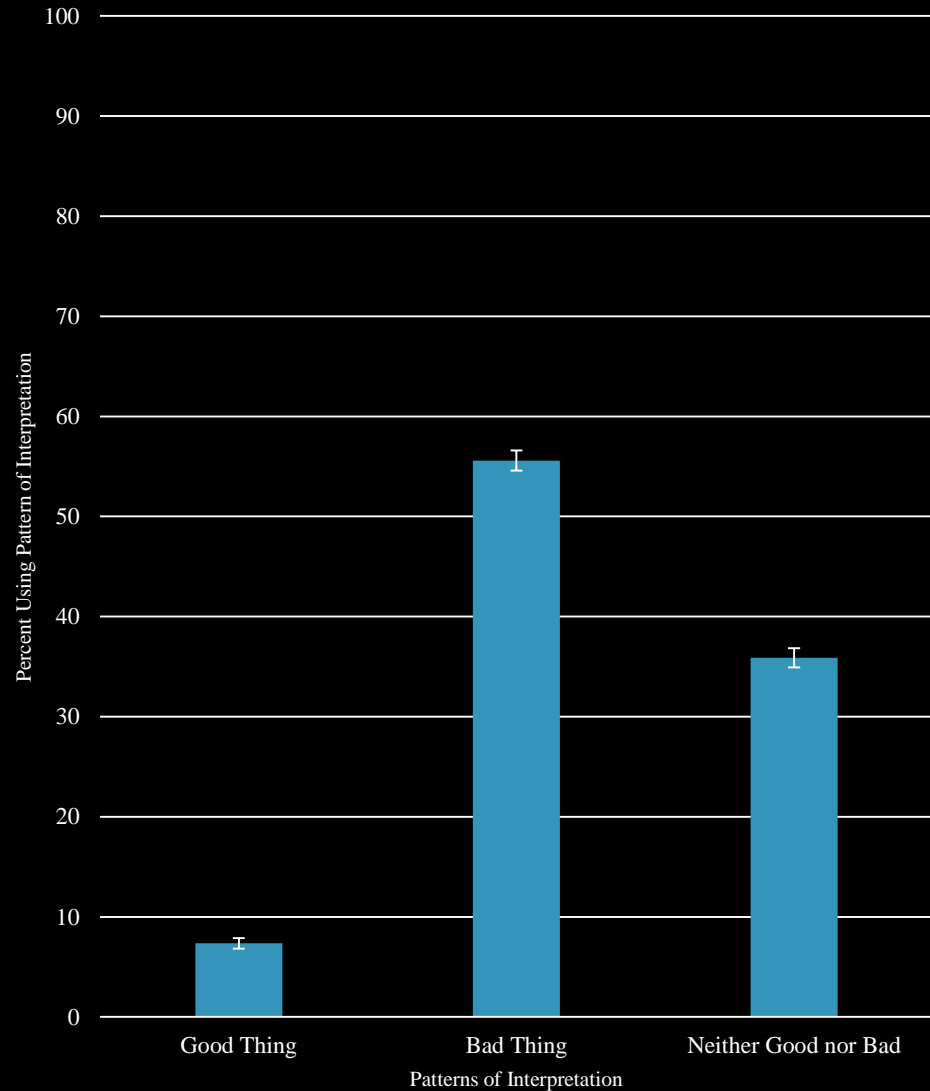
- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

