Identifying Dropout and Absenteeism Risk Using a Validated Measure in a Youth Mentorship Program

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**Abstract**

~~Adolescence serves as a crucial transitioning point into adulthood. It is important that these transitioning adolescents are provided quality mentorship as they make this important transition. Campus Connections, an evidence-based at-risk adolescent mentoring program, provides this support. However, Campus Connections, like many programs focused on improving adolescent outcomes, experiences adolescent dropout and lowered rates of attendance.~~~~This study utilizes a standardized risk measure to build a predictive model that measures the risk adolescent program dropout. Overall, internal, and external risk factors reported from adolescent caretakers are used as the main predictors of program dropout and attendance rate. Internal risk factors were the most predictive of program dropout and attendance rate throughout the course of the program. External risk factors appeared to be less predictive of the outcome variables across both models. Implications for intervention based on scores on the validated risk measure may help to reduce program dropout of adolescents in programs working with an at-risk adolescent population. Furthermore, reducing dropout and absenteeism allow adolescent populations to experience the full effects of mentorship support in order to produce better outcomes as they make the transition into adulthood.~~

*~~Keywords:~~* ~~dropout, absenteeism, mentorship, at-risk, adolescents~~

**Introduction**

The surgeons general report that 75-80% of youth do not receive appropriate evidence-based specialty services (Greca, Silverman, & Lochman, 2009). The youth attrition and absenteeism rates within these evidence-based programs as problematic (Abrahamse, Niec, Junger, Boer, & Lindauer, 2016). Evidence-based programs often have rigid curriculums responsible for promoting positive outcomes. Slight deviations from the fidelity of these curriculums reduce the program efficacy (Erdem, Dubois, Larose, De Wit, & Lipman, 2016). Program attrition and absenteeism contribute to poor program fidelity and efficacy. Therefore, action needs to be taken to reduce rates of absenteeism and dropout from programs to promote program efficacy.

However, researching the effects of program dropout and absenteeism has its challenges. There is no established typology for individuals more likely to dropout or have high rates of absenteeism from evidence-based interventions. Dropout and absenteeism research within school systems has been studied more prominently in the literature. Students at risk for school dropout include individuals with disabilities (Sinclair, Christenson, Evelo, & Hurley, 1998), behavioral problems (Kennelly & Monrad, 2007), parental abuse/neglect, teenage pregnancy and Latino males (Curran Neild & Balfanz, 2006). Dropout risk factors may additionally be attributed to multiple characteristics within at-risk youth population such as family environment and negative social influences (Bronfenbrenner et al., 1986; Jozefowicz-Simbeni & Allen-Meares, 2002). Risk factors may come a wide variety of sources including, but not limited to poverty, gang-related activity and parental alcohol and drug abuse (Garringer, McQuillin, & McDaniel, 2017). The analogous research from school systems help to understand the typology of youth that are also likely to dropout from an at-risk youth centered intervention program.

Identifying at-risk youth with higher level risk prior to the start of an intervention program can to reduce dropout and absenteeism rates. Utilizing youth intervention staff members to identify and intervene on youth at higher risk may serve as a helpful strategy. However, at-risk youth program intervention staff already experience heavy burden when implementing evidence-based programs (Boustani et al., 2015). On top of this burden, it is also recognized that at-risk youth program staff are often not well-paid and only work part time (Huang et al., 2008). As a result, staff turnover in at-risk youth programs is high (Boustani et al., 2015). Rhodes (2004) expresses that a reduction in staff burden from youth dropout is ideal for ensuring program consistency and fidelity is ensured. A contributing factor to staff burnout is the work involved in trying to regain contact from youth that have already failed to attend program sessions.By providing strategies to prevent youth dropout, staff burden may be reduced.

Therefore, this research study aims to reduce staff burden from youth dropout in evidence-based programs. An overarching goal is to provide program staff the resources to identify and intervene on youth with higher dropout risk. One such strategy is to identify youth most likely to dropout from an-risk youth intervention, prior to staff losing contact. Identifying dropout risk allows for early intervention by program staff. The earlier youth at higher risk for dropping out are identified, the sooner program staff may provide resources to ensure their stay in the program.

