# FamCHESS Measures and Scales

A diagram of a diagram

Description automatically generated

## Covariates

### Race/ethnicity

* **Scored variable name:** race\_white\_only
* **Measure:** variable for the purposes of a covariate is white only vs. not only white
* Possible Responses (from questions used to create variable):
* Are you of Hispanic or Latino origin or descent?
  + (2) Yes, Hispanic or Latino
* No What is your race? (Mark all that apply)
  + (1) White
  + (2) Black or African American
  + (3) Asian
  + (4) Native Hawaiian or other Pacific Islander
  + (5) American Indian or Alaskan Native
  + (6) Other, please specify \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Age

* **Variable name:** age
* Numeric response (all under age 90, no need to de-identify)

### Education

* **Variable name: edu**
* Possible Responses:
  + (1) 8th grade or less
  + (2) Some high school, but did not graduate
  + (3) High school graduate or GED
  + (4) Some college or 2-year degree
  + (5) 4-year college graduate
  + (6) More than 4-year college degree

### Concurrent treatment

* **Measure:** Treatment Services Review
* **Scored variable names:** Meetings\_YN, Outpatient\_YN\_ever, ER\_YN\_ever; MAT\_YN; Inpatient\_YN\_ever
  + **Removed variables:** re-admits for the same alcohol or drug problem (8b) due to low variability
* **Time period asked about:** varies
* **Calculation Source:** <http://bit.ly/TSR_inst>
* **Scored:** variables were converted into yes/no because of they lacked variability (original questions variables are based on: healthservice\_1, healthservice\_2, healthservice\_4, healthservice\_5c, healthservice\_8a, healthservice\_8b)
* **Possible Range:** 
  + Meetings\_YN: attended a meeting (yes) vs. did not attend a meeting (no)
  + Outpatient\_YN\_ever: attend at least one outpatient treatment for drugs or alcohol (yes/no) at any point during the study period
  + ER\_YN\_ever: have at least one ER visit (yes/no) at any point during the study period
  + MAT\_YN:
  + Inpatient\_YN\_ever: attend at least one inpatient treatment for drugs or alcohol (yes/no) at any point during the study period

### COVID acute & residual symptoms – Removed, participants interpreted this question differently, ask Kasey for clarification

* **Measure:** Carfi list

Baseline: 1. Were you vaccinated for COVID more than four months ago? No Yes 2. Did you test positive for COVID more than four months ago? No Yes

Follow-up: 1. Have you been vaccinated for COVID in the last four months? No Yes 2. Have you tested positive for COVID in the last four months? No Yes 3. If you have ever tested positive for COVID, how often are you experiencing each of these  
symptoms?

* **Variable names: covid\_3(a-f)**
* **Calculation Source:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7349096/>
* **Time period asked about:** in the past 4 months
* **Scored:** for long covid symptoms
* **Possible Range:** 0-24
* **Scored variable name: covid\_scored**
* **Interpretation:** Higher scored indicate more symptoms more frequently (0=never, 4=almost always experiencing these symptoms for each prompt)

### Psychiatric treatment history

* **Measure:** Treatment Services Review, questions 3, 6, and 9
* **Scored variable names:** Other\_psych\_treatment\_yn, healthservice\_6 (Did you take any medications to help with other psychological or emotional issues?)
  + **Removed variables:** healthservice\_9a, healthservice\_9b due to low variability
* **Time period asked about:** varies
* **Calculation Source:** <http://bit.ly/TSR_inst>
* **Scored:** variables were converted into yes/no because of they lacked variability (original questions variables are based on: healthservice\_3, healthservice\_6, healthservice\_9a, healthservice\_9b)
* **Possible Range:** Yes/No