NEXT

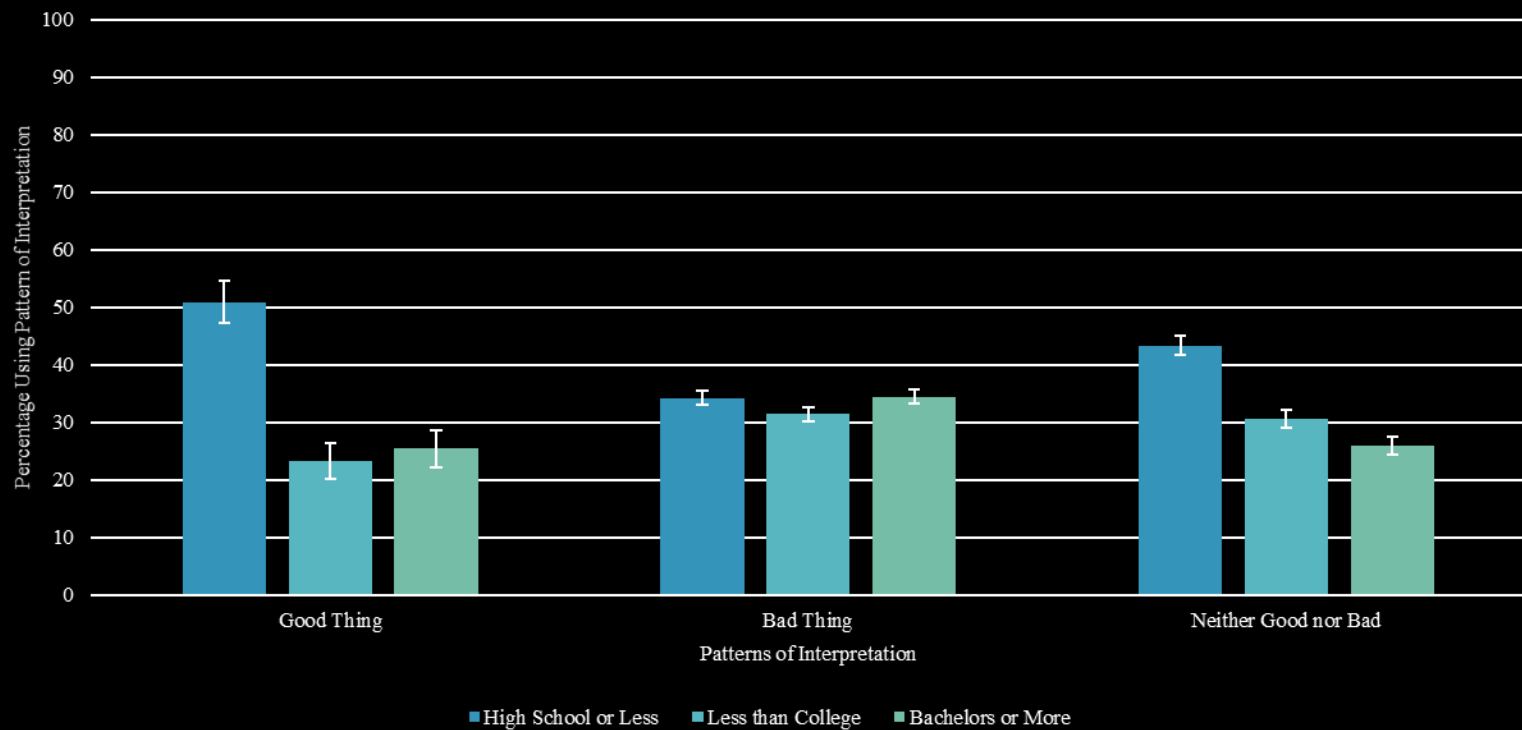
Cognitive Probe

Would you consider everything being an effort to be a good thing or a bad thing?

1. Good thing
2. Bad thing
3. Neither good nor bad



Patterns of Interpretations by Education



Alcohol Questions:

In the past year, on how many days did you have 5 or more drinks of any alcoholic beverage?