Due to the extreme workload youth program staff members have, it is important that the methods are quick and efficient. In this study, we take a standardized approach to recognize the typology of youth most likely to dropout or have higher rates of absenteeism from an at-risk youth intervention program. This standardized approach is meant to be a quick resource for program staff the ability to quickly identify youth most likely to dropout or have lower rates of attendance. Once identified, staff may proceed to promote higher risk youth’s continued participation in the program.

We propose that standardized identification system for youth likely to dropout will reduce program staff burden and workload. A standardized method allows for program staff to intervene on potential dropout youth prior to losing contact. Higher risk youth, the ones in most need of an intervention, may be provided more resources to encourage attendance to program services. Program staff may identify those at higher risk for dropping out provide intervention prior to abandonment of a program, thus reducing the burden of tracking down youth that drop from an intervention program.

The *Risk Assessment* measure; Developed by Herrera, Dubois, & Grossman (2013) quantifies and identifies adolescent life risk factors. This measure uses parent/guardian reported responses to create a quantitative score for internal and external risk factor. It includes items pertaining to negative risk factors in a youth’s life at multiple levels. The Risk Assessment is already a highly utilized instrument in many at-risk youth intervention programs. We promote the use of this measure to identify youth at higher risk for dropping out and being absent from an evidence-based program. Prior to the start of an intervention, program staff may observe scores on this measure to identify youth at risk for dropout or higher rates of absenteeism. Once identified, program staff may intervene to prevent program dropout and absenteeism. By providing program staff a resource to intervene, we hope to reduce overall staff burden; while additionally encouraging youth to experience the full benefits of the evidence-based program intervention at hand.

Our study promotes an applied approach to preventing youth program dropout and decrease absenteeism. Using a standardized risk measure, we propose an established typology for youth most likely to drop out and be absent from a program may be established. We hypothesize that the risk assessment measure will serve as a proxy to identify youth with a higher risk for dropping out and being absent from intervention programs.

**Methods**

*Participants*

Our sample consists of at-risk youth who participated in the Campus Connections (CC) mentoring intervention. Campus Connections (CC) is a mentoring program for youth at-risk for poor developmental outcomes, such as behavior and emotional problems. It is flexibly designed to respond to the needs of a heterogeneous group of youth with varying risk levels. The program is grounded in theoretical and empirical research on positive youth development settings (Eccles & Appleton Gootman, 2002; Kelly, Ryan, Altman, & Stelzner, 2000; Tseng & Seidman, 2007) and Rhodes’ model of youth mentoring (Rhodes, 2005). See Haddock et al., (2013) and Weiler et al. (2015) for complete information on the program model.

*Procedure*

Participants were parents/guardian, and their youth. Youth were referred to the CC program through several community agencies including the local school district, juvenile justice system, Department Human Services, and various youth and family agencies. Upon receipt of the referral, trained CC staff contacted potential participants and conducted an intake appointment to determine program eligibility and obtain assent and parental consent. If eligible and willing to participate in the CC program, parent(s)/guardian(s) completed the Risk assessment (Herrera et al., 2013) prior to the start of the start of CC. Surveys were completed using Qualtrics, a web-based survey. The Institutional Review Board approved all the described procedures.

Dropout from the program is defined as individuals that agreed to start the program, attended at least one session of CC, but proceeded to either lose contact with the program staff or formally drop out of the program. For instances in which a youth mentee participant did not attend the CC program, efforts were made by program staff to contact the adolescent participant’s families. This was conducted by contacting the adolescent’s primary caregivers by phone, text message, and email. When there was no contact with the mentee’s family after 2 sequential weeks or more, the youth was considered a dropout.

Campus Connections program staff tentatively took attendance records for each week of the 12-week Campus Connections program. Instances in which youth did not arrive to CC were marked as non-attendees. If youth arrived late, they were marked having attended the program.

