The Montana Experiences and Expressions Screener Validation Report

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Table of Contents

Figures

Tables

Background

Vision 21: Linking Systems of Care (LSOC) for Children and Youth is a six-year demonstration project with a mandate to help facilitate the identification and treatment of young victims and their families. LSOC partners include the U.S. Office for Victims of Crime, the Montana Board of Crime Control, the University of Montana Criminology Research Group, and stakeholders from across the state.

LSOC's work starts with the identification of trauma and victimization in youth. The project team has worked with pilot sites—including health departments, parenting class providers, and Montana Youth Court Services—to launch the Montana Experiences and Expressions Screener (EES). The EES, comprised of 25 questions, was constructed upon extensive academic research and data gathering from national experts and statewide service providers. Research findings from Montana EES administration is being used to identify the prevalence of victimization and trauma in Montana children.

During the project's pilot phase, the EES has been utilized with children and youth from districts representing 18 Montana counties. The first LSOC pilot sites launched with the Mineral County Health Department. The health department is serving as the third-party administrator to screen young people in Mineral County schools and working to launch the screening instrument through its Parents as Teachers program. With Mineral County school administrators and the Health Department, the LSOC team has crafted protocols for screening young people in area educational institutions. Further, project staff are finalizing an agreement to screen children involved with Child and Family Services Division interventions as part of a pilot project in Judge Leslie Halligan's Fourth Judicial District Court. Parenting Place Missoula, meanwhile, recently began using the EES, and the project is screening justice-involved youth from Carter, Custer, Fallon, Garfield, Powder River, Rosebud, Treasure, Ravalli, Silver Bow, Cascade, Gallatin, Lake, Sanders, Fergus, Petroleum, Judith Basin, and Missoula counties. Between July 2018 and November 2019, the project screened 137 youth.

The following analyses demonstrate that, after being rolled out in pilot sites across the state, the EES no longer constitutes experimental research. The instrument has been validated across a variety of settings. When tested in juvenile probation offices and schools, for example, the instrument has consistently demonstrated that a higher number of adversities are distinctly linked to symptoms of PTSD and depression. As no other instrument being used in Montana collects such information, data produced by the EES has the potential to help grow understanding about one of the most pressing public health issues of our time, the societal, institutional, and human effects of childhood trauma. Further, evidence presented here shows the EES satisfies the four criteria considered when evaluating validity: content validity, face validity, construct validity, and criterion validity.

Content Validity

Content validity is concerned with a measure's ability to encompass the necessary range of meanings within a concept it is purported to cover (see Babbie, 2015). Content validity is often tested by using a panel of experts to provide constructive feedback about the quality of a newly developed assessment. The expert panel provides information on the representativeness and clarity

of each screener item, determines whether the screener is measuring what it is supposed to, and provides suggestions as to how to improve the individual measures. During a two-year period, a panel of researchers and experts from Montana and across the country created the EES. That process, as it relates to the test of content validity, is detailed in this section.

The Montana Board of Crime Control (MBCC) and the University of Montana Criminology Research Group (CRG) convened the Vision 21 Screening Tool Workgroup to develop the EES. The workgroup was a collaborative body comprised of representatives from the Montana Department of Public Health and Human Services (DPHHS), the National Native Children's Trauma Center (NNCTC), the National Child Traumatic Stress Network (NCTSN), and the National Council of Juvenile and Family Court Judges (NCJFCJ), a licensed clinical social worker, the executive director of a youth service organization, a registered nurse, and a family law attorney. Community focus groups across Montana and a service provider survey conducted by the LSOC team further informed instrument construction.

In addition to a panel of experts creating the EES, all but two questions on the EES were modeled from previously validated instruments. EES questions were derived from those included on the Child Trauma Screener (CTS); the National Survey of Children's Exposure to Violence (NatSCEV); criteria for depression and PTSD articulated in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5); the Adverse Childhood Experiences (ACEs) questionnaire, the Cuyahoga County Defending Childhood Screening Instrument (CCDCI), and the Child and Adolescent Needs and Strengths (CANS) assessment. The inclusion of questions from previously validated screening instruments provides further evidence for content validity.

The EES was developed to include two distinct domains. The first domain is called the "Experiences" section, which compiles information on potentially traumatic events (see Lang & Connell, 2017). The second domain is referred to as the "Expressions" section, which includes a series of questions focused on symptoms associated with PTSD and depression compiled from the DSM-5. The Child Trauma Screener, which was at its inception called the Connecticut Trauma Screen (CTS) and constructed and validated by Lang and Connell (2017), served as a primary template for Montana EES creation.

The Montana EES's Experiences section includes questions about what, if any, potentially traumatic experiences or events the child has encountered. In addition to model screeners drawn from during EES creation, Experiences section questions are rooted in the most common categories of victimization and trauma cited in recent academic literature (Finkelhor, Turner, Shattuck, Hamby, & Kracke, 2015). Nine primary categories of victimization and trauma are included in the Montana EES:

1. **Maltreatment and neglect**, including physical abuse by a caregiver, psychological or emotional neglect, and family abduction.
2. **Property victimization**, such as theft from family or the young person. Research indicates that children who have been victims of theft are more likely to be poly-victimized (Plass, 2014).
3. **Peer and sibling victimization**, such as gang or group assault, peer or sibling assault, physical intimidation by peers, and peer relational aggression.
4. **Sexual victimization**, which constitutes all unwanted sexual touch.

5. **Witnessed victimization**, as when someone the young person knows is threatened or harmed.
6. **Exposure to family violence and abuse**, including instances in which a parent verbally threatens the other parent, or physically assaults the other parent.
7. **Internet and cell phone victimization**, such as when a peer uses the internet or a cell phone to share unflattering pictures or spread rumors.
8. **Bereavement**, as with the loss of a loved one.
9. **Medical trauma**, which addresses the stress associated with living in a home with a sibling, or parent/guardian who has experienced a long-term chronic illness.

Table 1 itemizes each EES Experiences section question and which model screening instruments utilize similar questions. All EES Experiences section questions, except two, are derived from previously validated instruments. Further, EES Experiences section questions exhaust the common types of potentially traumatic events detailed in the literature. (See Appendices A and B for further details regarding each item).

Table 1: Origin of Experience Questions

Experiences	Workgroup	NatSCEV	ACES	CTS	CANS	CCDCI
Frequently been denied meal because caregiver angry	X					
Ever not had home to stay in				X		
Kept you from seeing doctor when you were hurt	X					
Anyone ever stolen something from you or your family		X				
Seen someone you care about drink or do drugs in front of you			X			
Other kids hurt or threaten to hurt you (emotionally/physically)		X		X		X
Anyone you care about been sick for a long time			X			
Used internet or cell phone to hurt or embarrass you		X				
Seen caregiver threaten to or physically hurt someone else in home		X	X		X	
Caregiver ever hurt you		X	X		X	
Anyone close to you died				X		
Loved one been removed from your home			X	X	X	
Seen/experienced violence in school/community		X		X	X	X
Anyone ever touched/tried private parts		X	X	X	X	X

Expressions section questions were specifically selected to identify youth likely suffering from PTSD and depression based on criteria from the DSM-5 and guidance from the Centers for Disease Control and Prevention and the National Child Traumatic Stress Network. Additionally, several questions were borrowed from three validated instruments, including the CTS, CANS, and the CCDCI. For each Expressions section question, youth are asked whether they have experienced this symptom "Not even once," "One or two times," "Three to five times," or "More than five times" in the past month. This allows for the location of the symptom and the frequency of its occurrence within the preceding 30 days. Table 2 illustrates whether the question is a criterion for PTSD or depression from the DSM-5. Table 2 also highlights which validated trauma screeners have utilized similar questions.

Table 2: Origin of Expression Questions

Expressions	DSM-5 PTSD	DSM-5 Depression	CTS	CANS	CCDCI
Trouble Sleeping	X		X	X	
Felt Alone	X		X	X	
Not Want to be Around People	X		X		
Uncomfortable About what Happened	X		X		X
Become Angry or Upset	X			X	
Used Drugs/Alc to Feel Better	X			X	
Trouble Paying Attention	X	X	X	X	
Feel Sad or Hopeless		X	X	X	
Blame Self or Felt Guilty		X			
Thought About Hurting Self		X		X	X
Thought About Suicide		X		X	X

Expressions section questions do not exhaust all symptoms of PTSD and depression articulated in the DSM-5. The diverse selection of core symptoms presented in the Expressions section, however, lends a significant degree of confidence that youth scoring a higher number of Expressions section symptoms are likely suffering from PTSD or depression relative those with fewer symptoms. (See Appendix A and B for question by question breakdown).

The EES has good content validity because it was developed by experts in the field and it is firmly rooted in modern theoretical constructs validated in tests of other screening instruments.

Construct Validity

Construct validity refers to an instrument's ability to measure an intended theoretical construct (see Anastasi & Urbina, 1997; Babbie, 2015). As discussed in the previous section of this analysis, EES Expressions section questions are intended to measure two latent constructs developed by the DSM-5: PTSD and depression. Confirmatory factor analysis (CFA), a form of structural equation modeling, is used to test construct validity of these two measurements. This approach is commonly used to test construct validity (see Mu & Duan, In Press).