## Primary Outcomes

### IP % Risky Drinking Days

* **Time period:** between survey dates
* **Measure:** Timeline follow-back
* **Calculation Source:** Beth
* **Scored:** R code

|  |
| --- |
| ```{r}  ############### FUNCTIONS FOR COMPUTING SPECIFIC DRINKING INDICES ###############  #These functions use a basic vector as input, and are called later in the program  #SD = a vector reflecting the number of standard drinks for each day -- e.g., c(5, 0, 0, 0, 0, 0, NA) might #reflect 7 days of data, with 5 drinks on the first day, 0 drinks on days 2-6, and missing data on day 7  #HD = a vector reflecting whether each day was a heavy vs. non-heavy drinking day -- e.g., c(1, 0, 0, 0, 0, 0, NA) might reflect 7 days of data, with day 1 being a heavy day, days 2-6 being non-heavy days, and day 7 having missing data  #male = a vector reflecting whether a patient is male (1) or female (0)  # Note: the values computed below were designed to return a value regardless of how much missing data there was (unless all data was missing).  # But you may prefer to return missing values if a certain % of data are missing -- e.g., if 50% or more data are missing from the observation period,  # then return NA instead of the value computed with whatever data was available.  # you can do this in two ways:  # 1) by adding lines of code to the compute\_DDD, compute\_AVSD (etc.) functions below, making the value NA if a certain % of values are missing  # or 2) at the very end of this file, when d.tlfb.long.w, d.tlfb.long.m (etc.) are computed, add in logic stating that if NDAYS is < a given value, change all the dirnking values that were computed to missing.  ### functions computed using SD as input  # number of days with any drinking data  compute\_NDAYS = function(SD){  NDAYS = sum(!is.na(SD))  return(NDAYS)  }  # drinks per drinking day  compute\_DDD = function(SD){  DDD = mean(SD[SD > 0], na.rm=TRUE)  if(length(SD[SD > 0 & !is.na(SD)]) == 0) DDD = 0 # change DDD to 0 if no drinking days, but...  if(length(SD[!is.na(SD)]) == 0) DDD = NA # ... change DDD to NA if there are no days at all.  return(DDD)  }  # average drinks per day  compute\_AVSD = function(SD){ # average number of drinks  AVSD = mean(as.numeric(SD), na.rm=TRUE)  return(AVSD)  }  # percent days abstinent  compute\_PDA = function(SD){ # PDA = % days abstinent  NDAYS = compute\_NDAYS(SD)  PDA = as.numeric(100\*sum((SD == 0)\*1, na.rm=TRUE) / NDAYS)  return(PDA)  }  # percent drinking days  compute\_PDD = function(SD){ # PDD = % drinking days (which would be equal to 100 minus PDA)  PDA = compute\_PDA(SD)  PDD = 100 - PDA  return(PDD)  }  # this is a wrapper/convenience function that will run all the functions above for a given SD vector  COMPUTE\_SD\_FUNCTIONS = function(SD){  NDAYS = compute\_NDAYS(SD)  DDD = compute\_DDD(SD)  AVSD = compute\_AVSD(SD)  PDA = compute\_PDA(SD)  PDD = compute\_PDD(SD)  return(cbind(NDAYS=NDAYS, DDD=DDD, AVSD=AVSD, PDA=PDA, PDD=PDD))  }  #### functions computed using HD as input  # Percent heavy drinking days  compute\_PHD = function(HD){ # PHD = % heavy drinking days  NDAYS = compute\_NDAYS(HD)  PHD = as.numeric(100\*sum(HD, na.rm=TRUE) / NDAYS)  return(PHD)  }  # this is a wrapper/convenience function that will run all the functions above for a given HD vector  # (note to Olivia, I had to compute some additional weird variables that used HD as the input, but I have deleted those for this file to not be confusing... hence, you are not wrong to question why I'd have this function just calls another single function.)  COMPUTE\_HD\_FUNCTIONS = function(HD){  PHD = compute\_PHD(HD)  return(cbind(PHD=PHD))  }  #### FUNCTION TO COMPUTE ALL THE DRINKING INDICES ABOVE, WHERE THE INPUT IS A PARTICULAR DATA FRAME AND TIME INDICATOR  # In brief, this function below takes an existing data frame, then slices it into smaller data frames / vectors that can be passed into the wrapper/convenience functions above  # By putting this code into a function, it allows you to have a convenient way to compute PDD/PHD/DDD/etc. associated with a number of different time frames.  # For example, as you'll see later, we can compute PDD for each week, month, or any other time frame you want, then use this function below to compute all of the drinking indices above for each different time frame.  