*Measures*

*Mentee Risk*

Mentee overall, environmental, and individual risk was assessed at baseline using a subscale from a 32-item risk assessment, which has been used in the at-risk youth literature (Herrera et al., 2013). Parents reported on the number of environmental risks (20 items) and individual risks (12 items) youth experienced by indicating either 1 (yes) or 0 (no). Environmental risk assessed economic adversity (e.g., family has difficulty paying bills), family stress (e.g., family member with drug or alcohol problems), and peer difficulties (e.g., no close friends). Individual risk assessed academic challenges (e.g., failing two or more classes), problem behavior (e.g., bullies others), and mental health concerns (e.g., exhibiting depressive symptoms). Items were summed to create a count of the total number of environmental risks and individual risks that youth experienced and a sum of the overall measure (a combination of environmental & individual risk) was also obtained; higher scores indicated that youth experienced and/ or were exposed to a greater number of risks at baseline.

*Overall Statistical Procedures*

All descriptive statistics and analytic procedures were performed using R version 3.5.2. A total of 24, twelve-week sessions, were analyzed. These sessions occurred over the course of three years, from Fall of 2015 to the Spring of 2018. For all statistical analyses, the 24 sessions were dummy coded to control for session differences. Furthermore, demographic variables such as age, sex, and ethnicity were held constant. Age was centered at the mean across all mentee participants (*M =* 14.21, *SD* = 1.83).

*Dropout statistical procedures*

Of the 675 mentees that started the CC program, a total of 61 (9.08%) dropped out and did not progress throughout the course of the entire program. To predict odds of dropout, three fixed effect multiple variable logistic regression models are used to assess predictors of dropping out of CC. Youth dropout out from the program (dropped = 1) was regressed on risk scores and all control variables. Model 1 assessed the entirety of the risk scale (All risk). Model 2 assessed the environmental risk subscale (Environmental risk). Model 3 assessed only the individual risk subscale (Individual risk). Adjusted odds ratios (OR) were obtained from all three models.

*Attendance statistical procedures*

Three fixed effect multiple variable Poisson regression models were used to assess the risk of absenteeism (max days absent = 11) with the predictor risk scores. An offset term was created to account one session in Spring 2016 that experienced a snow day during the course of the program. This session was cancelled, and no make-up day was available for youth participants. For this specific session, the offset was set to ten for the session with a snow day because the max amount of days missed was nine. Of participants that did not drop from the program, the average days absent was 1.70 days (*SD* = 2.09).

Similar to the previously mentioned logistic regression models, model 4 assessed the entirety of the risk scale, Model 5 identified environmental subscale, and Model 6 assessed the Individual risk subscale. An adjusted incident rate ratio (*IRR*) of being absent from CC were obtained from each Poisson regression models.

**Results**

Descriptive statistics, separated by those who dropped and those that remained in the program across the 12 weeks, are shown in *Table 1*. Demographic variables (sex, ethnicity, and age) were self-reported by youth. Parent-reported risk scores are separated by total risk score (32 items), the environmental risk (20 items) subscale and the individual risk subscale (12 items) in *Table 1*.

Two chi-square tests of independence were performed to assess group differences between mentee sex and mentee ethnicity; no group differences were observed, χ2 (1, 656) = 1.26, *p* > .05 and χ2 (1, 656) < .01, *p* > .05, respectively.

Table 1

*Descriptive Statistics of Campus Connections Youth Participants*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dropped | | |
|  | No (n= 595) |  | Yes (n=61) |
|  | *n (%)* |  | *n (%)* |
| Mentee sex |  |  |  |
| Male | 352 (59.16%) |  | 31 (50.82%) |
| Female | 243 (40.84%) |  | 30 (49.18%) |
| Mentee ethnicity |  |  |  |
| White | 241 (40.50%) |  | 25 (40.98%) |
| Other | 354 (59.50%) |  | 36 (59.02%) |
|  |  |  |  |
|  | *M* (*SD)* |  | *M* (*SD)* |
| Mentee age | 14.15 (1.83) |  | 14.84 (1.65) |
| Parent-reported  risk measure scores |  |  |  |
| All Risk | 6.87 (3.82) |  | 9.00 (4.36) |
| Environmental Risk | 4.04 (2.82) |  | 4.90 (3.14) |
| Individual Risk | 2.84 (2.11) |  | 4.10 (2.44) |

*Dropout Results*

The overall risk scale, environmental risk subscale, and individual risk subscale were associated with higher odds of dropping from the CC program. Results from each logistic regression model are found in *Table 2*. The individual risk subscale was associated with the highest odds of dropping out as compared to youth that had continued enrollment in the program (*OR* = 1.22, 95% CI [1.08, 1.37]), followed by the overall the risk scale (*OR* = 1.12, 95% CI [1.05, 1.19]), and lastly the environmental risk subscale (*OR* = 1.11, 95% CI [1.01, 1.22]) after controlling for demographic variables and session attended.

