

Establishing Survey Validity and Reliability for American Indians through “Think Aloud” and Test-Retest Methods

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BACKGROUND TO HEALTH TOPIC AND INTERVENTION



Alcohol-exposed pregnancy (AEP)

- Negative health risks associated with alcohol consumption during pregnancy represent a leading preventable cause of disabilities in the United States (SAMHSA, 2014).
- Fetal alcohol spectrum disorders (FASD) is the continuum of outcomes in individuals prenatally exposed to alcohol.
 - Includes a diagnosis of fetal alcohol syndrome.



FASD Prevalence

- Recent study in the Upper Midwest of the United States found rates of FAS and FASD substantially higher than previous estimates of FAS provided by the CDC (May et al., 2014).
- Not just an issue with American Indian communities but “it’s worth our effort to stop FASD in our Nation” (OST CHOICES Coordinator, 2015).

Source: May PA, Baete A, Russo J, et al. Prevalence and characteristics of Fetal Alcohol Spectrum Disorders in a midwestern city of the United States. *Pediatrics*. 2014;134(5):855-866.



Prevention of FASD comes in many forms...

Q.

Which one has a Fetal Alcohol Spectrum Disorder?



Will physical disabilities: limb abnormalities, facial and the others, and brain damage.



Will subtle disabilities: brain damage or death, learning problems, attention & hyperactivity, memory problems, difficulties in problem-solving, and problems about mood and affect.

A.
Both do.

Not all FASD* symptoms are visible.

Just as most women don't know they are pregnant for the first month or so, many children are born with Fetal Alcohol Spectrum Disorders and nobody knows it until later in life. The only way for a woman to be sure that she doesn't have a baby with FASD is to avoid alcohol for her entire pregnancy. The Yuonifan Helpline is a dedicated resource for people who are concerned about drinking and pregnancy. We are especially interested in helping women who are of childbearing age, because we know that the future health of our next generation depends on how well we care for ourselves today.

Protect our future. Respect each other now.

* First alcohol use in December 2012 is an arbitrary date and is therefore subject to other factors such as a woman's alcohol intake during pregnancy. While our Helpline website does not have a calendar, phone, helpline, and so on.

IF YOU ARE A WOMAN WHO IS CONCERNED ABOUT TOXIC DRINKING, EVEN IF YOU'RE NOT PREGNANT - OR IF YOU WOULD LIKE INFORMATION ON HELPING A WOMAN YOU KNOW, PLEASE CALL US TODAY.