compute\_aggregatemeasures = function(d, timevar){  ## compute non-gender based summary indices ##  y.sd = as.data.frame(as.matrix(aggregate(d$SD, by=list(timevar=d[,timevar], atomid=d$atomid), FUN=COMPUTE\_SD\_FUNCTIONS)))  names(y.sd) = c(timevar,"atomid",  "NDAYS","DDD","AVSD","PDA","PDD") # these need to be identical and in the same order as the variables returned in COMPUTE\_SD\_FUNCTIONS  y.hd = as.data.frame(as.matrix(aggregate(d$HD, by=list(timevar=d[,timevar], atomid=d$atomid), FUN=COMPUTE\_HD\_FUNCTIONS)))  names(y.hd) = c(timevar,"atomid",  "PHD") # these need to be identical and in the same order as the variables returned in COMPUTE\_HD\_FUNCTIONS  y.male = as.data.frame(as.matrix(aggregate(d$male, by=list(timevar=d[,timevar], atomid=d$atomid), FUN=mean)))  names(y.male) = c(timevar,"atomid","male")  y = merge(y.male, y.sd, by=c(timevar,"atomid"), all=T)  y = merge(y, y.hd, by=c(timevar,"atomid"), all=T)  return(y)  }  ```  ```{r}  #Import data  TLFB <- read\_excel("R:/Data/Olivia/PartnerCHESS RO1 (FamCHESS)/Datasets/Clean\_data/TLFB\_clean.xlsx")  SurveyDates <- read\_excel("R:/Data/Olivia/PartnerCHESS RO1 (FamCHESS)/Datasets/Clean\_data/FamCHESS\_SurveyDates.xlsx")  TLFB = merge(TLFB, SurveyDates, by = c("study\_id"), all.x = T)  #Correct dates: Was the TLFB completed the same day as the survey? Kasey: Great question! Typically only for baseline. We had to call them up and schedule a time to chat and do their tlfb after they would submit (either by mailing or completing on qualtrics) their follow up surveys. There were some follow up surveys that we did same-day, but it wasn't the norm. If we missed a survey (like the four or eight month time point, for example) we would then still ask about those days/weeks/months during the next call/timepoint. So for a 12 month survey it might include time that should've been covered during the 4 or 8 month surveys.  TLFB$Timepoint = NA  TLFB$Timepoint[TLFB$Date < TLFB$Baseline] = "Baseline"  TLFB$Timepoint[(TLFB$Date >= TLFB$Baseline) & (TLFB$Date < TLFB$`4 Month`)] = "4 Month"  TLFB$Timepoint[(TLFB$Date >= TLFB$`4 Month`) & (TLFB$Date < TLFB$`8 Month`)] = "8 Month"  TLFB$Timepoint[(TLFB$Date >= TLFB$`8 Month`) & (TLFB$Date < TLFB$`12 Month`)] = "12 Month"  TLFB = TLFB %>%  filter(!is.na(Timepoint))  #remove observations on with overlapping dates  dup = TLFB %>%  group\_by(study\_id, Date)%>%  tally() %>%  filter(n > 1)  dup$ID = paste(dup$study\_id, dup$Date, " ")  TLFB = TLFB %>%  arrange(study\_id, Date, `Number of Standard Drinks`)  TLFB$duplicate[duplicated(TLFB[c('study\_id', 'Date')], fromLast = T)] = "duplicate"  # Note, some values disagree for same date. We will choose the higher value in all cases  TLFB = TLFB %>%  filter(is.na(duplicate))  #data set for Beth's function  Drinks\_TLFB = TLFB[,c(1,4,5,6,3)] #selected "study\_id" "Timepoint" "Date" "NumberofStandardDrinks" "gender"  Drinks\_TLFB$male[Drinks\_TLFB$gender == "Male"] = 1  Drinks\_TLFB$male[is.na(Drinks\_TLFB$male)] = 0  Drinks\_TLFB = Drinks\_TLFB %>%  arrange(Date)%>%  group\_by(study\_id, Timepoint)%>%  mutate(daynum = 1:n())  Drinks\_TLFB = Drinks\_TLFB[,-c(3,5)]  colnames(Drinks\_TLFB) = c("atomid", "Timepoint", "SD", "male", "daynum")  Drinks\_TLFB = Drinks\_TLFB %>%  dcast(., atomid + male + Timepoint ~ daynum, value.var = "SD") %>%  melt(., id.vars = c("atomid", "male", "Timepoint"))  colnames(Drinks\_TLFB) = c("atomid", "male", "Timepoint", "daynum", "SD")  # compute heavy drinking values (1 if SD >= 5 & male, or if SD >= 4 & female; otherwise 0)  Drinks\_TLFB$HD = (Drinks\_TLFB$SD-Drinks\_TLFB$male >= 4)\*1  as.data.frame(Drinks\_TLFB)  Drinks\_TLFB.T = compute\_aggregatemeasures(Drinks\_TLFB, timevar="Timepoint")  Drinks\_TLFB.T$NDAYS = as.numeric(Drinks\_TLFB.T$NDAYS)  Drinks\_TLFB.T$DDD = as.numeric(Drinks\_TLFB.T$DDD)  Drinks\_TLFB.T$AVSD = as.numeric(Drinks\_TLFB.T$AVSD)  Drinks\_TLFB.T$PDA = as.numeric(Drinks\_TLFB.T$PDA)  Drinks\_TLFB.T$PDD = as.numeric(Drinks\_TLFB.T$PDD)  Drinks\_TLFB.T$PHD = as.numeric(Drinks\_TLFB.T$PHD)  Drinks\_TLFB.T$DDD = round(Drinks\_TLFB.T$DDD, digits = 1)  Drinks\_TLFB.T$AVSD = round(Drinks\_TLFB.T$AVSD, digits = 1)  Drinks\_TLFB.T$PDA = round(Drinks\_TLFB.T$PDA, digits = 1)  Drinks\_TLFB.T$PDD = round(Drinks\_TLFB.T$PDD, digits = 1)  Drinks\_TLFB.T$PHD = round(Drinks\_TLFB.T$PHD, digits = 1)  Drinks\_TLFB.T = Drinks\_TLFB.T[,c(1,2,4,5,6,7,8,9)]  colnames(Drinks\_TLFB.T) = c("Time", "study\_id", "NDays", "DrinksPerDrinkingDay", "MeanDrinksPerDay", "Per.DaysAbstinent", "Per.DrinkDays", "Per.HeavyDrinkDays")  #Remove those who had overflow into another survey timepoint they did not complete (defined as less than half the data, total ~= 120, so half is less than 60 days)  Drinks\_TLFB.T = Drinks\_TLFB.T %>%  filter(NDays > 59)  write\_sav(Drinks\_TLFB.T, "Drinks\_TLFB.T.sav")  ``` |