*Absenteeism Results*

The overall risk scale, environmental risk subscale, and the individual risk subscale were all associated with attendance rates. Results from each Poisson regression model are found in *Table 3*. Overall, the risk scale and each corresponding subscale were predictive of program attendance. For the risk scale, and each subscale, higher scores were associated with lower attendance in the program. Individual risk appeared to be slightly more associated with increased absenteeism (*IRR* = 1.04, 95% CI [1.01, 1.07]). The overall risk scale (*IRR* = 1.03, *95% CI* [1.01, 1.05]) and environmental risk subscale (*IRR* = 1.03, 95% CI [1.01, 1.05] were associated with relatively similar risks of absenteeism from the program.

*Table 2*

*Logistic regression analysis of program dropout by risk type*

|  | *Parameter* | *Estimate* | *OR* | *95% CI* | | *p* |
| --- | --- | --- | --- | --- | --- | --- |
| Model 1 | Intercept | -2.17 |  |  |  |  |
|  | All risk | 0.11 | 1.12 | 1.05 | 1.19 | <.01 |
|  | Male | -0.30 | 0.74 | 0.42 | 1.30 | .29 |
|  | Age centered | 0.24 | 1.28 | 1.09 | 1.50 | <.01 |
|  | White | 0.22 | 1.25 | 0.69 | 2.26 | .46 |
|  |  |  |  |  |  |  |
| Model 2 | Intercept | -1.76 |  |  |  |  |
|  | Environmental risk | 0.10 | 1.11 | 1.01 | 1.22 | .03 |
|  | Male | -0.30 | 0.74 | 0.42 | 1.29 | .29 |
|  | Age centered | 0.27 | 1.31 | 1.12 | 1.53 | <.01 |
|  | White | 0.21 | 1.23 | 0.68 | 2.21 | .49 |
|  |  |  |  |  |  |  |
| Model 3 | Intercept | -1.93 |  |  |  |  |
|  | Individual risk | 0.20 | 1.22 | 1.08 | 1.37 | <.01 |
|  | Male | -0.32 | 0.72 | 0.41 | 1.27 | .26 |
|  | Age centered | 0.21 | 1.23 | 1.04 | 1.45 | <.01 |
|  | White | 0.29 | 1.34 | 0.74 | 2.42 | .33 |

*Table 3*

*Poisson regression analysis of absenteeism by risk type*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | *Parameter* | *Estimate* | *IRR* | *95% CI* | | *p* |
| Model 4 | Intercept | -11.57 |  |  |  |  |
|  | All risk | 0.03 | 1.03 | 1.01 | 1.04 | <.01 |
|  | Male | 0.08 | 1.08 | 0.95 | 1.23 | .24 |
|  | Age centered | 0.07 | 1.07 | 1.03 | 1.11 | <.01 |
|  | White | 0.01 | 1.01 | 0.89 | 1.15 | .85 |
|  |  |  |  |  |  |  |
| Model 5 | Intercept | -11.51 |  |  |  |  |
|  | Environmental risk | 0.03 | 1.03 | 1.01 | 1.05 | .02 |
|  | Male | 0.09 | 1.09 | 0.96 | 1.24 | .20 |
|  | Age centered | 0.08 | 1.08 | 1.04 | 1.12 | <.01 |
|  | White | 0.02 | 1.02 | 0.89 | 1.16 | .77 |
|  |  |  |  |  |  |  |
| Model 6 | Intercept | -11.47 |  |  |  |  |
|  | Individual risk | 0.04 | 1.04 | 1.01 | 1.07 | <.01 |
|  | Male | 0.07 | 1.07 | 0.94 | 1.22 | .28 |
|  | Age centered | 0.06 | 1.06 | 1.03 | 1.10 | <.01 |
|  | White | -0.01 | 0.99 | 0.87 | 1.13 | .93 |