THE YUONIFAN HELPLINE
1-888-276-7207

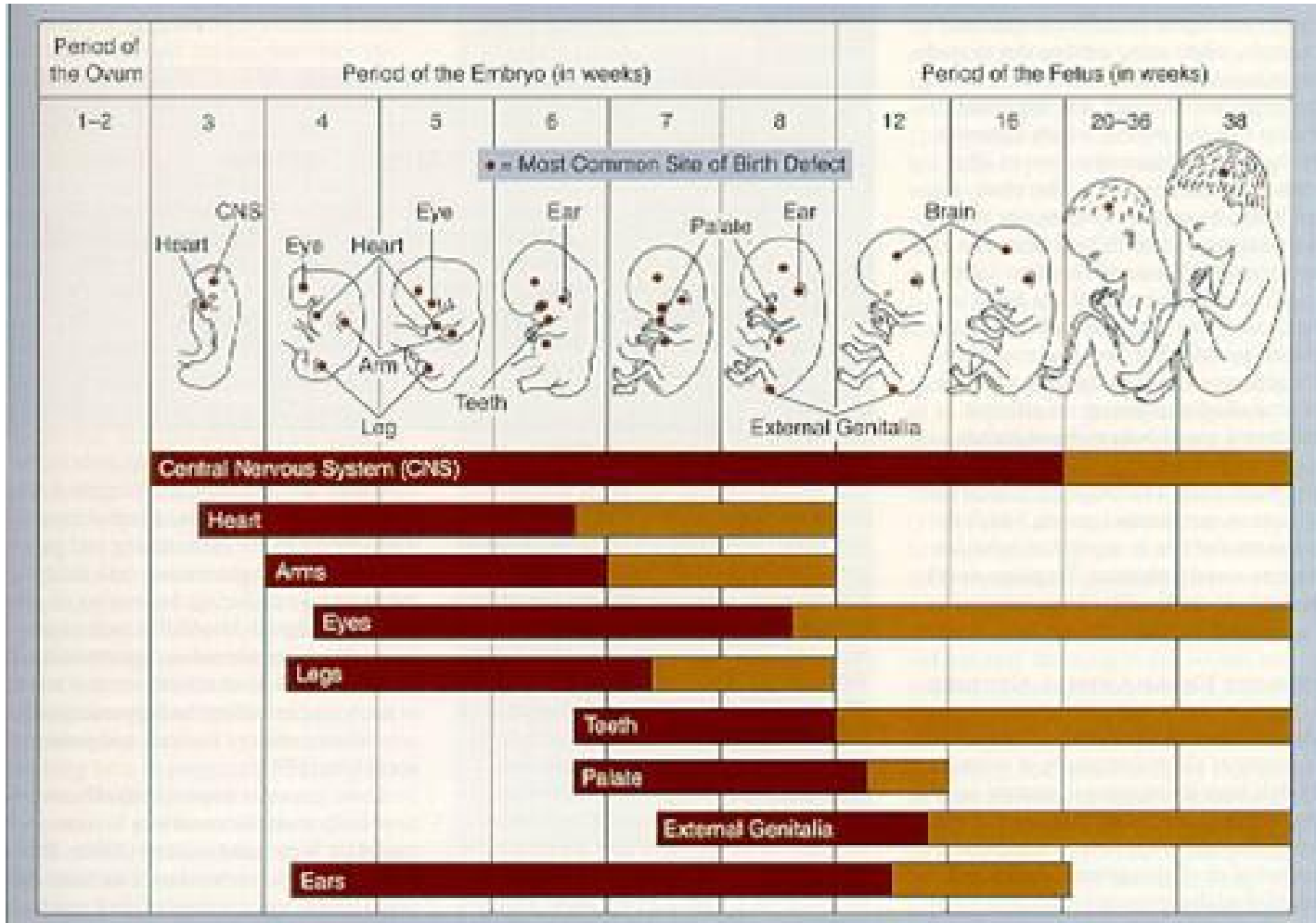


Preconception Prevention

- Emphasis on AEP prevention *before* a woman becomes pregnant.
 - While many women stop drinking when they find out they are pregnant, an estimated 130,000 pregnancies in the U.S. are exposed to high levels of alcohol each year (Lupton, 2004).
 - Important role of unplanned/unintended pregnancy.

Source: Lupton, C., Burd, L., and Harwood, R. 2004. Cost of Fetal Alcohol Spectrum Disorders. *American Journal of Medical Genetics, Part C 127C*: 42–50.





Source: Coles, C. (1994). Critical periods for prenatal alcohol exposure. Alcohol Health Research World, 18(1), 22-29.

The Preventable Tragedy: Fetal Alcohol Syndrome

National Geographic

v. 181, No. 2. February 1992

“I was drinking a bottle of vodka a day that December, so out of touch that I didn’t even know I was two months pregnant. When I found out, I quit there and then, but the damage was done.”



Project CHOICES

- Major effort to decrease risk for alcohol-exposed pregnancy (AEP) among non-pregnant women.
- Four face-to-face MI sessions over several weeks, with a separate contraception counseling session.
- Overall, the Project CHOICES intervention significantly decreased AEP risk.

Sources:

Floyd RL, et al. (2007)

Ingersoll KS, et al. (2003)

Floyd RL, Ebrahim SH, Boyle CA. (1999)

Sobell M, et al. (2003)



