

An Evaluation of Ohio's Behavioral Health Juvenile Justice (BHJJ) Initiative: A Closer Look at Success

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Executive Summary: An Evaluation of Ohio’s Behavioral Health Juvenile Justice (BHJJ) Initiative: A Closer Look at Success

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Background

- ❖ Juvenile justice-involved youth with serious behavioral health issues often have inadequate and limited access to care to address their complex and multiple needs.
- ❖ Ohio’s Behavioral Health Juvenile Justice (BHJJ) initiative was designed to provide youth aged 10-18 evidence- and community-based behavioral health treatment in lieu of detention.
- ❖ BHJJ was funded through a partnership between the Ohio Departments of Youth Services (ODYS) and Mental Health and Addiction Services (OhioMHAS). The Begun Center for Violence Prevention Research and Education at Case Western Reserve University provided evaluation services for the program.

Methodology

- ❖ In the past, BHJJ evaluation reports consisted of two parts – 1) a statewide report that combined data from all projects across the state and 2) individual county reports. These reports generally consisted of presenting pre- and posttest differences on a number of behavioral health surveys and measures as well as providing data on recidivism.
- ❖ The emergence of COVID-19 in early 2020 significantly impacted both the operation of the BHJJ program and the associated data collection, resulting in incomplete and missing project data. In consultation with stakeholders from the Ohio Departments of Youth Services (ODYS) and Mental Health and Addiction Services (OhioMHAS), the evaluation team developed a new approach to the traditional BHJJ outcomes report.
- ❖ The main goal for this report was to provide information to the state and the individual projects about the characteristics and patterns of youth identified as successful and unsuccessful completers.
- ❖ The data used for this report reflects youth who were enrolled in and terminated from BJJJ between January 2014 and September 2019.
- ❖ The BHJJ dataset contains thousands of variables, and an examination of each variable was not possible or prudent.
- ❖ In order to narrow the focus of the report, we examined a subset of data points that 1) the literature has identified as potentially related to success, 2) project stakeholders, including both state agency funders and local BHJJ stakeholders were interested in, and 3) local behavioral health experts suggested may predict completion status.
- ❖ This reporting period is beneficial for three main reasons. First, it allows us to focus on project data that may be more reflective of the current state of the project. Second, this window enables us to have enough data in most counties to conduct statistical analyses or at least show

trends in the data. Third, these data were collected prior to COVID-19 and are more complete than data collected during the pandemic.

- ❖ Twelve counties participated in BHJJ during the evaluation window: Ashtabula, Cuyahoga, Franklin, Hamilton, Holmes, Lorain, Lucas, Mahoning, Montgomery, Summit, Trumbull, and Wayne.

Demographics and Youth Characteristics

- ❖ Between January 2014 and September 2019, 1,589 youth enrolled in and terminated from the BHJJ program across all participating counties.
- ❖ The majority of youth were male (66.7%) and either White (46.0%) or Black (44.6%).
- ❖ The average age of youth entering the program was 15.5 years old.
- ❖ Montgomery County accounted for the most youth in the analyses (n=655) while Mahoning County accounted for the fewest (n=20).

Completion Status

- ❖ Of the 1,589 youth who enrolled and terminated BHJJ in the evaluation window, 69.0% successfully completed BHJJ.
- ❖ Females (72.8%) had a significantly higher successful completion rate than males (67.1%).
- ❖ White youth (75.6%) had a significantly higher successful completion rate than Black (62.9%) or Multiracial (65.3%) youth.
- ❖ Youth between the ages of 10-14 had a similar successful completion rate (68.7%) as youth 15 years and older (69.1%).

Completion Status and Custody Arrangement

- ❖ At intake into BHJJ, more than half of youth (57.9%) were in the custody of their biological mother only and 17.7% were in the custody of two parents, at least one of which was a biological parent.
- ❖ Youth in the custody of adoptive parents had the highest success rate (74.3%) followed by youth in the custody of two parents, at least one of which was a biological parent (72.4%).
- ❖ While successful completion rates varied by custody status, no statistically significant difference in successful completion rates across custody status categories was found for all the data combined, across males and females, and across races.
- ❖ The only statistically significant association between custody status and successful completion rates were for youth aged 15 and older. This means that for youth aged 15 and older, the custody status they were in at intake significantly impacted their successful completion rate.

Completion Status and Annual Household Income

- ❖ Nearly 19% (18.9%) of families enrolled in BHJJ reported an annual household income of \$5,000 or less and 64.4% of families had an annual household income below the federal poverty level for a family of four (\$25,750).
- ❖ 62.2% of BHJJ families who reported an annual household income of less than \$5,000 completed the program successfully, while approximately 90 percent of families who reported an annual household income of \$75,000 or greater completed the program successfully.
- ❖ There was a significant relationship between annual household income and successful completion rates.

- ❖ There was a significant relationship between annual household income and successful completion rates for both males and females and for youth aged 10-14 and youth aged 15 and older.

Completion Status and Physical and Sexual Abuse Histories

Physical Abuse

- ❖ At enrollment, 12.7% of caregivers reported the youth had experienced physical abuse.
- ❖ Overall, there was no significant difference in the successful completion rates for youth with (66.3%) and without (69.3%) previous physical abuse.
- ❖ There was a significant difference in successful completion rates for Black youth with and without previous physical abuse (45.3% and 64.4%, respectively). This relationship was not found for White or Multiracial youth.

Sexual Abuse

- ❖ At enrollment, 12.6% of caregivers reported the youth had experienced sexual abuse.
- ❖ Overall, there was no significant difference in the successful completion rates for youth with (69.8%) and without (69.2%) previous sexual abuse.
- ❖ Analysis found no significant relationship between previous sexual abuse status and successful completion rates across gender, race, or age groups.

Completion Status and Academic Achievement

- ❖ At both enrollment into and termination from BHJJ, youth who received mostly ABCs had a significantly higher successful completion rate than youth who received mostly CDFs. For example, at termination, 85.5% of youth who received ABCs completed BHJJ successfully, compared to 57.1% of youth who received CDFs.
- ❖ There was a significant difference in successful completion rates and grades at enrollment for females but not males. 81.2% of females who received mostly ABCs completed BHJJ successfully while 66.5% of females who received mostly CDFs completed BHJJ successfully.
- ❖ There was a significant difference in successful completion rates and grades at enrollment for White youth but not Black or Multiracial youth. 83.2% of White youth who received mostly ABCs completed BHJJ successfully while 71.2% of White youth who received mostly CDFs completed BHJJ successfully.
- ❖ There was a significant difference in successful completion rates and grades at enrollment for both youth between 10-14 years old and youth aged 15 and older.