* **Scored variable names:** NDays, MeanDrinksPerDay, Per.DaysAbstinent, Per.DrinkDays, Per.HeavyDrinkDays
* **Use “**Per.HeavyDrinkDays” for this outcome

### Dyad Psychological Distress

* **Measure:** OQ45
* **Variable names:** oq45\_#
* **Time period asked about:** in the last week
* **Calculation Source:** <https://www.ehrs.com/forms/pei/oq45scoreguide.pdf>
* **Scored:**
  + Please note that the numeric values for items 1, 12, 13, 20, 21, 24, 31, 37, 43 are in reverse.
  + Missing data: If a client leaves an item blank, use the average score for the remaining subscale items rounded to the nearest whole number in place of the missing value.
  + This score is calculated by summing all 45 items.
* **Possible Range:** Range: 0-180
* **Scored variable name:** oq45\_scored
* **Interpretation:**
  + The higher the score, the more disturbed the client.
  + Cut-off score: 63 or more – indicates symptoms of clinical significance
  + A high score suggests that the client is admitting to a large number of symptoms of distress (mainly anxiety, depression, somatic problems and stress) as well as difficulties in interpersonal relationships, social role (such as work or school), and in their general quality of life.
  + Reliable change: indicated when a client’s score changes by 14 points or more (useful if you give the OQ-45 at two different points in time).