Ways to prevent AEP

Reduce drinking

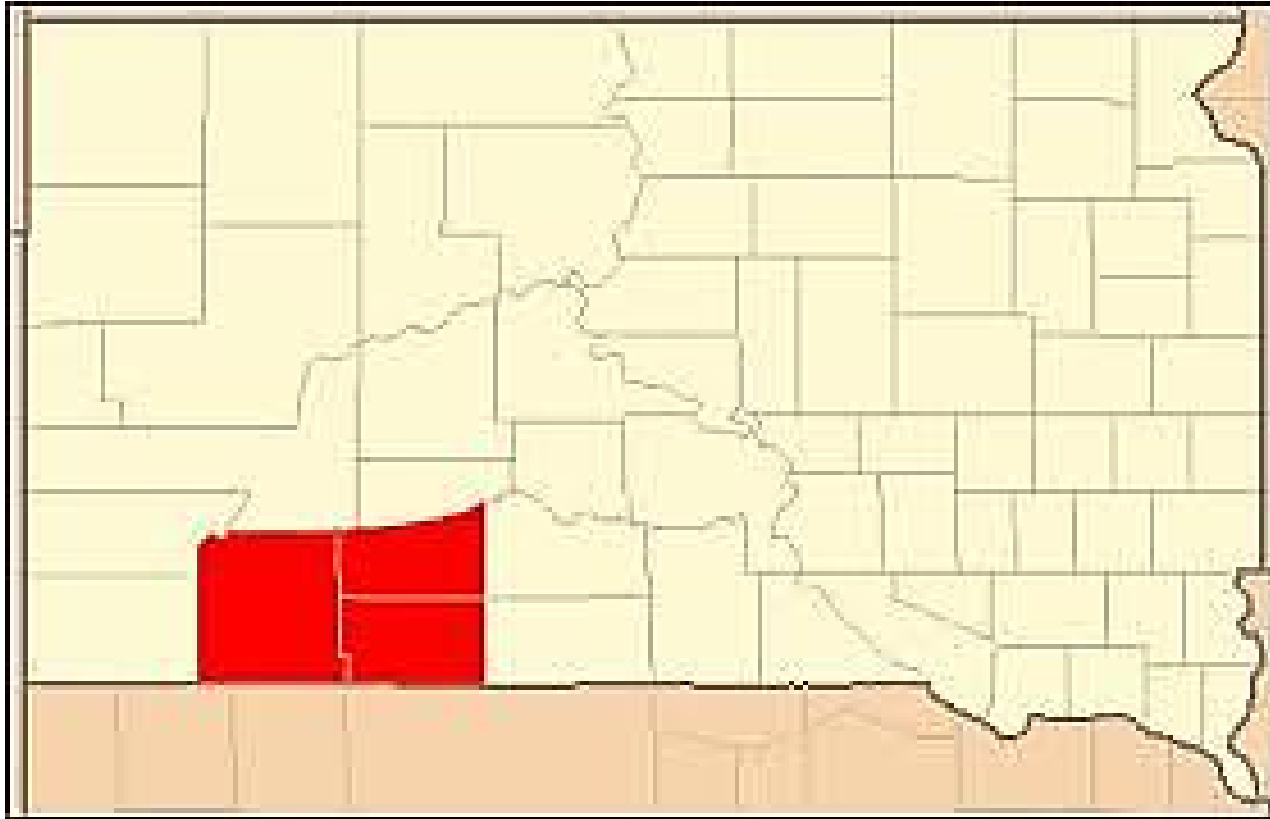
Increase use of birth control



LOCAL EFFORTS FOR AEP PREVENTION



The Oglala Sioux Tribe (Pine Ridge Indian Reservation) is 3,468 square miles located in the southwest corner of South Dakota.



Local American Indian Risk of AEP

- Average amount of alcohol consumed was 7.0 drinks per occasion.
- Number of drinks in an average week was 13.0.
- Average “most drinks at one sitting” was 9.7 drinks
- 30% indicated using no protection while engaging in sexual activity.

Source: Hanson, J.D., Miller, A.L., Winberg, A., & Elliott, A.J. (2013). Prevention of alcohol exposed pregnancies with non-pregnant American Indian women. *American Journal of Health Promotion*, 27(3), S66-S73.



OST CHOICES Pilot Study

- Began with piloting the intervention at two sites (2010-2013).

Funding from Indian Health Service Award #HHS-2010-IHS-MHCEP-0001

- While successfully implemented with American Indian women, there were data quality concerns.
 - Interventionists report confusion from participants regarding key components of the CHOICES intervention.
 - One interventionist has on several occasions contacted staff to ask about attempting to reword confidence intervals.
 - Input from CHOICES experts.



Goal of CRCAIH Pilot Project

- OST CHOICES Program is the first of its kind with American Indian women.
 - Some of the measurements may not be written appropriately for readability or clarity.
- Crucial need to determine validity (accuracy in measurement) and reliability (reproducibility) of the measures in this program.



Importance of Validity and Reliability

- Validity = accuracy in measurement
- Reliability = reproducibility
- Dearth of studies that address the validity and reliability of measures with American Indians.



Specific Aims

- ***Specific Aim 1:*** Establish **content validity**, or the content representativeness and relevance, of the CHOICES measures for American Indian women by soliciting input from community members and from content experts in American Indian health.
- ***Specific Aim 2:*** Establish **validity** of the CHOICES measures by implementing a “think aloud” methodology with American Indian women.
- ***Specific Aim 3:*** Determine the **reliability** of CHOICES measurements with non-pregnant American Indian women by conducting a test-retest.