Figure 1 presents the CFA for PTSD and depression using EES data.[1] Goodness-of-fit for structural equation models is generally based on multiple measures of model fit. Here, model fit is assessed using Steiger's root mean square error of approximation (RMSEA; Browne & Cudeck, 1992), the comparative fit index (CFI; Bentler, 1990), and the Tucker-Lewis Index (TLI). For RMSEA, lower values indicate better model fit. Hu and Bentler (1999) suggested that an RMSEA between .05 and .08 indicates a reasonable fit, while values lower than .05 suggest that the model fits the data very well. Higher CFI values indicate good model fit; Hu and Bentler (1999) recommended a cutoff of .95. Similar to CFI, higher TLI values indicate good model fit, and Hu and Bentler (1999) recommend a cutoff of .95.

[1] The errors associated with "HurtSelf" and "Suicide" have been correlated in the model. EES data indicates that all youth who thought about suicide also reported engaging in thoughts of self-harm. Thus, the two variables are highly correlated. Beyond their individual correlation, their errors are also likely associated. To investigate this further, modification indices and standardized residual covariance between the two variables were inspected. Brown (2006) notes that modification indices greater than 3.84 and standardized residual covariance above 1.96 may be a concern, therefore model modification (e.g. correlated errors) may be required. EES data demonstrated high modification indices and standardized residual covariance between the two variables (47.04 and 2.12, respectively) and thus the decision to correlate these two errors was made. Correlating the errors between these two variables resulted in an increased model fit, further supporting the model modification.

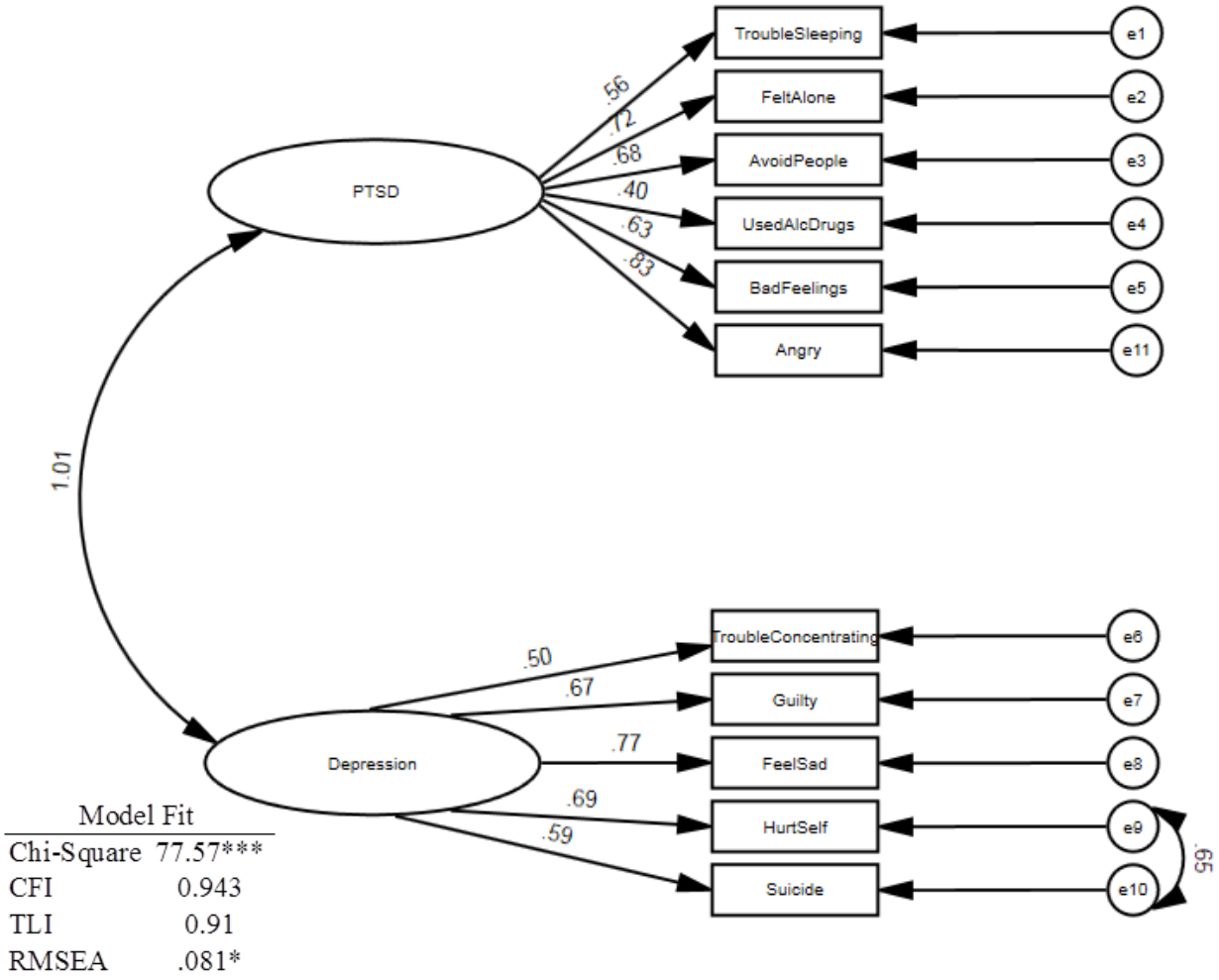

***Figure 1*: Confirmatory Factor Analysis Model of PTSD and Depression (*N*=131).**

Fit indices presented in Figure 1 indicate that the CFA model fits the data well (RMSEA=.081; CFI=.943; TLI=.910).[2] The RMSEA is just outside the cutoff for excellent model fit; however, it should be noted that Brown (2009) explains that RMSEA may be less reliable when the sample size is somewhat small. The smaller sample size used here may be impacting these values. The CFI and TLI are both indicative of good model fit. In addition to these indices, results indicate that all factors are positively related and load significantly into their respective latent factor (PTSD/Depression). Taken together, these results indicate that the latent constructs of PTSD and

[2] Though the chi-square test of model fit is significant (χ^2=77.57, df=42, p=.001), this statistic is vulnerable to a number of factors, such as sample size, the number of variables in the model, and the presence of a non-normal distribution, so a significant chi-square is not considered the main determinant of model fit (Bollen, 1989). Alternative statistics such as RMSEA, CFI, and TLI are not vulnerable to these issues, and are thus considered better determinants of model fit.

depression are measured by EES questions. Thus, construct validity for the Expressions section of the EES is demonstrated to be good.

Face Validity

Face validity involves determining whether the instrument evaluated appears to reasonably measure variables of interest (see Babbie, 2015). When weighing EES face validity, one may ask, does the EES appear valid when measuring potentially traumatic experiences and symptoms of PTSD and depression? Face validity is demonstrated here through a survey taken of practitioners who have used the EES in the field.

A survey was distributed to all Youth Court Services juvenile probation officers who have administered the EES and also those who supervise EES administrators. The survey presented several questions about EES administration and confidence levels in the tool. Results from that survey are used as a measurement of face validity.

Figure 2 displays administrator responses to three questions: (1) “How confident are you in the ability of the EES to locate youth in need of services?” (2) “How confident are you in locating appropriate services using the Linking Systems of Care (LSOC) Community Referral Matrix?”, and (3) “How confident are you that EES could replace the ACEs questionnaire?” Each question provided a scale where respondents could select between 0 and 10. The score of zero indicates “not at all confident” and 10 indicates “very confident.” Boxplots are presented in the figure to demonstrate the overall distributions of administrator responses. A boxplot key is shown to the right of this figure to help interpret the results.