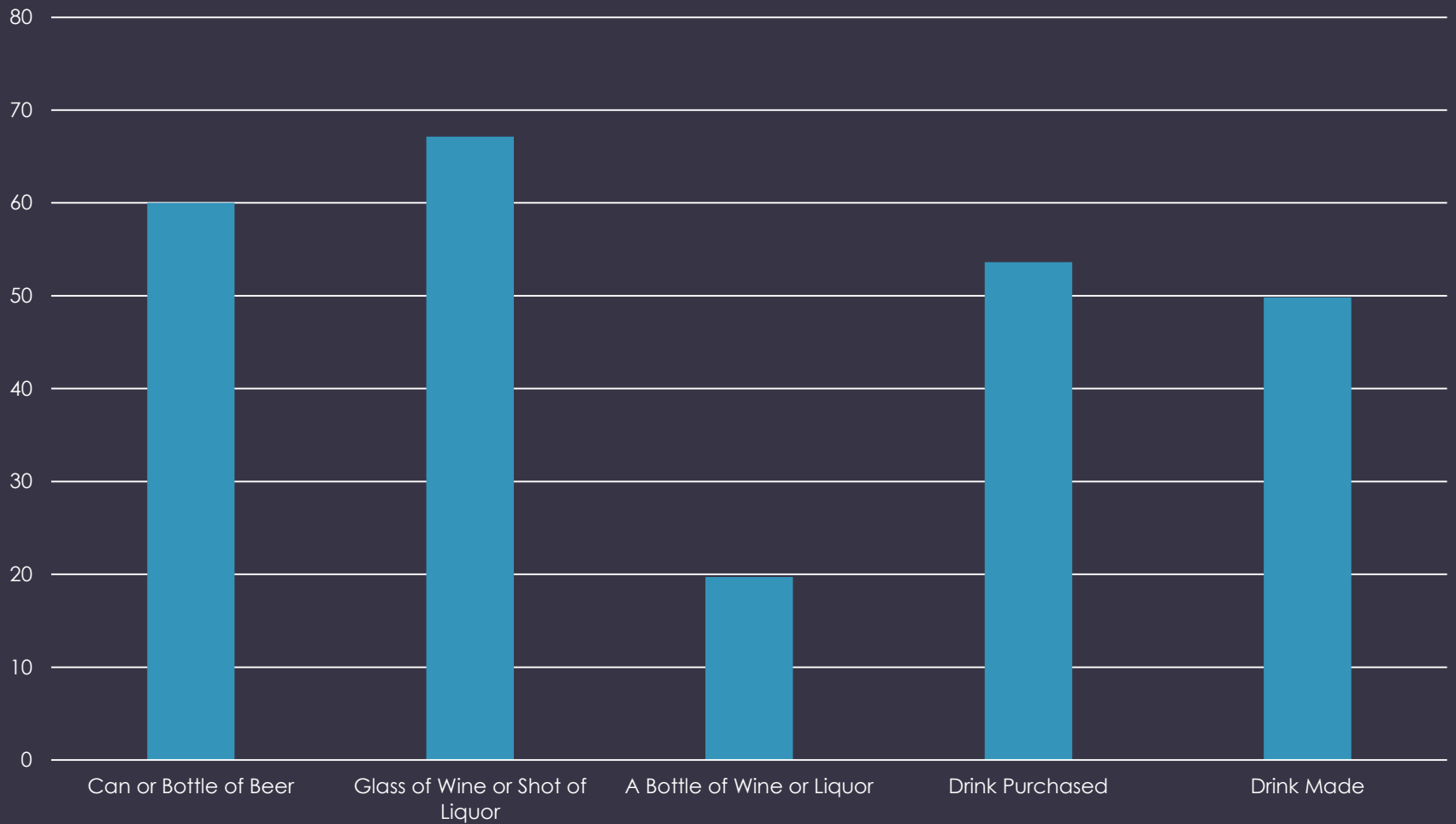
Considering all types of alcoholic beverages, during the past 30 days, how many times did you have 5 or more drinks on an occasion?

Cognitive Probe:

