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). Making matters worse, among those who do receive services, attrition and absenteeism drives down the numbers of youth who successfully complete intervention programs (Abrahamse, Niec, Junger, Boer, & Lindauer, 2016). This presents a major barrier to the achievement of beneficial program effects. Evidence-based programs often have rigid curricula necessary to produce positive outcomes. Deviations from the fidelity of a particular curriculum, or failure to experience the whole program, reduces program efficacy (Erdem, Dubois, Larose, De Wit, & Lipman, 2016). As a result, money and resources are wasted providing services to adolescents who may not benefit from the program, and the affected child fails to receive the services that they need. In order to maximize resources and benefits to participants, efforts are needed to ensure that young people enrolled in intervention programs attend as much of the program as possible and complete the program. Despite this clear need, little research has been conducted to identify strategies to promote attendance and completion of intervention programs for youth in need.

To be sure, the identification of effective strategies to promote attendance and program completion will require comprehensive investigation. One natural starting place is to identify risk factors for poor attendance and dropout. If risk factors could be successfully identified, and these risk factors could be measured prior to the start of the intervention, then program staff would have the opportunity to provide targeted attention to these vulnerable participants.

To our knowledge, no published work has identified risk factors for absenteeism and dropout of intervention programs for youth. However, there is a relatively large body of work on the risk factors associated with poor school attendance and high school dropout that might offer a useful starting place. Students at risk for school dropout include individuals with disabilities (Sinclair, Christenson, Evelo, & Hurley, 1998), behavioral problems (Kennelly & Monrad, 2007), parental abuse/neglect, and teenage pregnancy (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 stem from 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.

This comprehensive body of work to identify risk factors for school absenteeism and dropout provides a useful foundation for considering intervention program absenteeism and dropout. Our goal with the current study is to determine if poor attendance and dropout in the context of 12-week mentoring program can be reliably predicted using a risk assessment developed byto identify youth in need of servicese assessment is completed by a parent or guardian and assesses the presence of XX risk factors that describe personal or individual characteristics of the child (e.g., XXX) and XX risk factors that describe the child’s environment (e.g., XXX).Importantly, The assessment child’secological (e.g., individual, family, school, neighborhood).Herrera and colleague’s assessment is free to use and already adopted by many intervention programs, particularly mentor-based programs. It is typically administered prior to program start. These are important features because if we find that this risk assessment can reliably predict youth who will exhibit poor attendance or dropout of the program, then it may be an easily adopted technique that other programs can readily use to identify vulnerable participants and intervene before absenteeism or dropout commence. 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.

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 youth who participated in the Campus Connections (CC) mentoring intervention. Campus Connections (CC) is a mentoring program for youth at heightened 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.

*Xxx*

*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 of 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 recorded attendance each week of the 12-week Campus Connections program. Instances in which the participant did not arrive to CC were marked as absent. If the participant arrived late, they were markedpresent.

*Measures*

*Mentee Risk*

Herrera and colleagues (2013) 32-item risk assessment was administered to each child’s parent of guardian at program intake (which occurred Xx to Xx months before the start of the program). . 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 risk (a combination of environmental & individual risk); 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 controlled.. Age was centered at the mean across all mentee participants (*M =* 14.21, *SD* = 1.83).

*Analytic approach for modeling dropout*

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 multiple logistic regression models were fit 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) and 95% Confidence Intervals (CI) were computed for all three models.

*Attendance statistical procedures*

Three 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 for 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 whodid 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 assessed the environmental subscale, and Model 6 assessed the Individual risk subscale. An adjusted incident rate ratio (*IRR*) of being absent from CC and corresponding 95% CIs were calculated. .

**Results**

Descriptive statistics, separated by those who dropped and those who 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*.

Chi-square tests of independence were performed to assess group differences between dropout and both 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 who 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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