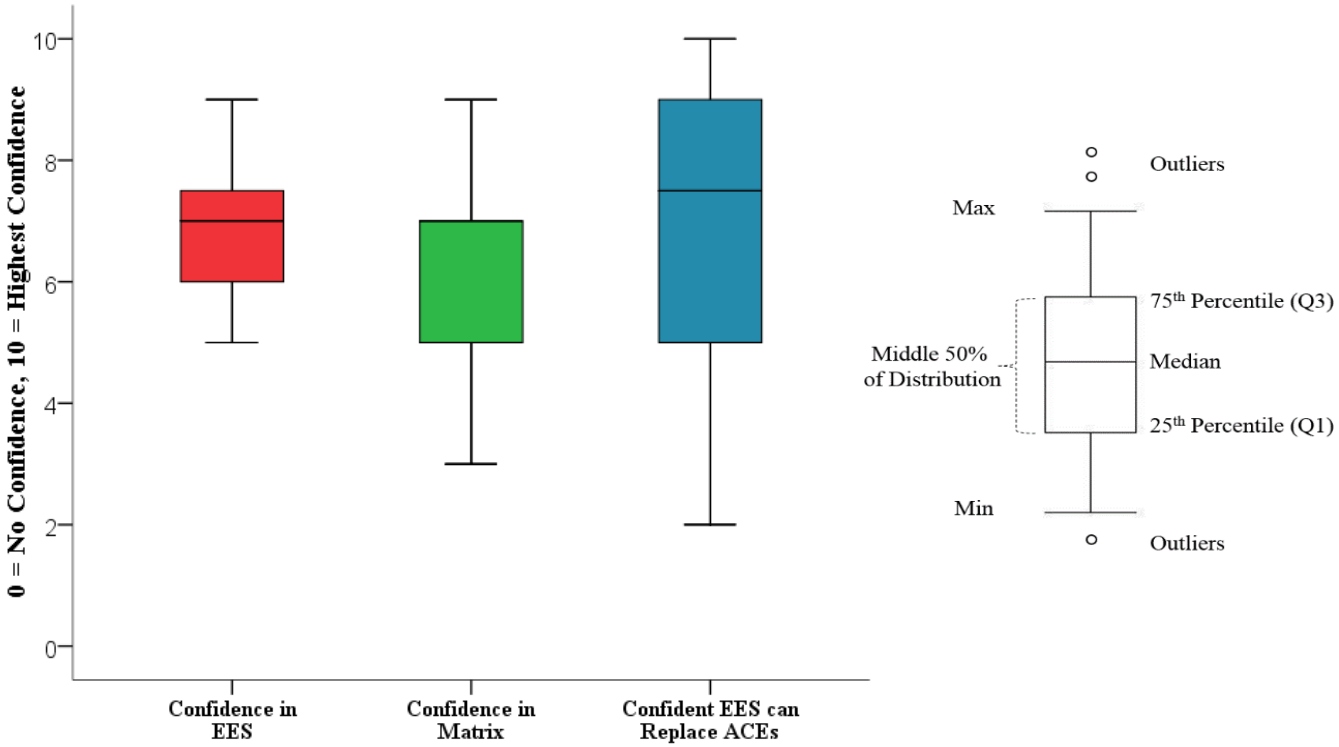

Figure 2: **Boxplots for Confidence in EES, Confidence in Matrix, and Confident EES Can Replace ACEs (*N*=16).**

Fifty percent of respondents reported having confidence levels between seven and nine related to the EES's ability to locate youth in need of services. Scores of seven through nine are indicative of a significant amount of confidence. The remaining 50% expressed confidence levels at or between five and seven. Even the lowest score recorded (five) could be interpreted as a moderate amount of confidence in the EES' ability to locate youth in need of services. Overall, administrators indicate a high degree of confidence in the EES's ability to detect trouble in young people and thereby refer them to services.

Secondly, confidence in utilizing the LSOC Community Referral Matrix, which aids EES administrators in selecting appropriate services for youth screened and their families, is high. Compared to the high administrator confidence in the ability of the EES to locate youth in need of services, the range of scores related to the matrix's ability to facilitate services is variable. Answers to questions related to the resource matrix's utility ranged from a high of nine to a low of three. Discussions with EES administrators suggest that some believe that they do not need the matrix, as they are already familiar with services in their communities. This perspective may be the cause of this variability in confidence levels.

Finally, the Adverse Childhood Experiences (ACEs) questionnaire is currently used during the Montana Youth Court Services intake process. ACEs gathers information on certain traumatic events in the youth's life, but it collects significantly fewer events than the EES and does not specifically link youth with services. The EES may take the place of ACEs if juvenile probation believes it is more applicable in their intake process. The final responses illustrated Figure 2 relate

to officer confidence that the EES is capable of replacing ACEs. Results from this question show the greatest variability in responses. Some officers say they are very confident (10) that EES can take the place of ACEs. Others, however, are more hesitant with this transition with the lowest confidence score of two. The median score is still very high (7.5) with the middle 50% of scores falling between a five and a nine. These responses tell us that many officers are ready to make this switch but the LSOC team needs to work to gain greater buy-in from approximately 25% of the officers who express less confidence in this transition.

One final measurement of face validity comes from a question on the EES Administrator Survey that attempts to measure the true application of the EES. The question is: "Are there any youth you have screened who were referred to services based solely on the information obtained from the EES? (Rephrased, the question asks whether it is likely particular youth would not have been linked with services if it were not through the EES.) Almost half (46%) of respondents to the services-based question said "yes." These results demonstrate the EES is accomplishing a primary goal articulated at its inception: identifying youth in need services who otherwise would not be identified.

Criterion Validity

Criterion validity is also referred to as predictive validity. When evaluating if the EES satisfies this fourth validity test, it is helpful to examine to what extent the EES predicts outcomes of interest. Criterion validity for the Experiences section is demonstrated in this section.

Data for criterion validation comes from 137 youth screened with the EES during a pilot test between July 2018 and November 2019. In that time period, the EES collected information on potentially traumatic events. In addition to tracking data on adverse events by asking questions itemized in the screener's Experiences section, the instrument in the Expressions section chronicles information about symptoms of PTSD and depression to occur within 30 days preceding screening.

Criterion validity is assessed using three scaled variables (these variables are discussed in more detail below). The interplay among the scaled variables demonstrates how potentially traumatic events experienced by a child predict increased levels of PTSD and depression symptoms. This line of inquiry is rooted in an extensive body of research growing from the "Adverse Childhood Experiences Study" (ACE Study). That study and others like it have shown an increased number of early adversities linked to heightened risk of depressive disorders (Cabrera, Hoge, Bliese, Castro, & Messer, 2007; Chapman et al., 2004; Felitti et al., 1998; Sansone, Wiederman, & Sansone, 2001) and PTSD (Cabrera et al., 2007; Widom, 1999).

PTSD and Depression:

To investigate the relationship between the potentially traumatic events and symptoms of PTSD and depression, three scaled variables are created, a PTSD Scale, a Depression Scale, and an Expressions Scale.[3] Table 3 displays each EES Expressions section question alongside a column that displays which EES questions detect symptoms of PTSD and another column indicating EES questions related to depression symptoms. The PTSD Scale is comprised of seven PTSD symptoms and ranges from 0 to 21. The Depression Scale is comprised of five questions and the scale ranges from 0 to 15. A score of 21 for PTSD or 15 for depression is indicative of a child who has all seven PTSD symptoms or all five depression symptoms and reports experiencing these symptoms "more than 5 times" in the previous month.

[3] When taken together, internal consistency of all 11 Expressions section items is good with a Cronbach's alpha of .879. Expressions section items broken down into PTSD and depression items also demonstrate good internal consistency. The PTSD Scale items have a Cronbach's alpha of .81 and the Depression Scale items have a Cronbach alpha of .77. These measurements of internal consistency provide evidence that these Expression section items can be merged into scaled variables.

Table 3: PTSD and Depression Questions

Expressions	PTSD	Depression
Trouble Sleeping	X	
Felt Alone	X	
Not Want to be Around People	X	
Uncomfortable About what Happened	X	
Become Angry or Upset	X	
Used Drugs/Alc to Feel Better	X	
Trouble Paying Attention	X	X
Feel Sad or Hopeless		X
Blame Self or Felt Guilty		X
Thought About Hurting Self		X
Thought About Suicide		X
Cronbach's Alpha	0.81	0.77

Linear regression is used to examine the relationship between youth experiences and negative mental and behavioral outcomes (depression, PTDS, and expressions). The three regression models examine how the Depression Scale (range 0 to 15), the PTSD Scale (range 0 to 21), and the Expressions Scale (range 0 to 33) are impacted by a youth's Experience Score (range 0 to 14), while controlling for the influence of race (white vs. non-white), gender, and age (in years).

Regression results are presented in Table 4. As shown there, the Experiences section score has a statistically significant effect in predicting depression, PTSD, and expressions (while holding constant the impacts of race, gender, and age). In other words, the number of potentially traumatic events a youth has experienced affects how many symptoms of PTSD and depression a youth reports. For each one point increase in a youth's Experiences section score, there is a 0.66 point increase in depression scale, 1.03 point increase in PTSD scale, and a 1.59 point increase in the total Expressions section score. None of the demographic variables impacts symptoms of PTSD or depression.

Table 4: OLS Regressions of Depression, PTSD, and Expressions on Experience Score and Demographics (*N*=137)

	Depression Scale	PTSD Scale	Expression Scale
	b	*b*	*b*
Independent Variables			
Experience Score	0.63 ***	1.00 ***	1.53 ***
White	0.00	0.06	0.11
Male	-0.46	0.10	-1.03
Age	0.18	0.14	0.33
Model Fit			
R^2	0.26	0.31	0.33

Note: *$p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Figure 3 displays the relationship discussed above between the number of experiences (x-axis) and the average number of depression, PTSD, and Expressions section scores (y-axis). A very similar pattern can be seen between all scaled variables. As the Experiences section score increases, so too do the average scores of Expressions, PTSD, and depression. A reference line is placed on five experiences because of the dramatic increase each variable displays after five. Youth who score more than five experiences are significantly more likely to experience PTSD and depression symptoms compared to those youth who have five or fewer experiences. The average Expressions section score for youth who have five or fewer experiences is 7.4. For those youth with more than five experiences, their average expression score is 17.2.