## Secondary Outcome

### IP Abstinence

* **Measure:** See above
* **Use “**Per.DaysAbstinent” for this outcome

### Dyad Relationship Satisfaction

* **Measure:** DAS 7 both patient and partner
* **Variable names: relationsatisf\_#**
* **Time period asked about:** No timeline given
* **Calculation Source:** <https://www.eif.org.uk/files/resources/measure-report-ipr-das-7.pdf>
* **Scored:** The total score for the DAS-7 is the sum of the responses to the seven items
* **Possible Range:** 0 to 36
* **Scored variable name: relationsatisf\_scored (#8 is not included)**
* **Interpretation:** Higher scores indicate more positive relationship quality. Scores less than 21 are considered to indicate a relationship in distress

### Dyad Abusive behaviors

* **Measure:** Composite Abuse Scale Revised – Short Form (CASR-SF)
* **Variable names: abuse\_#\_yes**
* **Time period asked about:** Past 4 months
* **Calculation Source:** <https://gtvincubator.uwo.ca/wp-content/uploads/2022/10/Wathen_CASrSF_FinalReport_Fall2022.pdf> (see pg 34: Appendix 2: Scoring and Syntax for the 16-Item CASr-SF)
* **Scored:** SUM of all 16 items for cases where there are responses to at least 70% of items.   
  The source identifies ways to calculate for each type of abuse: physical, sexual, and psychological. For the purpose of this calculation, we are just totaling the frequencies of all answers where participants completed at least 11 of the questions. The syntax uses the case-specific mean of the remaining items to impute the value of missing responses. If a case does not contain responses to at least 70% of items, it should be counted as missing (no score computed).
* **Possible Range:** The possible range of scores is 0 to 80.
* **Scored variable name: abuse\_scored**
* **Interpretation:** Higher scores indicate more violence

## Mediators

### CSO Couple alcohol-related communication

* **Measure:** Use of ABCT treatment skills
* **Variable names: treatmentskills\_#\_recode**
* **Time period asked about:** past 4 months
* **Calculation Source:** Beth
* **Scored:** Average with dropping of does not apply questions
* **Possible Range: 1-4**
* **Scored variable name: treatmentskills\_scored**
* **Interpretation:** Higher scores indicate (ask Beth)?

### CSO Peer support

* **Measure:** Bonding Scale
* **Variable names: bonding\_#**
* **Time period asked about:** past 4 months
* **Calculation Source:** CHESS
* **Scored:** Average
* **Possible Range:** 1-5
* **Scored variable name: peersupport\_scored**
* **Interpretation:** Higher scores indicate more peer support

### IP Motivation

* **Measure:** SOCRATES Abstinence Goal Survey - Taking steps subscale
* **Variable names: socrates\_#**
* **Time period asked about:** “right now”
* **Calculation Source:** <https://www.guilford.com/add/miller11_old/socrates.pdf?t=1>
* **Scored:** sum of items:

4. I have already started making some changes in my drinking.  
5. I was drinking too much at one time, but I’ve managed to change my drinking.  
9. I’m not just thinking about changing my drinking, I’m already doing something about it.  
10. I have already changed my drinking, and I am looking for ways to keep from slipping back to my old pattern  
14. I am actively doing things now to cut down or stop drinking.  
15. I want help to keep from going back to the drinking problems that I had before.  
19. I am working hard to change my drinking.  
20. I have made some changes in my drinking, and I want some help to keep from going back to the way I used to drink.

* **Possible Range:** see below
* **Scored variable name: socrates\_scored**
* **Interpretation:** 
  + Possible range 8-40
    - HIGH scorers report that they are already doing things to make a positive change in their drinking and may have experienced some success in this regard. Change is underway, and they may want help to persist or to prevent backsliding. A high score on this scale has been found to be predictive of successful change.
    - LOW scorers report that they are not currently doing things to change their drinking and have not made such changes recently.

