**Case Study 4: A Case Study of Services Utilization by Trauma-Exposed Children in the US Using Simulated Data (Version 2.0)**

**Note**: In the V.1 of these data, the ranges of the categorical variables **age** and **service** were **not consistent**, since the categorical variables were created by Poisson distribution. Variable **dissoc** is a variable with range 0-11, however, it was created as a binary variable in the simulated dataset. The revised V.2.0 of the case-study uses **truncated normal distribution** to re-create the categorical variables, and re-created the **dissoc** variable.

<https://umich.instructure.com/courses/38100/files/folder/Case_Studies/Case_04_ChildTrauma._Data_V2>

|  |  |  |
| --- | --- | --- |
| Variable name | Range V.1.0 Data | Range V.2.0 Dataset |
| age | 0-18 | 2-25 |
| dissoc | 0-11 | 0,1 |
| service | 0-19 | 0-20 |

**Overview**: This case study examines associations between posttraumatic psychopathology and service utilization by trauma-exposed children.

**Driving Challenges**:

* What differences in service utilization exist among children with different types of trauma exposure?
* How is PTSD associated with service utilization?
* How is dissociation associated with service utilization?
* Are there differences in levels of service utilization by trauma-exposed children with PTSD versus those with dissociation?

**Meta-Data**:

The dataset contains simulated data representing 1,000 trauma-exposed children seeking trauma treatment services. There are 9 variables describing demographic and clinical characteristics of the sample:

* **id**: Case identification number
* **sex**: Female or male
	+ Dichotomous variable (1= female, 0= male)
* **age**: Age of child at time of seeking treatment services
	+ Interval-level variable, score range= 0-18
* **ses**: Socioeconomic status
	+ Integer, range=0,27
* **race**: Race of child seeking treatment services
	+ Polytymous variable with 4 categories (1= black, 2= white, 3= hispanic, 4= other)
* **cmt**: The child was exposed to child maltreatment trauma
	+ Dichotomous variable (1= yes, 0= no)
* **traumatype**: Type of trauma exposure the child is seeking treatment sore
	+ Polytymous variable with 5 categories (‘sexabuse’= sexual abuse, ‘physabuse’= physical abuse, ‘neglect’= neglect, ‘psychabuse’= psychological or emotional abuse, ‘dvexp’= exposure to domestic violence or intimate partner violence)
* **ptsd**: The child has current posttraumatic stress disorder
	+ Dichotomous variable (1= yes, 0= no)
* **dissoc**: The child has currently has a dissociative disorder (PTSD dissociative subtype, DESNOS, DDNOS)
	+ Interval-level variable, score range= 0-11
* **service**: Number of services the child has utilized in the past 6 months, including primary care, emergency room, outpatient therapy, outpatient psychiatrist, inpatient admission, case management, in-home counseling, group home, foster care, treatment foster care, therapeutic recreation or mentor, department of social services, residential treatment center, school counselor, special classes or school, detention center or jail, probation officer
	+ Interval-level variable, score range= 0-19

**Provenance**: These data are simulated.

**R Code**:

library(truncnorm)

set.seed(1234)

NumSubj <- 1000

id <- c(1:1000)

sex <- ifelse(runif(NumSubj)<.5,0,1)

age <- floor(rtruncnorm(NumSubj,a=0, b=19, mean=9.5, sd=4))

race <- sample(c(1:4), NumSubj, replace = TRUE, prob = c(0.2,0.6,0.1,0.1))

cmt <- ifelse(runif(NumSubj)<.8,0,1)

## recode traumatype

## 1: sexabuse; 2: physabuse; 3: neglect; 4: psychabuse; 5: dvexp.

traumatype <- sample(c(1:5), NumSubj, replace = TRUE, prob = c(0.1,0.1,0.35,0.2,0.25))

ptsd <- ifelse(runif(NumSubj)<.7,0,1)

dissoc <- floor(rtruncnorm(NumSubj, a=0, b=12, mean=6, sd=3))

service <- 1.5+1.2\*(traumatype==2)+0.7\*(traumatype==3)+0.5\*(traumatype==4)+1.5\*(traumatype==5)+

 2\*ptsd+1.3\*dissoc

service <- service+rnorm(NumSubj, mean=0, sd=0.8)

service <- floor(service)

childtrauma <- cbind(id,sex,age,race,cmt,traumatype,ptsd,dissoc,service)

write.csv(childtrauma, file = "Case\_04\_ChildTrauma.\_Data.csv", row.names=FALSE)