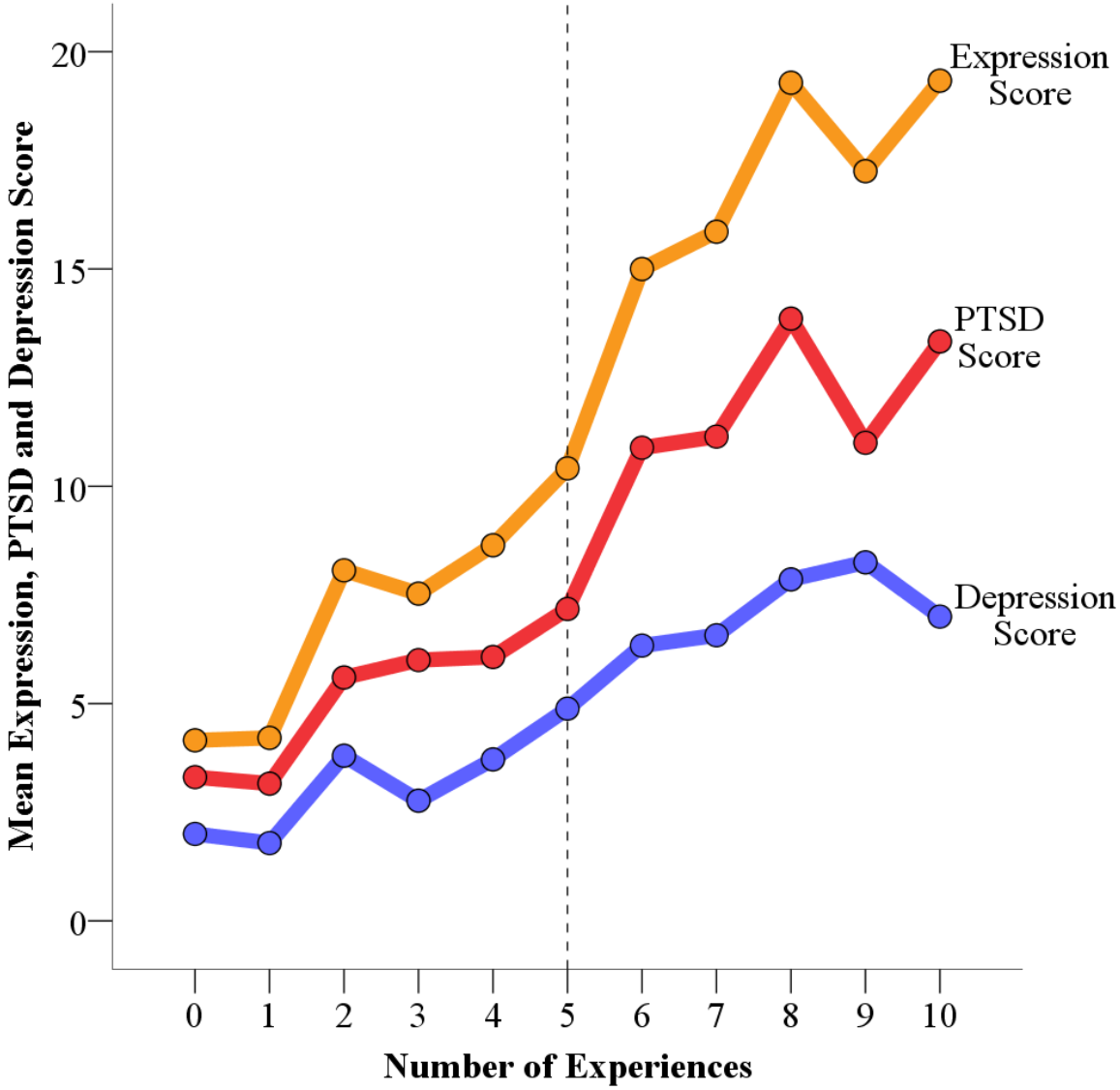

Figure 3: Expression, PTSD, and Depression Average Scores Based on Number of Experiences (*N*=137).

Severe Disturbance:

Expressions section questions that detect severe disturbances, including prompts about using drugs or alcohol to feel better, thoughts of self-harm, and suicidal ideation, are explored in the following examination of the effect specific experiences have on these three expressions. Previous research has demonstrated that adverse childhood experiences are associated with increased risk of alcohol and drug use (Enoch, 2011; Felitti et al., 1998), self-harm (Cleare et al., 2018), and suicide ideation (Corcoran et al., 2005; Felitti et al., 1998).

Table 5 presents three logistic regression models examining the impact of Experiences section scores on severe expressions (substance use, thoughts of self-harm, and suicidal ideation), while controlling for demographic characteristics (gender, race, and age). Overall, the analyses indicate that experiencing traumatic events increases the likelihood of severe expressions. The first model shows that, for each point increase in the Experiences section, youths are 41% more likely to use drugs or alcohol to feel better. Similarly, the second model shows that each additional point in the Experiences section score is associated with a 29% increase in the likelihood of having thoughts about harming themselves. Finally, the third model indicates that, for each point increase in the Experiences section score, youth are 41% more likely to have thoughts of suicide.

Table 5: Logistic Regression of Severe Expressions on Experience Score and Demographics (*N*=137)

	Substance Use	Thoughts of Self-Harm	Suicide Ideation
	Odds Ratio	Odds Ratio	Odds Ratio
Independent Variables			
Experience Score	1.41 ***	1.29 **	1.41 ***
Male	1.02	0.57	0.32
White	0.98	0.92	0.76
Age	1.14	1.08	1.19
Model Fit			
Likelihood Ratio χ^2	22.1 ***	13.55 **	20.82 ***
Pseudo R^2	0.25	0.15	0.25

Note: *$p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

As previously discussed, once the EES is complete, two scores are calculated to determine if EES administration indicates the youth would benefit from a mental health service referral. If the youth scores four or greater on the Experiences section, a referral is indicated. If the youth scores 10 or greater on the Expressions section, a referral is recommended. As illustrated in Figure 4, the number of referral thresholds tripped through EES administration predict to what extent a young person is experiencing severe disturbances. Youth who do not garner a mental health referral through screening, or those who do not trip EES referral thresholds, infrequently use alcohol or drugs to feel better or contemplate suicide and self harm. In contrast, those young people who trip the referral threshold in one EES section, either Experiences or Expressions, are significantly more likely to engage in alcohol or drug abuse (26% versus 3%) and to engage in thoughts of self harm

(19% versus 6%). Strikingly, 83 percent of young people who trip both referral thresholds reported contemplating suicide within the month preceding screening. That number marks a distinct contrast to youth who did not indicate through screening a service referral was warranted, 4% of youth who tripped no referral threshold reported being suicidal. Overall findings demonstrate that EES referral thresholds are capable of helping to identify youth in need of services.

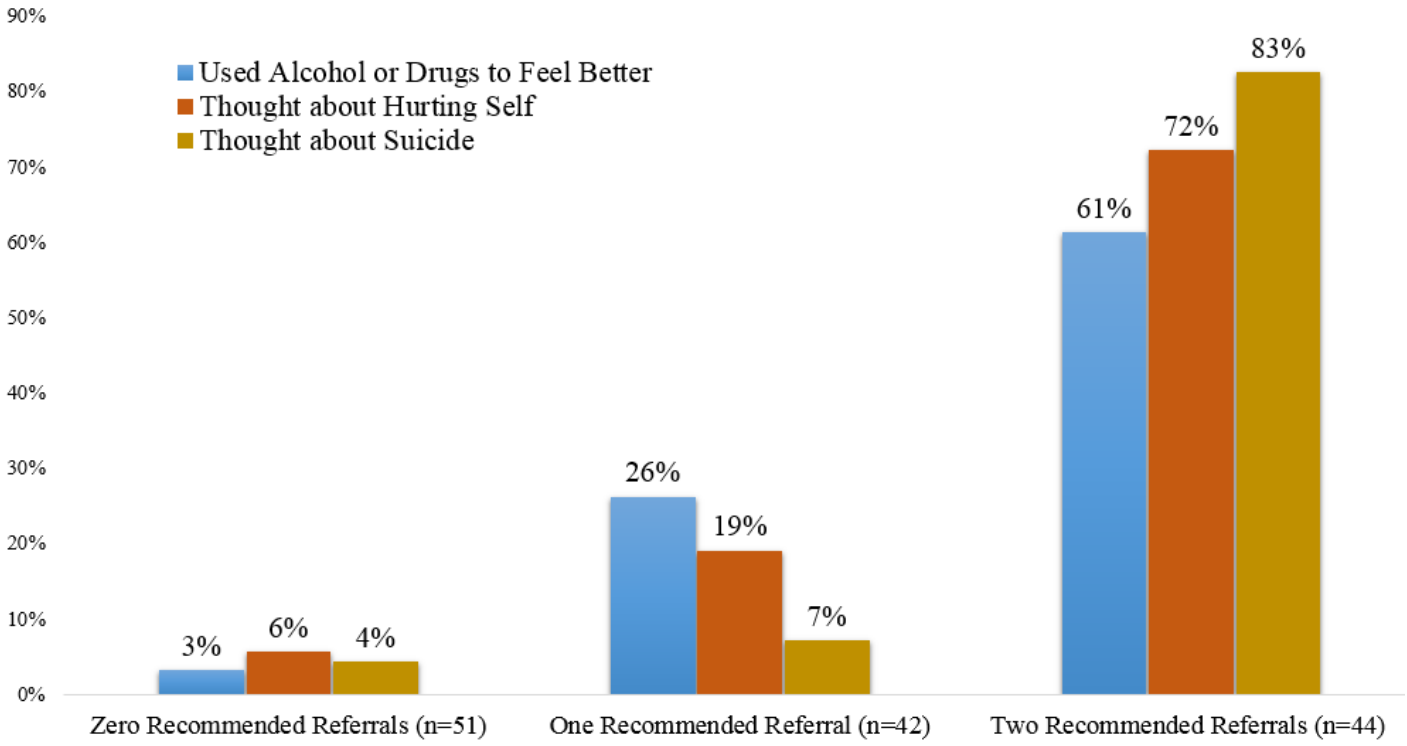

Figure 4: **Severe Expressions Based on Number of Recommended Referrals (*N*=137).**

EES scores predict multiple disturbances. Figure 5 displays the frequency of each PTSD and depression symptom based on whether the youth has had five or fewer experiences or greater than five experiences. Findings presented in Figure 5 illustrate how the accumulation of experiences as detected by the EES predicts the increase in each PTSD and depression symptom.