Completion Status and Suicide History

Suicide Talk

- ❖ At enrollment, 37.3% of caregivers reported the youth talked about suicide in the past.
- ❖ Overall, there was no significant difference in the successful completion rates for youth who did (67.9%) and did not (70.6%) talk about suicide.
- ❖ Analysis found no significant relationship between suicide talk history and successful completion rates across gender, race, or age groups.

Suicide Attempts

- ❖ At enrollment, 15.1% of caregivers reported the youth had at least one previous suicide attempt.
- ❖ Overall, there was no significant difference in the successful completion rates for youth who did (69.5%) and did not (66.1%) have a previous suicide attempt.

- ❖ Females with no previous suicide attempts had a significantly higher successful completion rate (76.6%) than females with a previous suicide attempt (62.5%).
- ❖ White youth with no previous suicide attempts had a significantly higher successful completion rate (77.3%) than White youth with a previous suicide attempt (66.9%).

Completion Status and Co-Occurring Disorders

- ❖ At enrollment, 43.9% of youth were diagnosed with a co-occurring disorder (both a mental health and substance use disorder).
- ❖ Youth without co-occurring disorders had a significantly higher successful completion rate (70.4%) than youth with co-occurring disorders (60.5%).
- ❖ Males without a co-occurring disorder had a significantly higher successful completion rate (67.9%) than males with a co-occurring disorder (58.2%).
- ❖ Black youth without a co-occurring disorder had a significantly higher successful completion rate (65.9%) than Black youth with a co-occurring disorder (53.9%).
- ❖ Across both age categories, youth without a co-occurring disorder had significantly higher successful completion rates than youth with co-occurring disorders.

Completion Status and Prior Felony Charges

- ❖ 32.6% of the youth in BHJJ were charged with at least one felony in the 12 months prior to their enrollment.
- ❖ Overall, there was a significant association between the number of felony charges in the 12 months prior to their enrollment and successful completion rate. For example, 70.3% of youth without a prior felony in the 12 months prior to their BHJJ enrollment completed successfully while 54.5% of youth charged with four or more felonies in the 12 months prior to their BHJJ enrollment completed successfully.
- ❖ There was a significant association between the number of felony charges in the 12 months prior to BHJJ enrollment and successful completion rates for youth aged 10-14, but not for youth 15 years and older.

Completion Status and Contact with Police during BHJJ

- ❖ Staff estimated that 71.3% of BHJJ youth decreased their contact with police during the program and 6.0% of BHJJ youth increased their contact with police during the program.
- ❖ Overall, there was a significant association between change in police contact while in BHJJ and successful completion rate. Of the youth who decreased their police contact while in BHJJ, 84.0% completed the program successfully. Of the youth who increased their police contact while in BHJJ, 18.1% completed the program successfully.
- ❖ Across gender, race, and age groups, youth who reduced their police contacts while in BHJJ had significantly higher successful completion rates compared to any other youth.

Completion Status and OYAS Risk Level

- ❖ 26.6% of youth were assessed as low risk to recidivate, 46.5% were assessed as moderate risk, and 26.9% were assessed as high risk.
- ❖ Overall, there was a significant association between OYAS risk level and successful completion rate. 78.0% of low-risk youth completed BHJJ successfully while 56.7% of high-risk youth completed BHJJ successfully.

- ❖ Across gender, race (White and Black youth), and age groups, as OYAS risk level increased, successful completion rates significantly decreased.

Completion Status and Ohio Scales at Enrollment

Problem Severity

- ❖ Problem severity scores significantly improved from enrollment (26.7) to termination (16.0).
- ❖ Youth who entered BHJJ with low problem severity scores went on to complete BHJJ at a significantly higher rate (81.2%) than youth who entered BHJJ with high problem severity scores (67.2%).
- ❖ Across gender, race (White and Black youth), and for youth aged 15 years and older, youth with lower problem severity scores at enrollment had significantly higher successful completion rates than youth with higher problem severity scores at enrollment.

Functioning

- ❖ Functioning scores significantly improved from enrollment (41.5) to termination (51.3).
- ❖ Youth who entered BHJJ with high functioning scores went on to complete BHJJ at a significantly higher rate (79.2%) than youth who entered BHJJ with low functioning scores (63.7%).
- ❖ Across gender, for Black youth, and for youth aged 15 years and older, youth with higher functioning scores at enrollment had significantly higher successful completion rates than youth with lower functioning scores at enrollment.

Logistic Regression

- ❖ A logistic regression was conducted to examine the impact of all the variables of interest contained in the report on successful completion.
- ❖ The test of the model was significant, as it was able to distinguish between successful and unsuccessful completers. The model also identified six significant predictors of successful completion.
- ❖ Nonwhite youth had a 69% decrease in the odds of completing successfully compared to White youth.
- ❖ Youth who scored High on the OYAS had a 133% decrease in the odds of completing successfully compared to youth who scored Low.
- ❖ Youth whose police contact either stayed the same or increased during BHJJ had an 809% decrease in the odds of completing successfully compared to youth whose police contacts were reduced during BHJJ.
- ❖ Youth who earned good grades at termination (mostly ABCs) had a 201% increase in the odds of successful completion compared to youth who did not earn good grades at termination (CDFs).
- ❖ For each one-point improvement in problem severity and functioning score at enrollment, the odds of successful completion increased 2% and 3% respectively.

Ohio's Behavioral Health Juvenile Justice (BHJJ) Initiative

In the late 1990s, Ohio's juvenile court judges met with representatives from the Ohio Department of Mental Health (ODMH) and the Ohio Department of Youth Services (ODYS) to address a growing and serious concern. Many of the youth who appeared in court demonstrated serious mental health and/or substance use problems. Not only did these judges lack the resources and expertise to identify, assess, and serve these youth, but there were few alternative programs into which these youths could be placed in lieu of a detention facility.