### IP Extent of use of app

* **Time period:** between survey dates
* **Calculation Source:** CHESS
* **Scored:** R code, days of use

|  |
| --- |
| ```{r}  PCHESS <- read.csv("R:/Data/Olivia/PartnerCHESS RO1 (FamCHESS)/Datasets/webuse.csv")  PCHESS$date = as.POSIXct(PCHESS$date, format = "%Y-%m-%d %H:%M:%S", tz="UTC")  PCHESS$study\_id = gsub(" ", "", PCHESS$study\_id)  #add missing study\_ids  PCHESS$study\_id[PCHESS$screen\_name == "Abbie"] = "316PT"  PCHESS$study\_id[PCHESS$screen\_name == "gage"] = "117PT"  PCHESS$study\_id[PCHESS$screen\_name == "Gazump"] = "333FAM" #no data  PCHESS$study\_id[PCHESS$screen\_name == "lavender"] = "318FAM"  PCHESS$study\_id[PCHESS$screen\_name == "peanut77"] = "102PT"  PCHESS$study\_id[PCHESS$screen\_name == "sarbabe05"] = "139FAM"  SurveyDates <- read\_excel("R:/Data/Olivia/PartnerCHESS RO1 (FamCHESS)/Datasets/Clean\_data/FamCHESS\_SurveyDates.xlsx")  PCHESS = merge(PCHESS, SurveyDates, by = c("study\_id"), all = T)  PCHESS = PCHESS %>%  filter(study\_id != "") %>%  filter(date > Baseline)  PCHESS$Timepoint = NA  PCHESS$Timepoint[(PCHESS$date >= PCHESS$Baseline) & (PCHESS$date < PCHESS$`4 Month`)] = "4 Month"  PCHESS$Timepoint[(PCHESS$date >= PCHESS$`4 Month`) & (PCHESS$date < PCHESS$`8 Month`)] = "8 Month"  PCHESS$Timepoint[(PCHESS$date >= PCHESS$`8 Month`) & (PCHESS$date < PCHESS$`12 Month`)] = "12 Month"  PCHESS = filter(PCHESS, !is.na(Timepoint))  PCHESS$Study\_Day = trunc(difftime(PCHESS$date, PCHESS$Baseline, units = "days"), digits = 0)  Days = PCHESS %>%  group\_by(study\_id, Timepoint, Study\_Day) %>%  tally() %>%  group\_by(study\_id, Timepoint) %>%  tally()  write\_sav(Days, "FAMchess\_days\_of\_use.sav")  ``` |

* **Scored variable name:** Days\_app\_use
* **Interpretation:** Higher scores indicate more days of use of app

## Moderator

Gender

* **Variable name: gender, gender\_open**

(not enough non-man/ women responses to have 3rd level. For patients, those who don’t fall into groups set to missing)

* Possible Responses:
  + (1) Woman
  + (2) Man
  + (3) Transgender Woman
  + (4) Transgender Man
  + (5) Non-binary
  + (6) Prefer to self-describe \_\_\_\_\_\_\_\_\_\_\_
  + (7) Prefer not to say

### Type of relationship (some change over the course of the study)

* **Variable name: partner\_relationship**
* Possible Responses:

1. (1) Romantic partner/spouse
2. (2) Parent
3. (3) Adult child
4. (4) Other family member
5. (5) Friend
6. (6) Recovery Coach

### Partner Relationship Satisfaction

* **Measure:** DAS-7 for partner at baseline
* **Variable names: relationsatisf\_#**
* **Time period asked about:** No timeline given
* **Calculation Source:**<https://www.eif.org.uk/files/resources/measure-report-ipr-das-7.pdf>
* **Scored:** The total score for the DAS-7 is the sum of the responses to the seven items
* **Possible Range:** 0 to 36
* **Scored variable name:** relationsatisf\_scored
* **Interpretation:** Higher scores indicate more positive relationship quality. Scores less than 21 are considered to indicate a relationship in distress

Other:

Socrates Other subcategories

* + Recognition: possible range 4-20 **socrates\_recognition\_scored**
  + Ambivalence: possible range 7-35 **socrates\_ambivalence\_scored**
  + Added question: possible range 1-5
    - The only reason I’m here is that somebody made me come