**Discussion**

Results support that youth risk may be indicative of odds of dropping out from an intervention and program absenteeism. Youth individual risk factors appear to be a more effective measure of predicting dropout and lack of attendance. Caretaker-reported internal conflicts are associated with risk of being absent from the CC program or are more likely to have a higher rate of absenteeism throughout the course of the 12-weeks. Results on individual risk factors are consistent with past research relating to at-risk youth and dropout in social programs (Borowsky, Taliaferro, & McMorris, 2013; Daniel et al., 2006). These results give indication that reasons for dropping out or a lower attendance rate may be because the adolescent has too many extraneous circumstances in their own life, thus not preventing them from attending CC.

The implications of these results have the potential to be used to design interventions around composite and internal risk scores on the risk measure for the at-risk youth intervention programs. The use of predictive models to help with participant dropout has already been used in other programs focused to prevent dropout in other programs (Gleason & Dynarski, 2002, 2017; Halawa, Greene, & Mitchell, 2014). Similar to other programs, these results may serve as generalizable to other at-risk youth mentoring programs and programs serving at-risk youth populations. By encouraging at-risk youth to have continued participation in focused on providing support, then the communities may see a positive impact overall.

Program staff may provide resources to students with higher individual risk scores resources to continue with the program. For example, weekly check-ups with higher risk youth may encourage continued participation in the program. Weekly check-ups may allow program staff to provide resources to youth, such as transportation services or increased emotional support, to encourage continued participation in the program and decreased absenteeism.

*Strengths and Limitations*

Limitations posed by this study include the caretaker report of adolescent risk. However, the Risk measurement has been heavily validated in its ability to identify youth risk in populations similar to CC (Herrera et al., 2013). Additionally, this study only included individuals that began the program. It is possible that individuals that never began the program are characteristically different than those that were initially had the added effect of at least one session of the program. Of course, efforts aimed at keeping individuals within the CC program may be more efficient and beneficial as program staff have an extended opportunity to be proactive with these youth as they use the Risk measure to intervene and directly during the program hours.

This study has the benefit of having a heavily controlled program with a relatively large sample to understand true effects of the parameters associated with program dropout. Additionally, it provides multiple predictive models that go beyond looking at dropout or absenteeism in a singular fashion. Results provide additional resources for program staff in the CC and may be generalized to other intervention programs serving similar at-risk youth populations.

*Future Studies*

Future research should apply the Risk measure to other programs focused on at-risk adolescent populations. By performing similar research on multiple communities, it will be possible to observe the generalizability of the measure to predict dropout across multiple communities.

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However, past research is not consistent with the current research study, the role of external risk factors in the risk of high school dropout (Suh & Suh, 2007). Therefore, these results are inconsistent with past research. Inconsistencies may be attributed to the caretaker-reports of external risk factors. Although these external risk factors often relate to negative youth outcomes overall according to past research studies (Case, 2016; Chen & Jacobson, 2016), a meta-analytic review performed by Assink and colleagues (2015) found smaller effect sizes for interventions focused on delinquent youth familial risk factors. Similarly, the effects from the externalized risk factors related to characteristics of the household don’t influence the family’s motivation to provide adolescent participation in the program.

As discussed by Erdem et al. (2016), mentorship plays an important part in its effects towards experiencing a mentor relationship and ultimately developing positive youth outcomes. Additionally, the importance of at-risk adolescents participating in a program to experience its full effects cannot be emphasized enough. Results relate directly with views posed by Rhodes (2005), in which mentors have the capabilities to challenge negative views mentees have on themselves. As results from the current study help to point out, these negative views and internal risk factors are predictive of not coming to the program – Thus making these mentees the most likely to benefit from the program.

Quality mentorship plays a powerful role in positively affecting an individual’s personal, academic, and professional situation. The transition from adolescence into adulthood can be a difficult one due to mental health issues and environmental influences. Amongst adolescents with negative risk factors, a strong mentorship program creates an opportunity to promote an everlasting positive change.