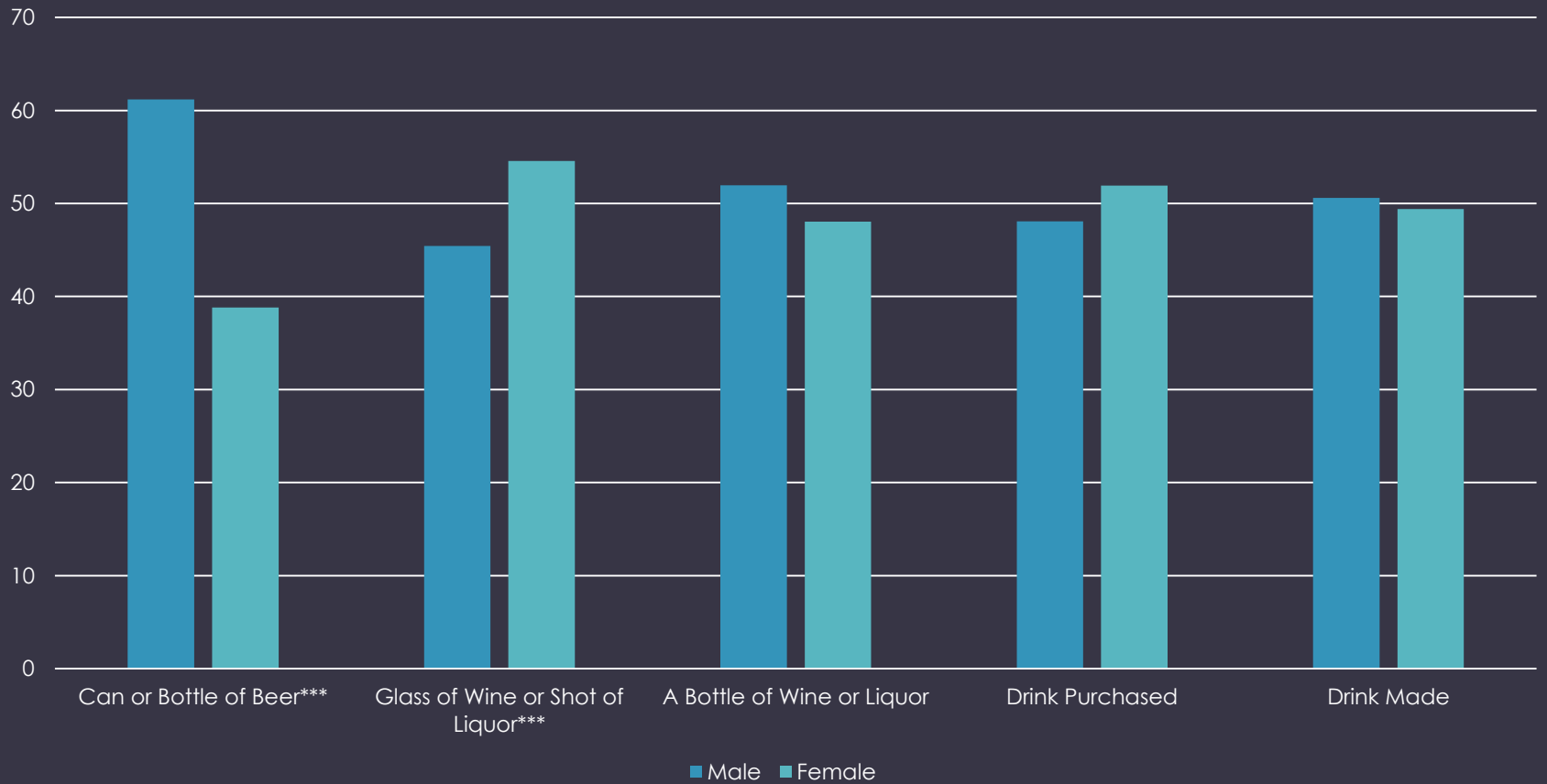
In answering the question, what were you counting as a drink?

1. A can or bottle of beer
2. A glass of wine or shot of liquor
3. A bottle of wine or liquor
4. A drink purchased
5. A drink made