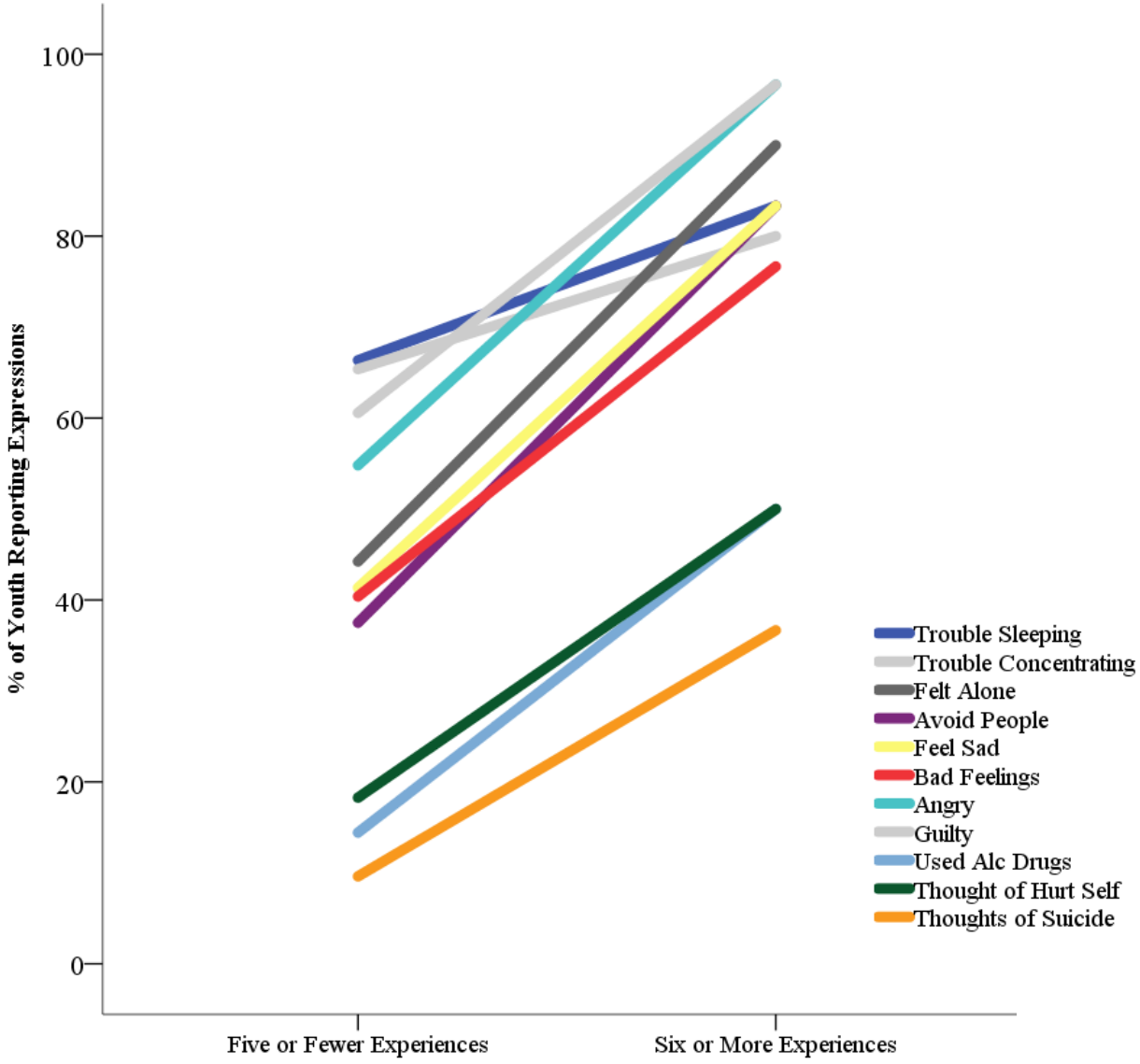

Figure 4: **Expressions for Youth with Five and Fewer Experiences and Youth with Over Five Experiences (*N*=137).**

Cyber-victimization:

While examining correlations between a youth's individual experiences and expressions, the research team found one experience—cyber-victimization—correlated to all 11 symptoms of PTSD and depression. The growing prevalence of cyber-victimization is drawing an increasing amount of national attention. In 2000, 6% of youth reported experiencing online harassment. That number increased to 9% in 2005, 11% in 2010 (Jones, Mitchell, & Finkelhor, 2011), and 17% in

2014 (Mitchell, Jones, Turner, Shattuck, & Wolak, 2016). Montana data demonstrate this trend accelerating, with 28% of youth administered the EES in 2018 and 2019 reporting cyber-victimization.

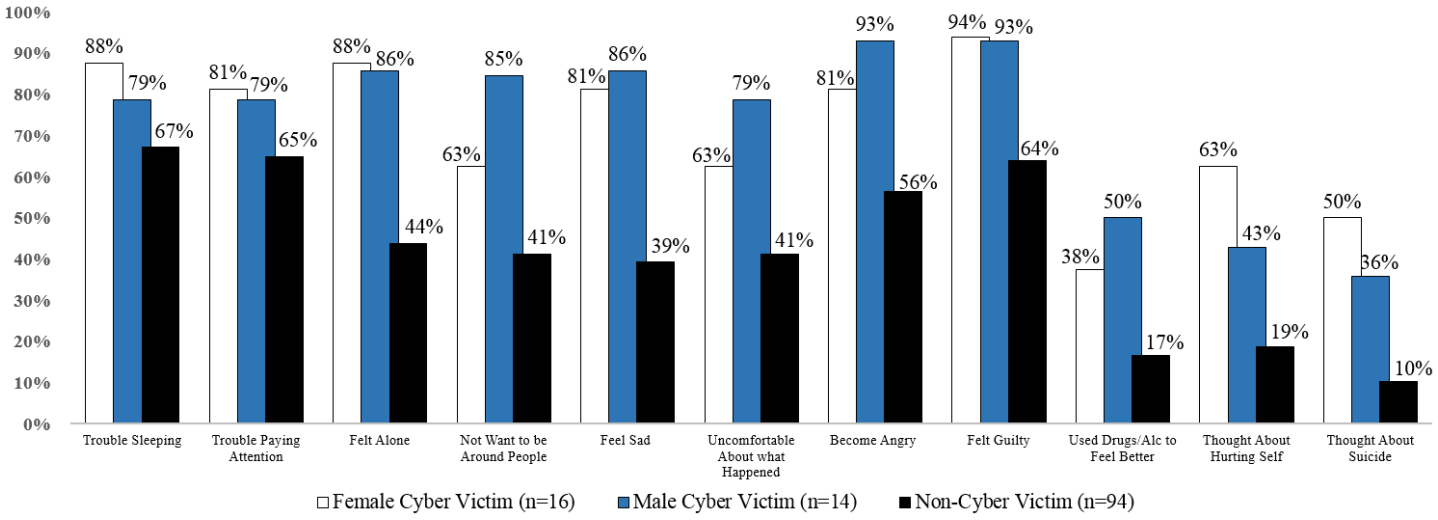

Figure 5: **Expressions for Cyber-Victim Youth and Non-Cyber-Victim Youth (*N*=137).**

Figure 5 displays the percentage of youth who have reported each EES expression based on whether the youth had experienced cyber-victimization. Broadly, these results related to cyber-victimization align with previous research. EES data show that male and female cyber-victims display significantly more symptoms of PTSD and depression compared to non-cyber-victim counterparts. Landoll, Geca, Lai, Chan, and Herge (2015) found that cyber-victimization was directly linked to increased levels of depressive symptoms. According to Figure 5, 50% of male cyber victims and 28% of female cyber victims said they used drugs or alcohol to feel better in the 30 days preceding screening (a significant departure from the 17% of non-cyber victims who reported such behaviors). Chan, Greca, and Peugh (2019) found that cyber-victims who had used alcohol in the past were more likely to self-medicate with alcohol than non-cyber-victims and that this relationship was especially true for older adolescents. Also striking is the fact that 19% of non-cyber victims contemplated self-harm in the 30 days preceding screening compared to the 63% of female cyber victims and 43% of male cyber victims who reported such thoughts. Ten percent of non-cyber victims engaged in suicidal ideation in the 30 days prior to EES administration compared to 50% of female and 36% of male cyber-victims. Similarly, Kim, Walsh, Pike, and Thompson (In Press) reported that cyberbullying was associated with increased levels of suicide. Interestingly, these researchers found that increased levels of school connectedness mitigated the impact of cyberbullying on risk of suicide. Symptoms of mental and emotional disturbance reported by cyber-victims highlight the need to engage in future study of this issue and to identify additional resources capable of assisting youth struggling with this phenomenon.

Overall, findings articulated here demonstrate criterion validity for the instrument's Experiences section. The number of potentially traumatic events measured in that section is highly predictive of symptoms of PTSD and depression.