The state recommended funding local pilot projects in an attempt to divert youth who demonstrated a need for behavioral health service from incarceration and into community-based treatment settings. The pilot program operated in three counties in Ohio. While small in scope, the pilot project was successful in reducing the number of youth with behavioral health issues committed to the ODYS.

In 2005, the state allocated new resources to the Behavioral Health Juvenile Justice (BHJJ) project and funded several counties throughout Ohio to expand upon the work accomplished in the pilot phase. The intent of the BHJJ project was to transform the local systems' ability to identify, assess, evaluate, and treat multi-need, multi-system youth and their families and to identify effective programs, practices, and policies. As in the pilot, this initiative was designed to divert juvenile justice-involved youth with mental health or substance use issues from detention into community and evidence-based treatment. The state identified criteria to be used by participating counties to determine if a youth was appropriate for inclusion in the BHJJ project, including: a DSM diagnosis, aged 10 to 18, substantial mental status impairment, co-occurring substance abuse, a pattern of criminal behavior, charged and/or adjudicated delinquent, a threat to public safety, exposed to trauma or domestic violence, and a history of multi-system involvement. Each county was able to determine which and how many criteria the youth had to meet to be eligible for participation.

Since 2006, 21 counties have been selected to participate in the BHJJ program. Urban, suburban, and rural counties have been included in the project. These counties were required to use evidence-based or evidence-informed treatment models; however, the state allowed each county to select the model that best fit the needs of their youth and families. Examples of the types of treatment models provided through BHJJ include Multi-systemic Therapy (MST), Functional Family Therapy (FFT), Integrated Co-Occurring Treatment (ICT), Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), and Multidimensional Family Therapy (MDFT).

While each county employs slightly different protocols and procedures in the implementation of BHJJ, the juvenile court is the typical entry point into the program. Youth who have been charged with a crime are given a psychological assessment to determine if they meet criteria for inclusion in BHJJ. If the youth meet criteria and the youth and family agree to participate, the youth is recommended for BHJJ participation. If the judge or magistrate accepts the recommendation, the youth is enrolled in the BHJJ program and referred or linked to the treatment agency responsible for providing the treatment services. In most cases the youth remain on probation supervision during their time in the BHJJ program. While residential placement is an option in some of the participating counties, a mission of BHJJ is to provide treatment in the least restrictive setting possible and therefore the majority of the treatment is provided in-home or in outpatient settings.

A key component to the BHJJ program is the ongoing outcome evaluation provided by the Begun Center for Violence Prevention Research and Education at the Mandel School for Applied Social Sciences at Case Western Reserve University (Kretschmar, Butcher, Flannery & Singer, 2016; Kretschmar, Butcher, Canary, & Devens, 2015). For information or copies of previous evaluation reports, please contact Dr. Jeff Kretschmar at jeff.kretschmar@case.edu or visit <http://begun.case.edu/research/juvenile-justice/bhjj/>.

Report Format

Previous evaluation reports examined both the demographics and the outcomes for both the statewide program as well as the individual BHJJ projects. This generally consisted of reporting pre- and posttest differences on a number of behavioral health surveys and measures. Some reports examined the BHJJ outcomes since the beginning of the program while others focused on more narrow time frames. These evaluations have consistently documented the BHJJ program's effectiveness. For example, recidivism rates (i.e. new misdemeanor and felony charges, adjudications) for youth who successfully completed BHJJ were lower than recidivism rates for youth who unsuccessfully completed BHJJ.

This report is different from all the other BHJJ reports we have produced. The emergence of COVID-19 in early 2020 significantly impacted both the operation of the BHJJ program and the associated data collection. Given that BHJJ services are largely delivered in the home, many projects paused service delivery and scrambled to develop telehealth options for the youth and families they served. Many behavioral health providers, juvenile courts, and local boards transitioned to remote work. Some agencies shut down completely. COVID-19 and its associated consequences resulted in very little data collection during the biennium. The surveys associated with the BHJJ program were designed to be collected in person, and workers were no longer seeing clients face-to-face. When possible, workers still tried to gather as much information as they could on clients. While we do have some data from youth and families since the beginning of COVID-19, the quality and completeness of the data across all programs required us to reconsider our approach to the evaluation report.

In consultation with stakeholders from the Ohio Departments of Youth Services (ODYS) and Mental Health and Addiction Services (OhioMHAS), the evaluation team developed a new approach to the traditional BHJJ outcomes report. Given the lack of availability of recent program data, we proposed examining data collected prior to COVID-19 to examine the profiles of youth who complete the program unsuccessfully. While the majority of youth who participated in BHJJ have completed treatment successfully, each local project has a percentage of youth who are identified as unsuccessful completers. There are many reasons counties can identify a youth as unsuccessful, including being incarcerated, going AWOL, refusing to continue participating in the program, being placed out of home, etc.

The main goal for this report was to identify and examine variables that may impact successful program completion rates to allow the state and local projects to recognize areas of program strength and opportunities for improvement. For example, if a higher proportion of females successfully complete BHJJ compared to males, why might that be and are there program enhancements available that may improve the successful completion rate for males? If youth with significant abuse histories successfully complete the program at lower rates than youth without such histories, could additional trauma-specific programming or treatment models serve to close the successful completion gap?

Measures and Instrumentation

All of the instruments collected as part of the BHJJ evaluation were in TeleForm© format. TeleForm© is a software program that allows for data transmission via fax machine, scanner, or .pdf file. Instruments are created using this software and once completed, can be faxed or scanned directly into a database.

While this is a comprehensive list of all the instruments collected in BHJJ, not all of them were selected for examination in this report.

Ohio Youth Problems, Functioning, and Satisfaction Scales (Ohio Scales)

The Ohio Scales (Ogles, Melendez, Davis, & Lunnen, 2001) were designed to assess clinical outcomes for children with severe emotional and behavioral disorders, and were developed primarily to track service effectiveness. The measure assesses four primary domains of outcomes with four subscales: Problem Severity, Functioning, Hopefulness, and Satisfaction with services. In the Ohio Scales–Caregiver version, the caregiver rates his/her child’s problem severity and functioning, and the caregiver’s satisfaction with services and hopefulness about caring for his or her child. In the Ohio Scales–Youth version, the youth rates his/her own problem severity and functioning, and his/her satisfaction with services and hopefulness about life or overall well-being. The Worker version does not include the Satisfaction or Hopefulness scales. A score is generated for each of the four subscales, with a total score for the scale generated by summing the items.