Building strong connections with nonparental adults can be a key resource in helping adolescents transition into adulthood (Erdem et al., 2016). These connections are of particular importance to at-risk adolescents. Although at-risk status varies on definition, it generally includes demographic features, home and community factors, and individual skill deficits which can negatively contribute to an individual’s ability to thrive academically, socially, emotionally, and physically (Mcdaniel & Yarbrough, 2016). These behaviors can often escalate into more serious behavior and subsequent consequences such as incarceration (Mcdaniel & Yarbrough, 2016). Given these considerations and outcomes, preventive efforts are needed to reduce levels of emotional stress and minimize behavioral difficulties amongst at-risk youth. Mentoring programs are one such effort. Analyses of quasi-mentorship programs and experimental programs support mentorship programs as a pathway to reduce emotional symptoms and behavioral problems amongst at-risk youth (Erdem et al., 2016). Two common mentorship programs are community and school based; each has similar foundations with different embedded components and applications. Research has found that community-based mentorships tend to form stronger relationships than school based programs. This is typically attributed to increased dosage or length of time spent together and appropriate matching based on relevant common characteristics between mentor and mentee. (Mcdaniel & Yarbrough, 2016). Regardless of the base of the program, the development of a positive relationship between an at-risk youth and a positive caring mentor can promote resiliency, enrichment, and social skills (Mcdaniel & Yarbrough, 2016).

Although the positive benefits of youth mentorship are widely accepted, continual evaluation of the effectiveness of mentorship programs should be taken. Findings obtained when evaluating these types of programs have indicated instances where some youth experience negative impacts and other situations where the reported beneficial outcomes couldn’t be replicated (DuBois et al, 2011).

For instance, past educational programs have used predictions of dropout to intervene and improve retention by up to 40% (Halwawa, Greene, & Mitchell, 2014). The ability to promote program retention leads to the development of stronger and more successful social programs focused on the adolescent population.

Data from this study was collected over 3 years (a total of 6 semesters) of CC. Families of youth that did not attend Campus Connections were attempted to be contacted via program staff. If the family indicated the youth was dropping out of the program, reasons were noted. However, if family of the youth mentee could not be contacted, after 2-3 weeks of no attendance within the program, the youth mentee was considered to have dropped out of the program. Only youth mentees that dropped out of the program *after* the program started are included within this analysis.

To assess some nights during the semester having no dropouts, logistic regression results were obtained using PROC GLIMMIX with a binary distribution.

~~Bowers and Sprott (2012) identified four typologies of students who are at risk for dropping out of school; These include: 1) those chronically struggling with academics, 2) those bored with the process, 3) students who disrupt school, and 4) the quiet students, those who are termed to be living invisibly and dis-attached to the institution and typically carrying low grades. Often, at-risk individuals can fall into one or two of these categories.~~

Mentee Participants from this study were taken from six semesters of CC. Campus Connections is a structured 12-week program that provides at-risk adolescents with a positive mentor attending a university. Adolescent mentees meet with their mentors once a week for 4 hours after attending school. During their time spent with the mentor, they are encouraged to build positive life skills to help transition from adolescence to adulthood. A total of 675 mentee participants started the Campus Connections program from the Fall of 2015 to Spring of 2018. Key demographic characteristics of the mentee participants are listed in *Table 1.* As can be seen in *Table 1,* most adolescent mentees come from households with a parent-reported income of $39,999 or less (54.25%). Additionally, most adolescents in the program self-reported as White (58.26%), with 27.01% self-reporting as Hispanic.

*Program Dropout & Attendance*

Descriptive statistics for youth separated by category are presented in *Table 2*.

Additionally, program attendance data was collected throughout the mentees 12 weeks. Data was recorded from CC program staff on night of expected attendance. Students that dropped from the program were analyzed for the program attendance. The average days missed is 1.70 days (SD = 2.09). However, the program attendance ranges from 1 day of attendance to the completed total 12 days of attendance.