Practical Application of the EES

This section discusses the prevalence of trauma and symptoms of PTSD and depression among Montana youth. Appendix C documents the data EES collects compared to the data already collected on Montana's justice-involved and youth in the state's general population. Justice-involved youth have a tremendous amount of data collected about them when they enter the system. The data are collected as part of an effort to help inform about the youth's recidivism risk and possible avenues for intervention. Data are also collected on youth to allow agencies to track trends and monitor patterns in their data to improve future services. Though justice-involved youth are already subject to a significant amount of data collection, historically very few questions have been asked of them like those included on the EES. Specifically, six of the 14 EES Experiences section questions and two of the 11 Expressions section questions were already collected by juvenile probation officers prior to EES introduction. Absent the EES, data on the prevalence of trauma, victimization, and mental health challenges are largely non-existent for the general population. Documenting the prevalence of trauma and victimization constitutes an essential step towards ensuring adequate resources are directed to youth and families who have suffered adversities.

Prior to EES introduction, two data sources were routinely collected about the general population of Montana youth: the Montana Prevention Needs Assessment (MPNA) and the Youth Risk Behavior Survey (YRBS). While these surveys collect information about the prevalence of certain risk behaviors and youth needs, they do not link these needs or risks with any services. Between those two surveys, only three questions resemble any of the 25 questions found on the EES. Most data collected by the EES, therefore, is unique and not obtained through alternative surveys or assessments.

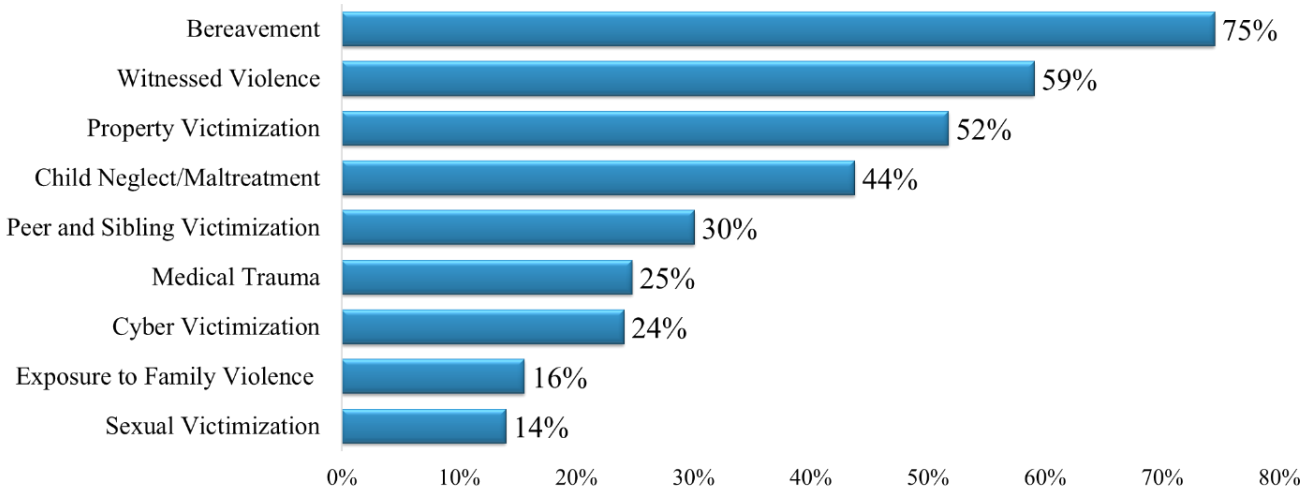

Figure 6: **Prevalence of Victimization and Trauma Experienced by Montana Youth (*N*=137).**

Between July 2018 and November 2019, the EES was administered to 137 youth. Figure 7 displays the prevalence of nine different types of trauma experienced by these Montana youth. Bereavement was the most commonly reported trauma, with 75% of youth reporting the loss of someone close

to them. The second most commonly reported adversity was witnessing violence in the community or at home, with 59% of youth reporting that experience. Fifty-two percent of youth reported property victimization. Almost half (44%) of youth screened reported experiencing neglect or maltreatment. Thirty percent reported peer or sibling victimization. A quarter of youth witnessed a medical trauma at home and approximately a quarter (24%) said they had been cyber-victimized. Sixteen percent reported exposure to family violence. Finally, 14% of screened youth said hey experienced some form of sexual victimization. Of all youth receiving the EES, 90% indicated they have experienced at least one type of potentially traumatic event. These findings demonstrate that Montana youth are experiencing every type of trauma screened for on the EES and that these experiences of trauma and victimization are common among the state's youth.

Figure 7 displays the prevalence of PTSD and depression symptoms identified through the EES. As most youth screened by the EES report at least one potentially traumatic experience, symptoms of PTSD and depression are also common among young people screened. Among all screened youth, 93% report experiencing at least one PTSD symptom in the 30 days preceding EES administration and 88% indicated they had at least one depression symptom. Almost three quarters (70%) of the youth reported three or more symptoms of PTSD and almost half (44%) said they had three or more symptoms of depression. Even the most severe indicators of disturbance are relatively common: 27% of young people screened contemplated hurting themselves in the 30 days preceding screening, 23% used drugs or alcohol to feel better, and 18% thought about committing suicide.

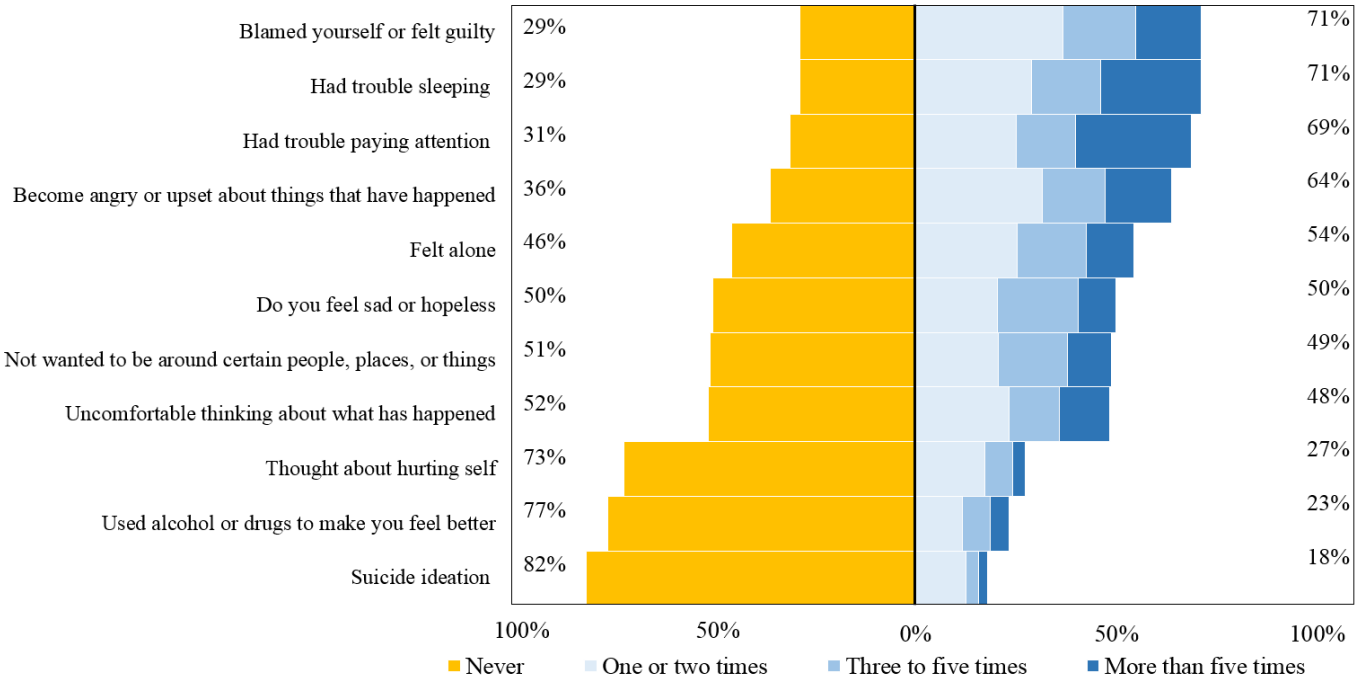

Figure 7: **Prevalence of PTSD and Depression Symptoms in Montana Youth (*N*=137).**

Limitations and Future Research

No research is without limitations. One primary limitation associated with this analysis relates to the sample, which is both self-selected and small. Another challenge arises from the inability to analyze outcome data related to each case. Data collected from screened youth are de-identified. While this process preserves confidentiality, it also impedes the ability to collect the follow-up data that could provide additional forms of validation. Further, youth screened are doing so on a voluntary basis, as demonstrated through their signature on a detailed minor's assent document. The parental/guardian permission form itself—which spells out in explicit terms that child protective services could be called if an abuse claim arises and that a subpoena could prompt release of highly sensitive information—has been noted by EES administrators as the greatest barrier to instrument administration. The existing permission process creates self-selection problems, as it is likely that the parents of kids at low risk for domestic abuse and neglect feel most comfortable moving forward with screening. Further, analyses of important themes—such as comparisons among gender, race, and age—would benefit from a larger and more representative sample. Future EES-based research should elaborate on this validation report by drawing from a larger and more representative sample to demonstrate additional evidence of validity and practical application.