Trauma Symptom Checklist for Children (TSCC)

The Trauma Symptom Checklist for Children (TSCC) is a 54-item Likert-type questionnaire containing six subscales designed to measure anxiety, anger, depression, posttraumatic stress, dissociation, and sexual concerns (Briere, 1996). Youth respond to a series of questions regarding the frequency of certain thoughts, events, or behaviors. Responses are made on a 4-point, 0-3 scale with “0” indicating “never” and “3” indicating “almost all the time”.

Substance Use Survey – Revised

This measure, adapted from the SAMHSA-funded Tapestry Project (a demonstration and research project that identifies, serves and follows youth and families from Cuyahoga County, Ohio, with significant behavioral and mental health needs), collects information reported by the youth about the frequency of his or her substance use, including tobacco, alcohol, marijuana, cocaine, painkillers, and several additional substances.

Enrollment and Demographics Form (Enrollment Form)

This form permits program staff to record several important pieces of information including date of enrollment, reasons for BHJJ services, DSM diagnoses, Global Assessment of Functioning (GAF) scores, and agencies with which the youth is involved. In addition, out-of-home placement status, risk for placement, and educational and vocational data are collected.

Child Information Update Form (Termination Form)

This form is completed by the treatment staff at termination from the BHJJ program, and is used to record DSM diagnoses, GAF score, date and reasons for termination from the program, and out-of-home placement risk. Educational and vocational data, as well as information related to contacts with the police are also captured.

Victimization and Delinquency Questionnaire (VDQ)

The Victimization and Delinquency Questionnaire (VDQ) is a 33-item survey designed to gather information on childhood victimization as a witness or victim, delinquency, and negative peer interactions. This self-report instrument is measured on a 0 (Never) to 4 (Almost every day) scale. The items were adapted from a variety of sources, including the Juvenile Victimization Questionnaire (Finkelhor, Hamby, Ormrod, & Turner, 2005). This survey replaced the Recent Exposure to Violence Scale (REVS) used in previous BHJJ evaluations.

Caregiver Information Questionnaire (Intake and Termination)

The Caregiver Information Questionnaire, adapted from SAMHSA/Center for Mental Health Services (2005), permits staff to record information including demographics, risk factors, family composition, physical custody of the child, abuse history, family history of mental health issues, the child's mental and physical health service use history, caregiver employment status, and child's presenting problems.

Youth Services Survey for Families

The Youth Services Survey for Families (YSSF) (SAMHSA) was designed to assess caregiver satisfaction with services the youth received, and if, as a result of those services, the youth is showing improved functioning. This measure was optional.

Resiliency Survey

The Resiliency Survey is a 16-item, self-report survey designed to measure the external and internal assets associated with positive youth development. This survey is completed by youth at both intake into and termination from the BHJJ program. Items are scored on a four-point Likert scale ranging from "Not at all True" to "Very Much True".

Recidivism

Recidivism can be defined in many ways: a new offense, a violation of probation, new adjudication, or commitment to ODYS. Recidivism is a standard measure of program success, especially as an indicator of treatment outcomes over time. For this evaluation, recidivism was defined in three ways; a new misdemeanor or felony charge, a new adjudication, and a placement in an ODYS facility any time after enrollment in the BHJJ program. These data are provided to the evaluators by the juvenile court in each participating county. Recidivism data are presented for youth prior to and after enrollment and termination from BHJJ.

Ohio Youth Assessment System (OYAS)

The OYAS is a criminogenic risk assessment tool designed to assist juvenile court staff with placement and treatment decisions based on a youth's risk score. The OYAS contains five distinct versions of the tool administered at different points in the juvenile justice process: Diversion, Detention, Disposition, Residential, and Reentry. Youth receive a total score and fall into three risk levels: low, moderate, or high. Each county's juvenile court supplied OYAS data to the evaluators.

Methodology

Sample

While the first youth was enrolled into BHJJ in early 2006, we chose to focus on more recent data for this report. Over time, projects often go through many changes, including the programming offered and the eligibility criteria used to determine the youth who qualify for BHJJ. The data used for this report reflect youth who were enrolled in and terminated from BJJ between January 2014 and September 2019. This reporting period was beneficial for three main reasons. First, it allowed us to focus on project data that may be more reflective of the current state of the project. Second, this window enabled us to have enough data in most counties to conduct statistical analyses or at least show trends in the data. Third, these data were collected prior to COVID-19 and were more complete than data collected during the pandemic.

The sample was also restricted to youth who were judged to have either a successful or unsuccessful termination from BHJJ. While the definition of ‘successful’ often varied slightly by county and/or evidence-based model used, it generally referred to youth who reduced their contact with the juvenile justice system, improved their school and family functioning, and completed their behavioral health treatment and case plans. Unsuccessful terminations typically occurred if a youth went AWOL, a youth or family refused to continue behavioral health treatment, or if a youth was referred to an out of home placement or incarcerated. Youth who terminated the program with a ‘neutral’ discharge (e.g. moved out of county, aged out, etc.) were not included in this report.

Analysis Plan

The intent of this report is to identify characteristics of the youth and families who participate in BHJJ that are related to completion status (successful vs. unsuccessful completion). The BHJJ dataset contains thousands of variables, and an examination of each variable was not possible or prudent. In order to narrow the focus of the report, we examined a subset of data points that 1) the literature has identified as potentially related to success, 2) project stakeholders, including both state agency funders and local BHJJ stakeholders were interested in, and 3) local behavioral health experts suggested may predict completion status.

The analyses begin with an examination of demographic variables and their impact on completion status. These variables include age, race, gender, and family characteristics. The analyses then focus on the data collected through the surveys and questionnaires completed by the families and workers at the local level, for example, responses on the Caregiver Information Questionnaire.

Description of Analysis

Inferential statistics are used to determine if a relationship exists between two or more variables. The main analysis used throughout the report is called chi-square analysis. For example, we would use a chi-square to investigate whether males and females successfully completed BHJJ at similar rates. If there is a statistically significant result, this indicates that the difference between males and females is unlikely to have occurred by chance. Thus, we would describe the difference for males and females as a *real difference* rather than one that could have occurred by chance.