*Risk Measure*

Mentee risk was assessed by the *Risk Screening Tool* (RST) developed by Herrera, Dubois, & Grossman(2013). The RST is a 32-item questionnaire that youth mentee caretakers would fill out prior to the start of Campus Connections. Items in the RST are answered as either “Yes” or “No” and ask questions referring to their child individual risk (i.e. *This child has experimented with drugs or alcohol*) or the child’s environmental risk (i.e. *This child lives in a public housing development*). All items answered as “Yes” within the RST contribute to the youth’s Risk score, in which a higher score indicates a larger number of risk factors.

Erdem et al. (2016) found support for mediating role of mentorship program effects on parental relationships and confidence, but only for youth in matched relationships of 12 months or longer. While there has been plenty of research regarding dropout rates in school settings (Bowers & Sprott, 2012) and other community social programs (Brorson et al, 2013) there is limited data relating to retention and dropout rates amongst mentorship programs. If risk factors could be identified prior to an individual beginning a mentorship program, then it could be possible to design a standardized intervention practice which mitigates those negative risk factors, promote continual participation and completion of a program.

Adolescence is among the most important transitioning periods within anyone’s lifetime. This time period is marked by the ability to have higher adult functioning but an increased risk for mortality and morbidity (Dahl, 2004). With the increased brain functioning comes an increased need for intervention to encourage positive relationships as they transition into adulthood. (Blakemore & Mills, 2014). Thankfully programs exist to encourage these positive relationships through mentorship (e.g. Big Brothers Big Sisters of America, Campus Connections). Programs like these use evidence-based practices to encourage a positive development through the adolescent time period (Weiler et al. 2014; Weiler et al. 2015).

Many adolescents enter these mentorship programs with negative risk factors; risk factors may include: low socioeconomic status, substance use, academic disadvantages, or a problematic home life. Consequently, these negative risk factors contribute to higher attrition rates and higher dropout rates of adolescents from mentorship programs. Attrition rates are often studied within the school setting but the existence of literature of dropout from adolescent intervention programs is less studied.

Identifying risk of school dropout serves as an analogous review of the literature.

Past studies have already shown that interventions aimed at school dropout have provided effective results in terms of preventing dropout, progressing through school and completing school (Kennelly & Monrad, 2007)

Therefore, a major concern surrounding mentorship programs focuses on attrition rate. Research suggests a level of dosage needed to achieve the full benefits of mentorship (Erdem et al, 2016). Erdem et al. (2016) found support for mediating role of mentorship program effects on parental relationships and confidence, but only for youth in matched relationships of 12 months or longer. While there has been plenty of research regarding dropout rates in school settings (Bowers & Sprott, 2012) and other community social programs (Brorson et al, 2013) there is limited data relating to retention and dropout rates amongst mentorship programs. If risk factors could be identified prior to an individual beginning a mentorship program, then it could be possible to design a standardized intervention practice which mitigates those negative risk factors, promote continual participation and completion of a program.

Past research has focused on the role mentor exposure has on positive youth outcomes (Erdem et al, 2016).. An unfortunate reality is that identifying the adolescent participants likely to contribute to program attrition has its challenges. Several past research studies have creative predictive models to assess drop out based on demographic risk factors (Gleason & Dynarski, 2002; Halwawa, Greene, & Mitchell, 2014; Levin et al, 2004). However, the use of a valid scale to assess at-risk youth has not yet been utilized. Therefore, this study focused on using a standardized measure to predict risk of adolescent dropout from evidence-based programs

This study uses Campus Connections, an at-risk adolescent mentorship program at Colorado State University (CSU) as its platform. Campus Connections (CC) is a service learning class offered to students at CSU. Students attending CSU from over 65 different majors volunteer for CC and receive course credit for mentoring an at-risk adolescent within the community. The program supplies at-risk adolescents with a positive mentor for 12 weeks in order to promote positive outcomes as the adolescents make the transition into adulthood and functions as a university-community partnership. Mentees range in age from 11-18 and come from community partnerships such as: The juvenile justice system of Larimer county, local schools, community agencies, and directly from families. Campus Connections serves as a unique platform to perform research because it is an evidence-based social program (Weiler et al, 2014; Weiler et al, 2015) that collects a wealth of data on parents, college student mentors, and caretakes.