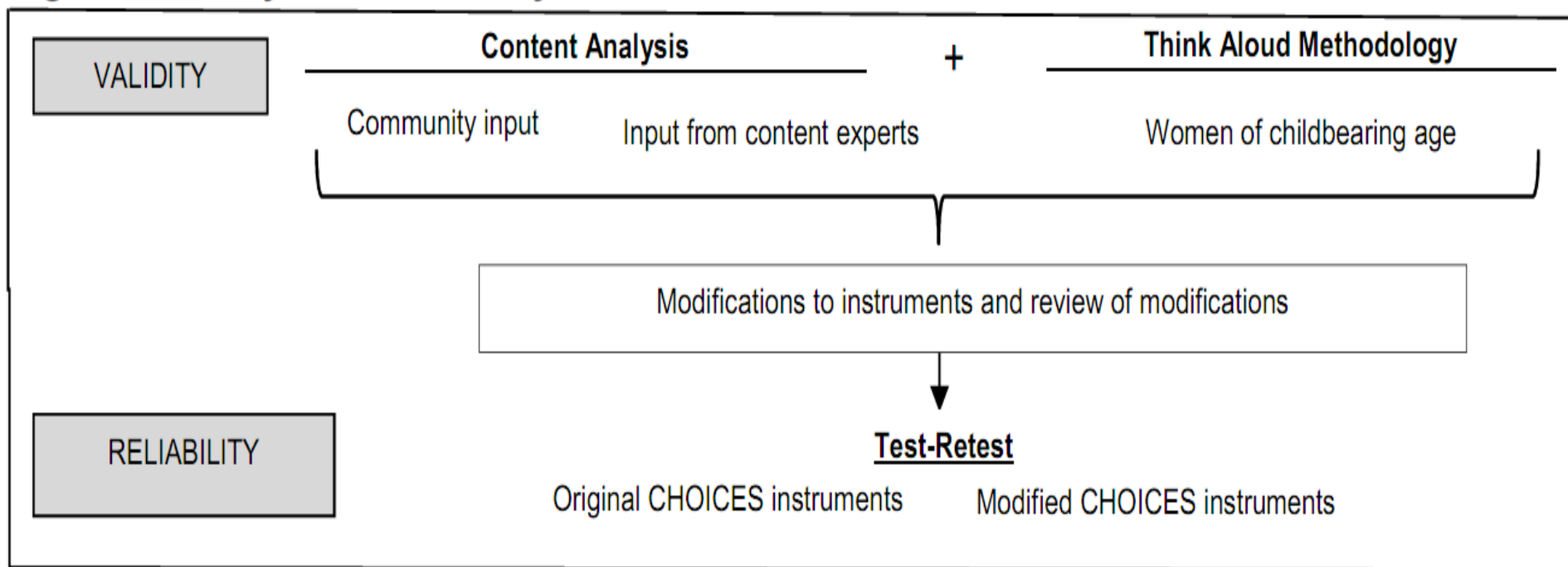


METHODS



Approach

Figure: Validity and Reliability Methods



Review of Key CHOICES Measures

- Initial behavioral assessment
- Temptation and confidence questions on drinking and birth control use
- Readiness to change questions



Again, we want to know how tempted you would be at the present time to drink alcohol in each of these types of situations.

SITUATION	HOW TEMPTED				
	Not at all	Not very	Moderately	Very	Extremely
1. <u>UNPLEASANT EMOTIONS</u> If I were depressed in general; if everything were going badly for me	1	2	3	4	5
2. <u>PHYSICAL DISCOMFORT</u> If I were having trouble sleeping; if I felt jumpy and physically tense	1	2	3	4	5

Again, we want to know how confident you are that you would not drink alcohol in each of these types of situations at the present time.

SITUATION	HOW CONFIDENT				
	Not at all	Not very	Moderately	Very	Extremely
1. <u>UNPLEASANT EMOTIONS</u> If I were depressed in general; if everything were going badly for me	1	2	3	4	5
2. <u>PHYSICAL DISCOMFORT</u> If I were having trouble sleeping; if I felt jumpy and physically tense	1	2	3	4	5

On the following ruler, please circle the point that best shows how important it is to you to drink below risky levels. ("Below risky" means having seven or fewer drinks per week, or three or fewer drinks on any one occasion).



Content Analysis (SA 1)

- Community members and experts in the field.
- Individuals sent paper copies of key CHOICES measures.
- Asked to thoroughly review and note questions, problems, and ideas for changes, and send this information back.



“Think Aloud” Background (SA 2)

- Participants verbalize their thoughts when completing a survey or performing an activity.
- “Think alouds” collect information about response reasoning, critical thinking, and decision-making in context.



“Think Aloud” Methodology (SA 2)

- Participants verbalized their thoughts when completing the CHOICES questionnaire.
- If participants paused for longer periods, the Project Assistant reminded them to “keep thinking aloud.”
 - Aside from these reminders, all interaction were kept to a minimum.
- If participants seemed hesitant to “think aloud,” they were asked their thoughts at the end of each question.