Another type of bivariate analysis is the t-test. T-tests are similar to chi-square tests in that they test two variables to determine whether there are significant differences. For example, if we are interested in

whether youth increased their functioning scores on the Ohio Scales from intake to termination, a t-test is used. Since functioning lies on a continuous scale, we examine whether the corresponding means at intake and termination significantly differ. Independent samples t-tests are used when there are two distinct groups (e.g. female and male) while paired samples t-tests are used when we are interested in whether means for the same group from different time points differ significantly (e.g. pre/post differences).

Sample Size

It is important to consider the size of the sample when interpreting statistical analyses. For example, because of the way the chi-square statistic is calculated, it is extremely sensitive to sample size. With a large sample (i.e. over 500 observations), small differences are likely to be identified as statistically significant. Conversely, small sample sizes may not produce statistically significant findings even with very large differences between the variables.

Not only does the actual sample size impact the feasibility and results of statistical testing, but in the case of the chi-square, its appropriateness is also dependent upon the minimum *expected* cell count. For example, a general rule of thumb is to ensure that at least 80% of the cells in the contingency table have an expected count of five or more. For a 2x2 contingency table, this implies that no more than 20% of the cells should have an expected count less than five.

Throughout the report, where either the actual sample size or the expected cell counts fell below recommended levels, the results of statistical testing were not reported. In these cases, descriptive data are still provided; however, caution should be used when interpreting those data.

Statewide Results

Between January 2014 and September 2019, 1,589 youth enrolled in and terminated from the BHJJ program across all participating counties (Figure 1). In order to be included in these analyses, a youth had to both enroll and terminate the BHJJ program in the evaluation window. Youth with a neutral termination reason (e.g. moved out of county, aged out, etc.) were not included in these analyses. Montgomery County accounted for the most youth in the analyses (41.2%, n=655) while Mahoning County accounted for the fewest (1.3%, n=20) (Table 1).

Figure 1



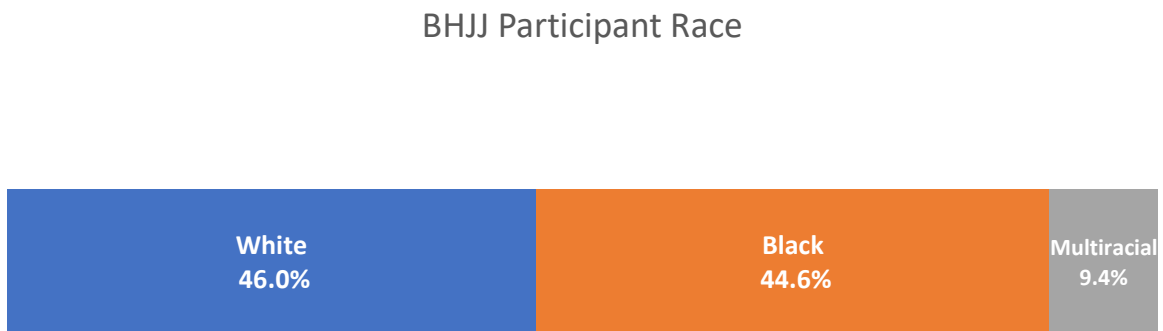
Table 1

County	BHJJ Participants (n=1,589)
Montgomery	41.2% (n=655)
Cuyahoga	12.0% (n=191)
Franklin	10.7% (n=170)
Hamilton	7.0% (n=112)
Summit	7.0% (n=112)
Lorain	5.9% (n=94)
Lucas	5.7% (n=91)
Wayne	3.3% (n=52)
Trumbull	2.3% (n=37)
Holmes	2.1% (n=33)
Ashtabula	1.4% (n=22)
Mahoning	1.3% (n=20)

Demographics

Two-thirds of BHJJ participants were male (66.7%, n=1,060) and most (88.6%, n=1,439) identified as either White or Black (Figure 2). Race data were limited to youth identified as White, Black, or Multiracial, as these youth accounted for approximately 98 percent of the entire BHJJ sample. The average age at enrollment was 15.5 years old, with a range of 9.8 years to 18.7 years.

Figure 2



Completion Status

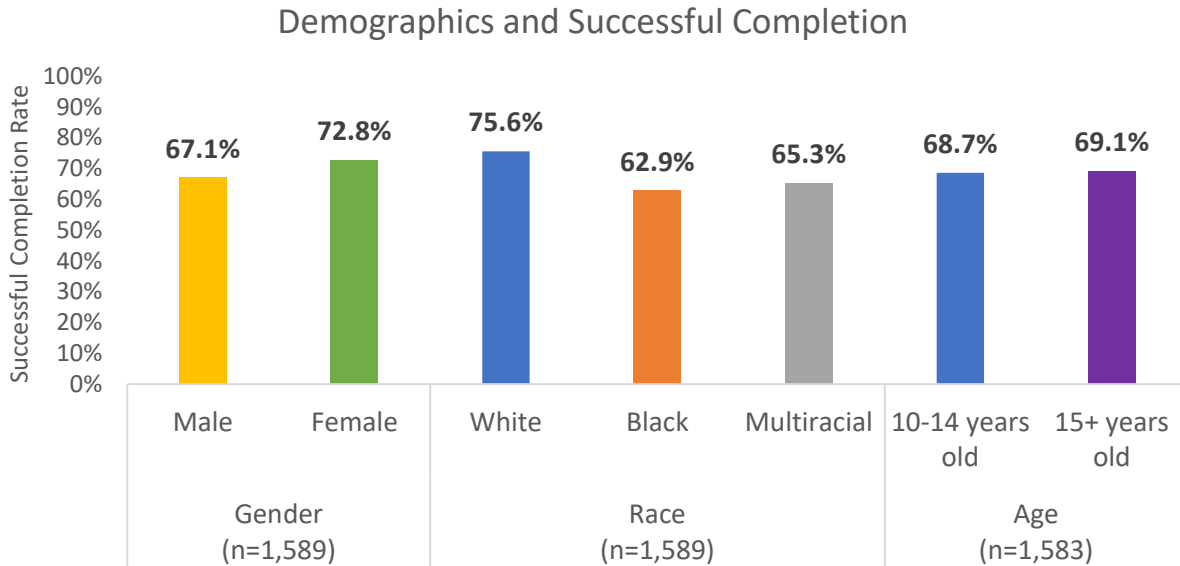
Of the 1,589 youth who enrolled and terminated BHJJ in the evaluation window, 69.0% (n=1,096) successfully completed BHJJ (Figure 3).