The focus of this study was to identify and create a quantified method to assess adolescent participants that are likely to contribute to program attrition within the Campus Connections program. Adolescent dropout from the Campus Connections is a detriment for many reasons. Including:

1. Adolescents that drop for the Campus Connections do not experience the positive benefits of the program.
2. Mentors also experience positive benefits from the mentorship experience (Weiler et al, 2014). Therefore, mentors that lose a mentee during the program additionally fail to reap the potential benefits associated with program participation.
3. Adolescent dropout is a burden on program staff. Program managers seek to maximize the benefits of the program by enrolling the maximum number of youth. Therefore, when adolescent participants dropout, they spend unnecessary hours attempting to re-integrate the adolescents into the program.

Based on these detriments of adolescent dropout, this study was designed to create a method to identify those that are higher risk to drop from the program. Dropout burden is not unique to the Campus Connections program. Much of the literature focuses on program and school attrition (). However, assessing risk of dropout for programs aimed towards at-risk adolescents is often times overlooked. Even the school systems may benefit from obtaining youth and adolescents risk for school dropout and create an intervention to prevent early dropout from school (Jozefowicz-Simbeni, 2008).

Using a standardized measure such as Herrera, Dubois, & Grossman’s (2013) Risk Assessment, has the advantage of allowing program staff to intervene with higher risk adolescents to prevent program drop out before it happens. The reduction in attrition will reduce the three detriments mentioned above and helps to diminish program burden overall.

For this study, it was hypothesized that after controlling for important variables such as age, race/ethnicity, higher scores on the validated Risk Assessment score would accurately predict adolescents’ probability of dropping out of the Campus Connections program. It was also hypothesized that this score would predict mentee participant’s attendance throughout the course of the program. The Risk assessment has internal and external subscale and these factors are thought to more accurately predict the program attendance and dropout. Using this measure, we built a predictive model to assess the association between the *Risk Assessment* overall composite score, internal risk score and external risk score to the likelihood of participant dropout and absenteeism.

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Interventions that serve adolescents experience a large rate of attrition and absenteeism. This leads to youth unable to experience the full benefits of the program. Identifying youth that are most likely to contribute to attrition and absenteeism is a challenging task. The use of a commonly used measure to identify the risk of dropout serves an important tool to identify youth at the highest risk for dropping out. The Incorporating of a measure for program managers and staff to recognize youth that are more likely to dropout or absent can help the program intervene and prevent overall attrition from the program. Thus, promoting attendance to interventions designed to provide services to adolescents as they transition into adulthood.

Often times, these adolescent interventions are aimed at promoting a positive adulthood transition (Lauer, Akiba, Wilkerson, Snow, & Martin-Glenn, 2006).

Results support the overall risk composite score show indication that the Risk measure is serves as an effective predictor of youth dropout in the Campus Connections program. Additionally, it appears the overall score is related to higher rates in absenteeism across the 12 weeks.

**Results**

*Dropout*

Results from the logistic regression models for Overall, internal, and external risk are shown in *Table 2*.

Model 1 indicates that for every additional unit increase in the score on the parent reported Risk measure there is a 4.4% increase in probability of youth dropping out 95% CI [1.5, 7.2]. Further evidence from models 2 & 3 from *Table 2* show that the Internal Risk factors seem to be a better predictor of program dropout as opposed to external risk factors while controlling for the same variables. Additionally, across all models age serves as a significant predictor of program dropout as well. In general, the older a mentee participant is, the more likely they are to dropout from the program.

*Attendance*

Results from the Poisson regression models for Overall, internal, and external risk are shown in *Table 3*.

Results from the Poisson regression models predicting rate of program attendance yield similar results to the logistic regression models. As expected, overall risk serves as a significant predictor of program attendance. As the overall risk composite score increases, an increased risk of being absent can be seen. Again, similar to the results from the logistic regression procedure conducted in *Table 2* internal risk appears to be a better predictor of program attendance across the 12-week span of the program. Lastly, age serves as a significant predictor of program attendance across all models, with an increase in age indicating a lower rate of program attendance.

**Discussion**