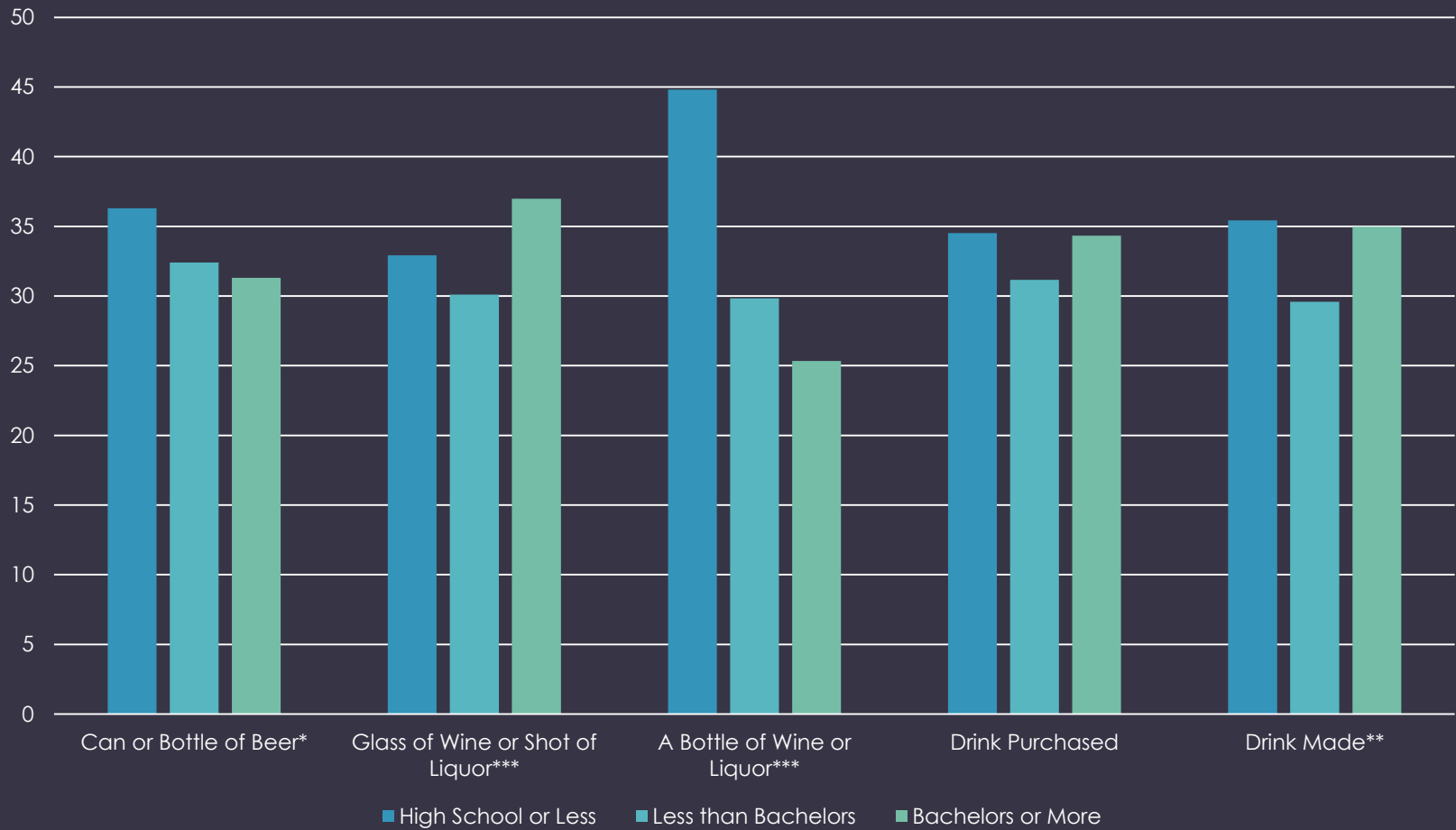
Interpretation of "Drinks" Across the Full Sample



Interpretation of "Drinks" by Sex



Interpretation of "Drinks" by Educational Attainment



What's Next:

- RANDES II
- Focus on scales
- Close-ended construct probes
- Split sample

General Health Category Labels

**Would you say
your health in
general is
excellent, very
good, good,
fair, or poor?**

Excellent
Very good
Good
Fair
Poor

vs.

**Would you say
your health in
general is very
good, good,
fair, bad, or very
bad?**

Very good
Good
Fair
Bad
Very Bad

Thanks!

KSMiller@cdc.gov