Figure 3



Figure 4 displays the successful completion rate by demographics. For example, the successful completion rate for males was 67.1% (n=711) while the successful completion rate for females was 72.8% (n=385). **Chi-square analyses found a significant association between successful completion rate and gender and successful completion rate and race but not successful completion rate and age.**

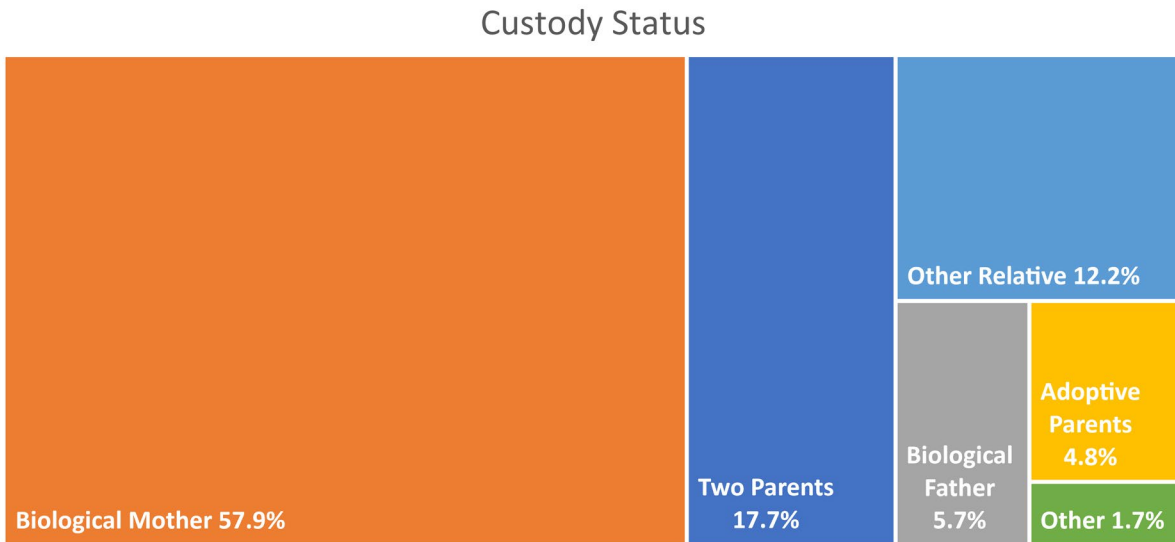
Figure 4



Custody Arrangements

Information about custody status at the time of enrollment was available for 1,538 youth. More than half of youth (57.9%, n=891) were in the custody of their biological mother only and 17.7% (n=272) were in the custody of two parents, at least one of which was a biological parent (Figure 5).

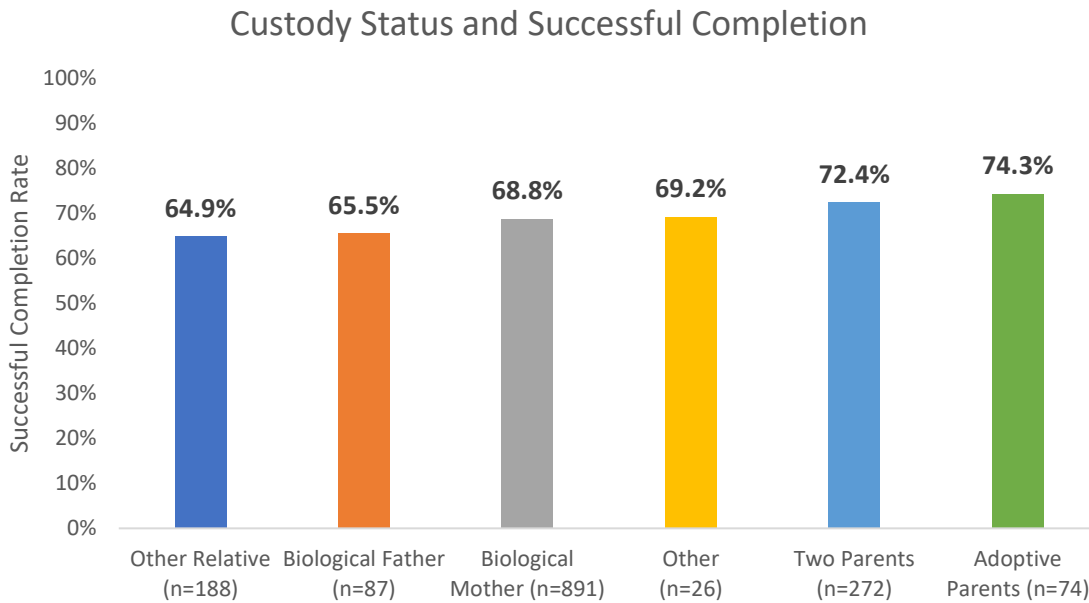
Figure 5



Custody Arrangement and Successful Completion

Figure 6 displays the successful completion rate across custody status. Youth in the custody of adoptive parents had the highest successful completion rate (74.3%, n=55) followed by youth in the custody of two parents, at least one of which was a biological parent (72.4%, n=197). Chi-square analysis found **no statistically significant difference in successful completion rates across custody status categories**.