“Think Aloud” Analysis (SA 2)

- Think aloud sessions were audiotaped and thorough notes were taken
- Script analysis: provide an overall description of the reasoning processes and illustrate what information subjects attended to during problem solving.
 - Project Assistant listened to each audiotape and made notes on problem areas.
 - Notes were given to the Principal Investigator, who created a spreadsheet that noted changes, problems, and confusion for each question (included feedback from content analysis).



Modifications to the Measures

- Discussion via conference call with a larger group, and as a group, alterations to the CHOICES survey were made.
- After amendments were made, a modified version of the CHOICES measurements was shown to community members and content experts who agreed to “re-review” the modified version.



Test-Retest Methodology (SA 3)

- Compare new version with original version.
- Participants (AI women) randomly assigned to complete modified CHOICES measurements or original survey.
- Participants completed assigned survey then contacted two weeks to retest.
- Analysis: CRCAIH Methodology Group.



RESULTS



Content Analysis (SA 1)

- Feedback from 17 individuals locally and nationally.
 - Tribal health centers.
 - Research projects occurring on tribal land.



“Think Aloud” Methodology (SA 2)

- “Think aloud” methodology was completed with n=23 American Indian women from a variety of communities in both Rapid City and in the towns within the Oglala Sioux Tribe.



Validity Results (SAs 1 and 2)

- Wording changes (“depressed” has negative connotations)
- Need context to questions (what does “physically tense” mean? Too vague)
- Clarify/more detail on types of birth control and drink size
- Readiness rulers – questions/layout were confusing



Examples of Changes

OLD Temptation: Alcohol	NEW Temptation: Alcohol
Unpleasant Emotions: If I were depressed in general; if everything were going badly for me	How tempted would you be to drink alcohol if you were feeling stressed, upset, or down in general?
OLD Confidence (self-efficacy): Alcohol	NEW Confidence: Alcohol
Testing Control Over My Use Of Alcohol: If I started to believe that alcohol was no longer a problem for me; if I felt confident I could handle a few drinks	How sure are you that you would NOT drink alcohol if you needed to stop drinking, such as after 3-4 drinks or if you had to drive home?



Tests-Retest (SA 3)

- Test: Of N = 79 participants, N = 44 were randomly assigned to the modified Project CHOICES questionnaire and N = 35 completed original.
- Retest: N = 23 participants completed the modified (52.3% response rate); N = 16 completed the original (45.7% response rate).
- Results
 - Agreement statistics for alcohol questions regarding temptation and confidence slightly better for the modified version.
 - Agreement statistics for contraception questions regarding temptation and confidence slightly higher for original version.
 - No other significant differences.



Next Steps

- This study found specific survey questions that needed to be changed in our survey for CHOICES participants.
- Worked with OST CHOICES sites to determine what survey measurements will be implemented and what measures should remain the same within current program.



Discussion

- Benefits of a validity/reliability study.
 - Better to be done *before* data collection begins!
- Think aloud qualitative methodology - found definite “themes” with specific wording or questions.
- Findings provided evidence that certain components should be modified for use with American Indian women.



OST CHOICES Program

Sioux Falls:	Jessica Hanson, PhD (PI)		Jamie Jensen, MS (Research Associate)
Pine Ridge:	Susan Pourier, BS (Project Coordinator)		Jacque Jacobs-Knight, AA (Interventionist)
Kyle:	Katana Jackson, MSW (Interventionist)		Christina Janis, MA (Interventionist)
Rapid City:	Jessica Gromer, RN (Site Manager)		Amy Willman, RN (Interventionist)

- ❖ Prevention with non-pregnant American Indian women
 - ❖ Reduction/abstention in alcohol consumption
 - ❖ Increase utilization of effective contraception

} Either one of these behavior changes reduces risk for an alcohol-exposed pregnancy.
- ❖ Evidence-based intervention that utilizes **motivational interviewing** and self-guided change
- ❖ Sites
 - ❖ Pine Ridge – 2-sessions, one-on-one or Group CHOICES
 - ❖ Kyle – 4-sessions, one-on-one
 - ❖ Rapid City – 2-sessions, one-on-one or Group CHOICES

All sites include a contraceptive counseling session with a health care provider.
- ❖ All sites also include a 3- and 6-month post-intervention follow-up to assess alcohol and contraception behaviors.

Key CHOICES citations at: <http://www.cdc.gov/ncbddd/fasd/research-preventing.html>

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