Discussion and Conclusion

In addition to satisfying criteria associated with the four primary types of validity, the Experiences and Expressions Screener (EES) can be practically applied. Not only is the tool valid, it is also doing what it was designed to accomplish.

From the LSOC demonstration project's 2015 inception, the goal has been to facilitate the identification and treatment of young victims and their families. For more than a year, the EES has been piloted across 18 Montana counties. From the screener's development through the pilot test, the EES has proven to be a valid tool capable of identifying trauma, victimization, and mental health issues in youth in order to provide them with referrals for appropriate services.

While the instrument is working in an applied sense, it also holds up under scientific inquiry. The EES was created by a panel of experts. Every EES question was developed and vetted by specialists from across Montana, stakeholders likely to use the tool, and professionals from across the nation. The EES has good content validity. Information on each primary trauma and victimization type is collected in the screener's Experiences section. Questions in this section were modeled from validated screeners currently used across the country and informed by current academic literature on trauma and victimization. Expression section questions directly ask whether the youth has experienced significant PTSD and depression symptoms, as itemized by the DSM-5. Taken together, the EES has good content validity because it was created by a panel of experts and it is firmly rooted in questions validated in the field.

Structural equation modeling was employed to determine if questions in the Expression section of the EES loaded separately into two latent constructs of PTSD and depression. Results from this confirmatory factor analysis demonstrate moderate to good model fit, indicating the observed

questions do indeed load together to form the latent variables of PTSD and depression. This provides evidence of good construct validity.

The EES possesses significant face validity. Survey data from practitioners using the EES provide testimony to high levels of confidence in the tool. Findings demonstrate that professionals using the screener in the field believe it is working in the way it was intended. Most justice-system practitioners indicated a preference for the EES over the currently employed ACEs questionnaire.

The EES Experiences section also demonstrates criterion validity. Data collected on youth during the EES pilot test reveal that potentially traumatic events—as charted in the screener's Experiences section—predict symptoms of PTSD and depression. Further, youth with a greater number of potentially traumatic events present higher frequencies of thoughts of self-harm, drug and alcohol use, and suicidal ideation than those with a lower number of early adversities.

Beyond validity measures, the EES has practical applications. Evidence presented here shows the EES is capable of reliably documenting the prevalence of potentially traumatic events and symptoms of PTSD and depression among Montana youth. Absent the EES, this information is not being collected. Without a fundamental understanding of the nature and extent of trauma and victimization among Montana families, policymakers are ill-equipped to tackle the myriad negative outcomes resulting from childhood adversities. Measuring youth victimization and trauma constitutes a vital first step toward ensuring appropriate services provided to families in need. The EES is an important new tool capable of cultivating greater understanding about the true prevalence of childhood victimization and trauma.

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Appendix A: Primary Sources for Creating the EES

1. **The Child Trauma Screener (CTS)**
    a. All questions on the CTS can be found on the EES.
    b. The CTS was validated by:
        i. Lang and Connell, 2017.
        ii. Lang and Connell, 2018.
2. **The National Survey of Children's Exposure to Violence (NatSCEV)**
    a. Finkelhor, Turner, Shattuck, Hamby, and Kracke, 2015.
    b. The Office of Juvenile Justice and Delinquency Prevention (OJJDP) in partnership with Center for Disease Control (CDC) created the National Survey of Children's Exposure to Violence (NatSCEVI), which is the first comprehensive national survey of children's past-year and lifetime exposure to violence, crime, and abuse in home, school, and community across children youth from ages 1 month to 17 years.
    c. Nationally representative sample. Survey given every two years.
    d. Workgroup used the NatSCEVI to determine categories of experiences that would be important to collect on the EES.
3. **Criteria for depression and PTSD articulated in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)**
4. **Child and Adolescent Needs and Strengths (CANS) tool**
    a. CANS is comprehensive needs assessment and many questions from the EES were modeled by the CANS.
5. **Adverse Childhood Experiences (ACEs) questionnaire**
6. **Cuyahoga County Defending Childhood Screening Instrument (CCDCI)**

Appendix B: Breakdown of EES Questions

Experience Questions:

Witnessed or Indirect Victimization

The following EES question addresses witnessing victimization and indirect victimization, a category of traumatic experience articulated by OJJDP in 2015. Common types of community violence that affect youth include individual and group conflicts, such as bullying, fights among peers and shootings in public areas. Although there can be advance warnings for some types of traumas, community violence often happens suddenly. Consequently, youth and families suffering the fallout of such violence can experience increased fear and feelings that harm could come to them at any time.

1) **EES question: "Have you ever seen or experienced violence in your school or community (physical force meant to harm someone)?"**
    - NatSCEV: "Any witnessed violence (if the child saw or heard the assault); any witnessed assault in the community; or exposition to shooting, bombs, or riots."
    - CTS question: "Have you ever seen people pushing, hitting, throwing things at each other, or stabbing, shooting, or trying to hurt each other?"
    - CANS: "Severity of exposure to community violence."
    - CCDCI: "How often have you seen someone else being slapped, punched, hit?"

The following question addresses exposure to family violence and abuse, the sixth category of trauma and victimization identified in OJJDP literature. Children living in homes where domestic violence occurs are exposed to the physical and emotional abuse of the adult victim (a mother, father, grandparent, or caregiver, for example). They may witness an abuser physically or verbally harming their caregiver. The abuser may threaten a household member with guns, knives or other weapons with the child present. Research shows that children and youth who witness a parent being abused may suffer from detrimental effects (Koenen et al., 2003; Osofsky, 1999). Even if the juvenile doesn't see an actual physical assault, they are often exposed to its aftermath - broken furniture, food strewn about, and smashed pictures. It is not uncommon for young witnesses to observe adult victims who are upset, crying or carry evidence of the family violence, such as bruises and scratches.

2) **EES question: Have you ever seen one of your parents or caregivers threaten to or physically hurt another person in your home?**
    - NatSCEV: "Any witnessed violence (if the child saw or heard the assault); witnessed family assault; witnessed partner assault; witnessed physical abuse; witnessed other family assault."
    - CANS: "Severity of exposure to family violence."
    - ACES: "Was your mother or stepmother often pushed, grabbed, slapped, or had something thrown at her? or Sometimes or often kicked, bitten hit with a fist, or hit with something hard? or Ever repeatedly it over at least a few minutes or threatened with a gun or knife?"

Internet Cell Phone Harassment

The following question addresses internet and cell phone victimization, which, as Finklehor et al., (2015) discusses, can trigger significant trauma in young people. Examples of such cyber victimization may include, but are not limited to, sharing of personal information, such as photos or texts, and spreading rumors.

3) **EES question: Has anyone ever used the internet or a cell phone to hurt or embarrass you (starting rumors, sharing pictures)?**
    - NatSCEV: "Use of cell phone/texting to harass a child or spread harmful words and pictures about or of the child."

Peer and Sibling Victimization:

Peer and sibling victimization is addressed in the EES. Examples include emotional bullying or relational aggression, spreading lies or rumors, or otherwise trying to disparage a young person. Further instances of peer and sibling victimization occur when peers exclude, ostracize or ignore a child.

4) **EES question: Have other kids, including your brothers or sisters, ever hurt you or threatened to hurt you (emotionally or physically)?**
    - NatSCEV: "Types of emotional bullying or relational aggression, including peers, spreading lies or rumors about the child or otherwise trying to make the child be disliked; and peers excluding, ostracizing, or ignoring a child."
    - NatSCEV: Also found under "Assaults and bullying: Any physical assault, assaults with weapon, assaults with injury, assaults without a weapon or injury, attempted assault, attempted or completed kidnapping, assaults by a juvenile sibling, assault by a non-sibling peer, assault by a gang or a group."
    - CTS question: "has someone ever really hurt you? Hit, punched, or kicked you really hard with hands, belts, or other objects, or tried to shoot or stab you?"
    - CCDCI: "how often have you been threatened or beaten up?"

Property Victimization:

The following question addresses property victimization. Having something taken unexpectedly can result in a feeling of vulnerability and helplessness and a decreased sense of safety.

5) **EES question: Has anyone ever stolen something from you or your family?**
    - NatSCEV: "any property victimization, including robbery, vandalism, or theft by a non-sibling."

Child Maltreatment:

Child maltreatment and neglect is addressed below. A "Yes" answer to the questions itemized below may indicate a parent or caregiver's inability to provide for their family for a variety of reasons. Of particular concern, a "Yes" response could suggest a parent's inability to look after a child because of drug or alcohol abuse or psychological problems. It may also indicate parental

abandonment or that people who are in the home make the child fearful. A "Yes" answer to the below listed child maltreatment questions could also indicate that the home is unsafe or unsanitary, suggesting a failure to attend to the child's welfare.

6) **EES question: Have you frequently been denied meal because your caregiver or parent was angry with you?**
    - NatSCEV: child maltreatment category.

7) **EES question: Has anyone kept you from seeing the doctor when you were hurt?**
    - NatSCEV: child maltreatment category.

8) **EES question: Have you ever not had a home or shelter to stay in?**
    - NatSCEV: child maltreatment category.

The question below also addresses child maltreatment and neglect. Answering "Yes" to this question could suggest a parent's inability to look after a child because of drug or alcohol abuse or psychological problems. It could also indicate parental abandonment, that there is a presence in the home of people who make the child fearful, or that the home is unsafe or unsanitary. A "Yes" answer here may also suggest a failure to attend to the child's welfare.