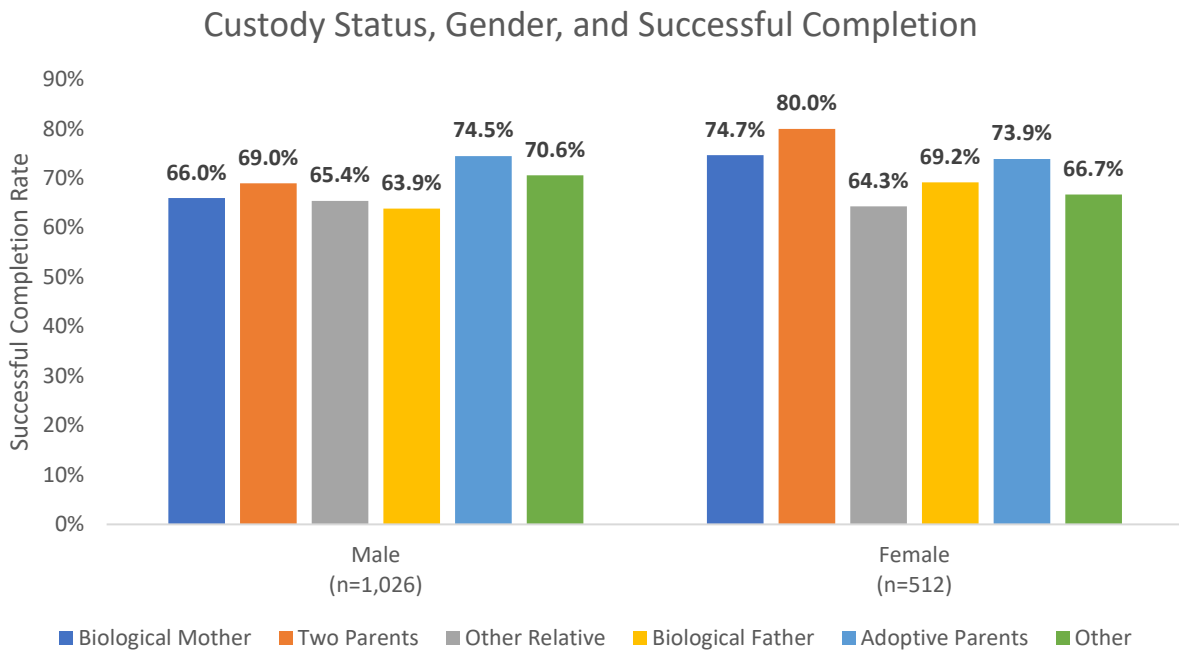
Figure 6



Custody Status, Gender, and Successful Completion

For males, the custody status associated with the highest successful completion rate was 'adoptive parents' (74.5%, n=38) (Figure 7). For females, the custody status with the highest successful completion rate was 'two parents' (80.0%, n=68). **Chi-square testing found no significant difference in successful completion rate for males or females across custody status categories.**

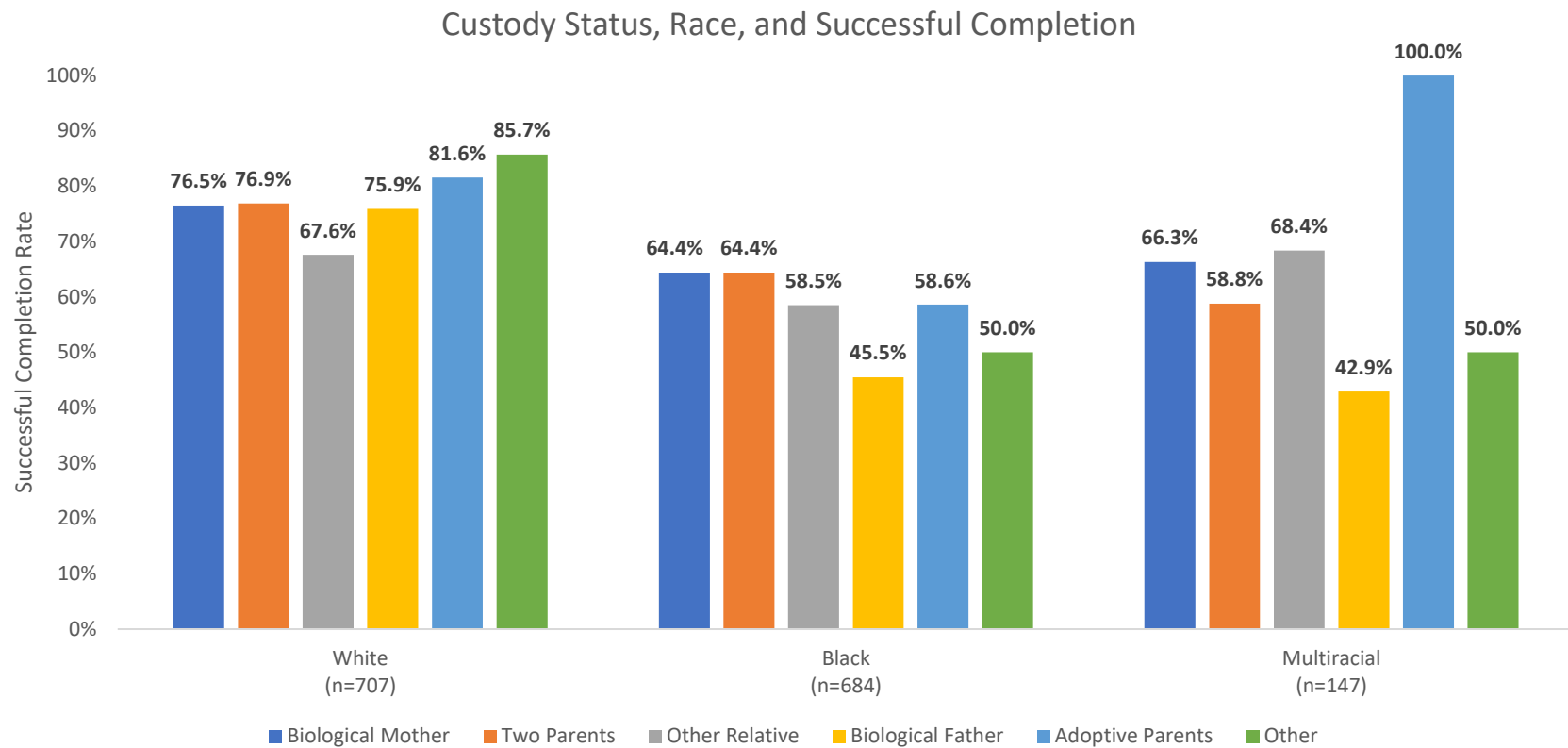
Figure 7



Custody Status, Race, and Successful Completion

Figure 8 displays the successful completion rates across race based on custody status. For example, the successful completion rate for White youth who were in the custody of their biological mother was 76.5% (n=237). **Chi-square testing found no association between custody status and successful completion rates for youth of any race.** For example, there was no statistically significant difference in successful completion rates across any of the custody categories for White youth.