9) **EES question: Have you ever seen someone who cares for you drink a lot or do drugs in front of you?**
    - ACEs - "Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?"

The following question focuses on physical maltreatment of a juvenile by a person responsible for the child or youth's welfare. State law requires all incidents of physical maltreatment be reported to child welfare officials.

10) **EES question: Has a parent or caregiver physically hurt you?**
    - NatSCEV: "Any maltreatment, physical abuse, psychological or emotional abuse, neglect, custodial interference, or family abduction."
    - CANS: Child's/youth's experience of physical abuse
    - ACEs: "Did a parent or other adult in the household often: swear at you, insult you, put you down or humiliate you? or Act in a way that made you afraid that you might be physically hurt?"
    - ACEs: "Did a parent or other adult in the household often push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?"

Sexual Victimization:

The following question seeks to determine if the child has experienced sexual victimization. Sexual victimization includes any unwanted sexual touch, including sexual assault and attempted or completed rape.

11) **EES question: Has anyone ever touched, or tried to touch, private parts of your body in a way that made you uncomfortable?**
    - NatSCEV: "Any sexual victimization, sexual assault, completed rape, attempted or completed rape, sexual assault by a known adult, sexual assault by an adult stranger,

sexual assault by a peer, flashing or sexual exposure by a peer, flashing or sexual exposure by an adult, sexual harassment, or internet sex talk."
- CTS Question: "Has someone ever touched you on the parts of your body that a bathing suit covers, in a way that made you uncomfortable? Or had you touch them in that way?"
- ACEs: "Did an adult or person at least 5 years older than you ever touch or fondle you or have you touch their body in a sexual way? or Try to or actually have oral, anal, or vaginal sex with you?"
- CANS: "Child's or youth's experience of sexual abuse"
- CCDCI: "How often have you been touched in a private place on your body where you didn't want to be touched?"

Bereavement:

The next question was built to address trauma associated with witnessing a parent or caregiver removed from the home. With this prompt, the LSOC Team seeks to identify feelings of abandonment and of bereavement.

12) **EES question: Have you ever seen a parent or loved one removed from your home (kicked out or arrested)?**
    - ACEs: "Did a household member go to prison?"
    - CTS: "separated from loved one?"

Bereavement is addressed in the next question. Research shows that the loss of someone close can have traumatic effects, regardless of whether the loved one was lost suddenly, or over time due to a chronic illness.

13) **EES question: Has a parent or anyone close to you died (illness, injury, suicide)?**
    - The Vision 21 Screening Tool Workgroup added this based on a group discussion of the need for a bereavement question.
    - CTS: "Loved one died?"

Medical Trauma

The following question addresses a different kind of trauma that can have lasting effects. This question specifically addresses medical trauma. Literature surrounding the topic suggests that children who have siblings or parents with long-term medical issues are at an increased risk for developing feelings of "loneliness and isolation, anxiety, depression, vulnerability, anger, worry, school problems, withdrawal or shyness, somatic complaints, low self-esteem, and internalizing or externalizing behavior problems." (Chen, 2017; Sharp & Rossiter, 2002; Williams et al., 2009).

14) **EES question: Has anyone in your home had special care because they were sick for a long time (cancer, epilepsy, cystic, fibrosis, etc.)?**
    - A discussion in the Vision 21 Screening Tool Workgroup led to the inclusion of this question.
    - Loosely associated with ACEs: "was a household member depressed or mentally ill or did a household member attempt suicide.
    - CTS: "Serious accident or illness?"

Expressions Questions

PTSD:

1) **EES question: Had trouble sleeping or bad dreams:**
   - DSM-5 Criteria for PTSD classified under "alterations in arousal and reactivity." Nightmares are also included as a PTSD symptom in the DSM-5, classified under "intrusion systems."
   - CTS question: "Trouble Sleeping"
   - CANS asks about disruption in sleep regardless of the cause, including "problems going to bed, staying asleep, waking up early, or sleeping too much."

2) **EES question: Had trouble paying attention or concentrating: (PTSD and Depression)**
   - DSM-5 Criteria for PTSD "difficulty concentrating"
   - CTS question: "Hard to concentrate or pay attention"
   - CANS: "Problems with attention, concentration, and task completion."

3) **EES question: Felt alone or not close to people around you**
   - DSM-5 Criteria for PTSD worded as "feeling isolated" classified under "negative alterations in cognition and mood."
   - CTS question: "Feel alone and not close to people around you."

4) **EES question: Have you not wanted to be around certain people, places, or things that remind you of upsetting or scary things that have happened?**
   - DSM-5 Criteria for PTSD worded as "avoidance of trauma related stimuli after the trauma, in the following way: trauma external reminders." Under the category of "intrusion symptoms."
   - CTS question: "Try to stay away from people places, or things that remind you about something that happened."

5) **EES question: Had uncomfortable feelings when thinking about what has happened (sweating, upset stomach, thumping heart)?**
   - DSM-5 Criteria for PTSD worded "Avoidance of trauma related stimuli after the trauma, in the following way: trauma related thoughts or feelings." Under the category of "intrusion symptoms."
   - CTS question: "Strong feelings in your body when you remember something that happened (sweating, heart beat fast, feel sick)."
   - CCDCI: "How often do you currently remember things you don't want to remember?"

6) **EES question: Become angry or upset when thinking about things that have happened?**
   - DSM-5 Criteria for PTSD under the category of "Alterations in arousal and reactivity."
   - CANS: "The child's/youth's ability to identity and manage their anger when frustrated."

7) **EES question: Used alcohol or drugs to make you feel better?**
   - DSM-5 Criteria for PTSD worded "Risky or destructive behavior" under the category of "alterations in arousal and reactivity."
   - CANS: "Child's/youth's reaction to any traumatic or adverse childhood experience: use of alcohol and illegal drugs, misuse of prescription medication and the inhalation of any substance for recreational purposes."

DSM-5 Criteria for diagnosing PTSD <u>NOT</u> included on EES:

1. Symptoms last for more than 1 month
2. Symptoms create distress or functional impairment
3. Symptoms are not due to medication, substance use, or other illness
4. Depersonalization. Experience of being an outside observer of or detached from oneself (e.g., feeling as if "this is not happening to me" or one were in a dream).
5. De-realization. Experience of unreality, distance, or distortion (e.g., "things are not real").

Depression:

1) **EES question: Had trouble paying attention or concentrating: (PTSD and Depression)**
   - DSM-5 Criteria for Depression worded "Diminished ability to think or concentrate, or indecisions, nearly every day."
   - CTS question: "Hard to concentrate or pay attention."
   - CANS: "Problems with attention, concentration, and task completion."

2) **EES question: Blamed yourself or felt guilty for things that have happened?**
   - DSM-5 Criteria for depression worded "feelings of worthlessness or excessive or inappropriate guilt nearly every day."

3) **EES question: Thought about hurting yourself because you were angry or sad?**
   - Similar to DSM-5 criteria for depression worded "recurrent thoughts of death, recurrent suicidal ideation without a specific plan… Those struggling with severe depression may have thoughts of self-harm, death, or suicide, or have a suicide plan."
   - CANS: "Repetitive, physically harmful behavior that generally serves as a self-soothing function to the child/youth."
   - CCDCI: "How often do you think about hurting yourself?"

4) **EES question: Thought about suicide**?
   - DSM-5 Criteria for depression worded: "recurrent thoughts of death, recurrent suicidal ideation without a specific plan… suicide attempt or a specific plan for committing suicide."
   - CANS: "Suicidal and significant self-injurious behavior."
   - CCDCI: "How often do you think about killing yourself?"

5) **EES question: Feel sad or hopeless?**
   - DSM-5 Criteria for depression worded "depressed mood most of the day, nearly every day."
   - CTS Questions: Trouble feeling happy.
   - CANS: "Irritable or depressed mood, social withdrawal, sleep disturbances, weight/eating disturbances, and loss of motivation."

DSM-5 Criteria for diagnosing depression <u>NOT</u> included on EES:

1. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.
2. Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day.
3. A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down).
4. Fatigue or loss of energy nearly every day.

Appendix C: Data from EES Currently Collected on Montana Youth

Questions Collected on Montana Youth

#	EES: Experiences Questions	Justice Involved Youth	General Youth Population
1	Frequently been denied meal because caregiver angry		
2	Ever not had home to stay in		
3	Kept you from seeing doctor when you were hurt		
4	Anyone ever stolen something from you or your family		
5	Seen someone you care about drink or do drugs in front of you	X	
6	Other kids hurt or threaten to hurt you (emotionally/physically)		
7	Anyone you care about been sick for a long time	X	
8	Used internet or cell phone to hurt or embarrass you		X
9	Seen caregiver threaten to or physically hurt someone else in home	X	
10	Caregiver ever hurt you	X	
11	Anyone close to you died		
12	Loved one been removed from your home	X	
13	Seen/experienced violence in school/community		
14	Anyone ever touched/tried private parts	X	X
	EES: Expression Questions		
1	Trouble sleeping		
2	Felt alone		
3	Not want to be around people		
4	Uncomfortable about what happened		
5	Become angry or upset		
6	Used drugs/alc to feel better	X	
7	Trouble paying attention		
8	Feel sad or hopeless		
9	Blame self or felt guilty		
10	Thought about hurting self		
11	Thought about suicide	X	X

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