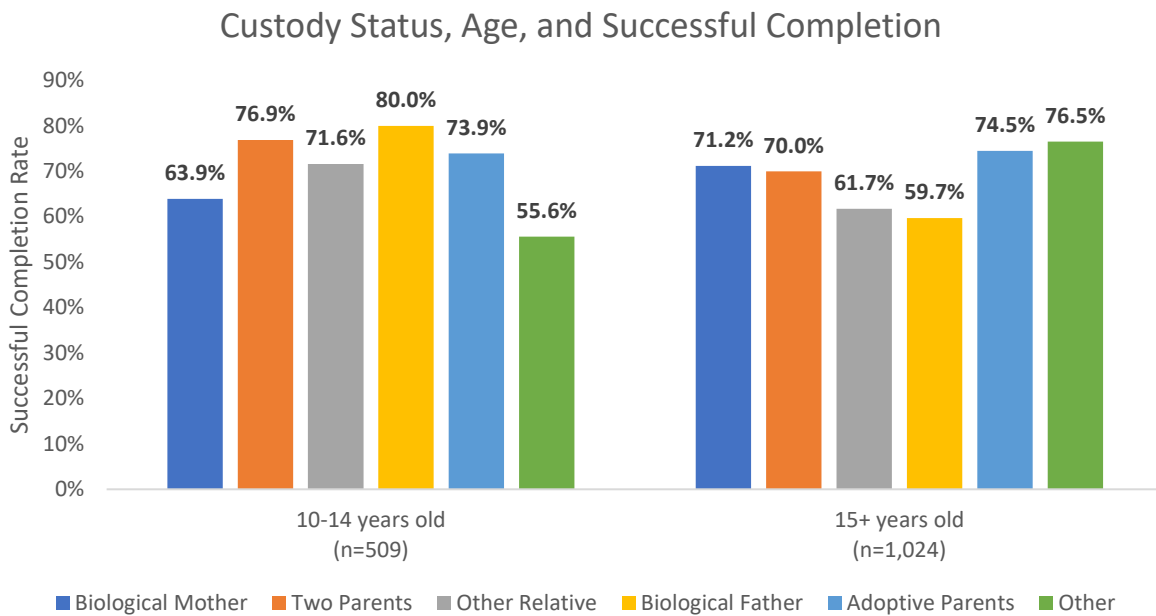
Figure 8



Custody Status, Age, Successful Completion

Figure 9 displays the successful completion rate by age group across custody status categories. For youth aged 10-14 years old, the highest successful completion rate was for those in the custody of their biological father (80.0%, n=20). For youth aged 15 years and older, the highest successful completion rate was for those in the custody of “other” people (76.5%, n=13). **Chi-square testing revealed a significant association between custody status category and successful completion rate for youth aged 15 and older but not for youth aged 10-14 years.**

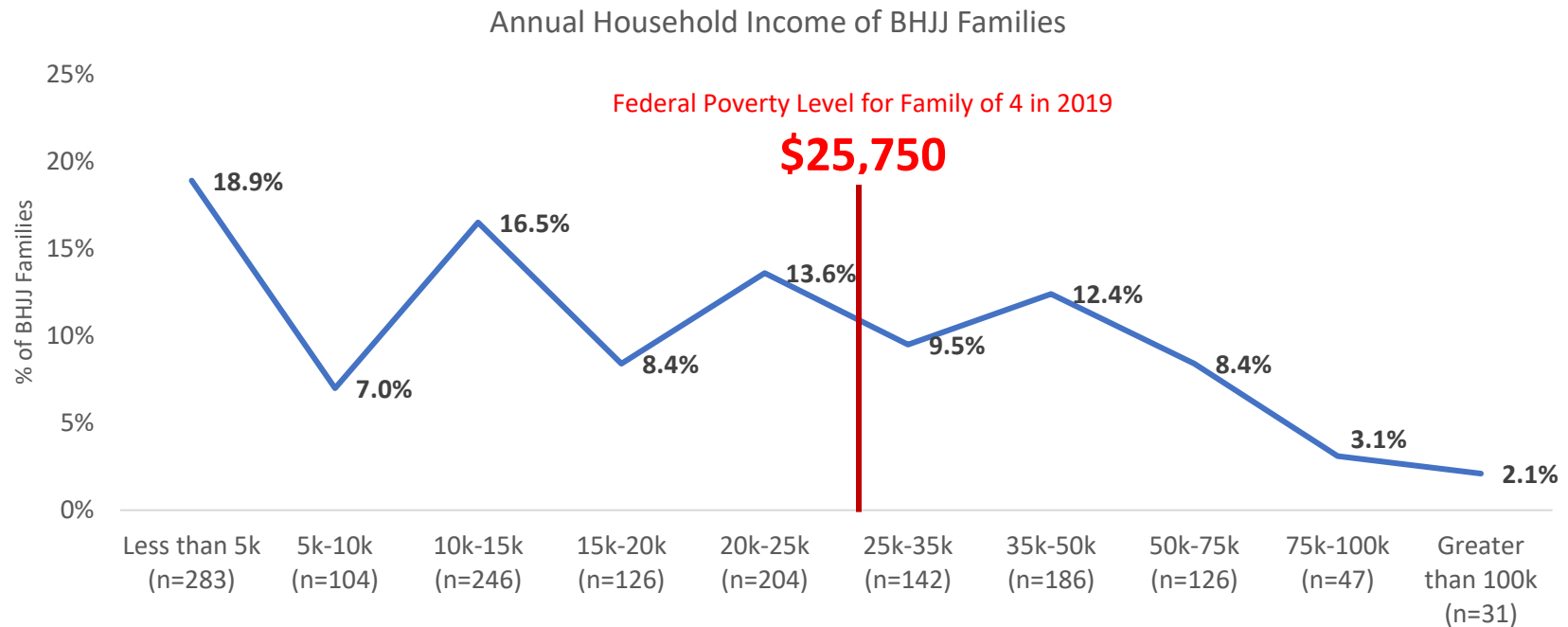
Figure 9



Household Income

Nearly 19 percent (18.9%, n=283) of families enrolled in BHJJ reported an annual household income of \$5,000 or less (Figure 10). More than 64% (64.4%, n=963) of families had an annual household income near or below the federal poverty level for a family of four (\$25,750). Just over 5 percent (5.2%, n=78) of families had an annual household income of \$75,000 or greater.

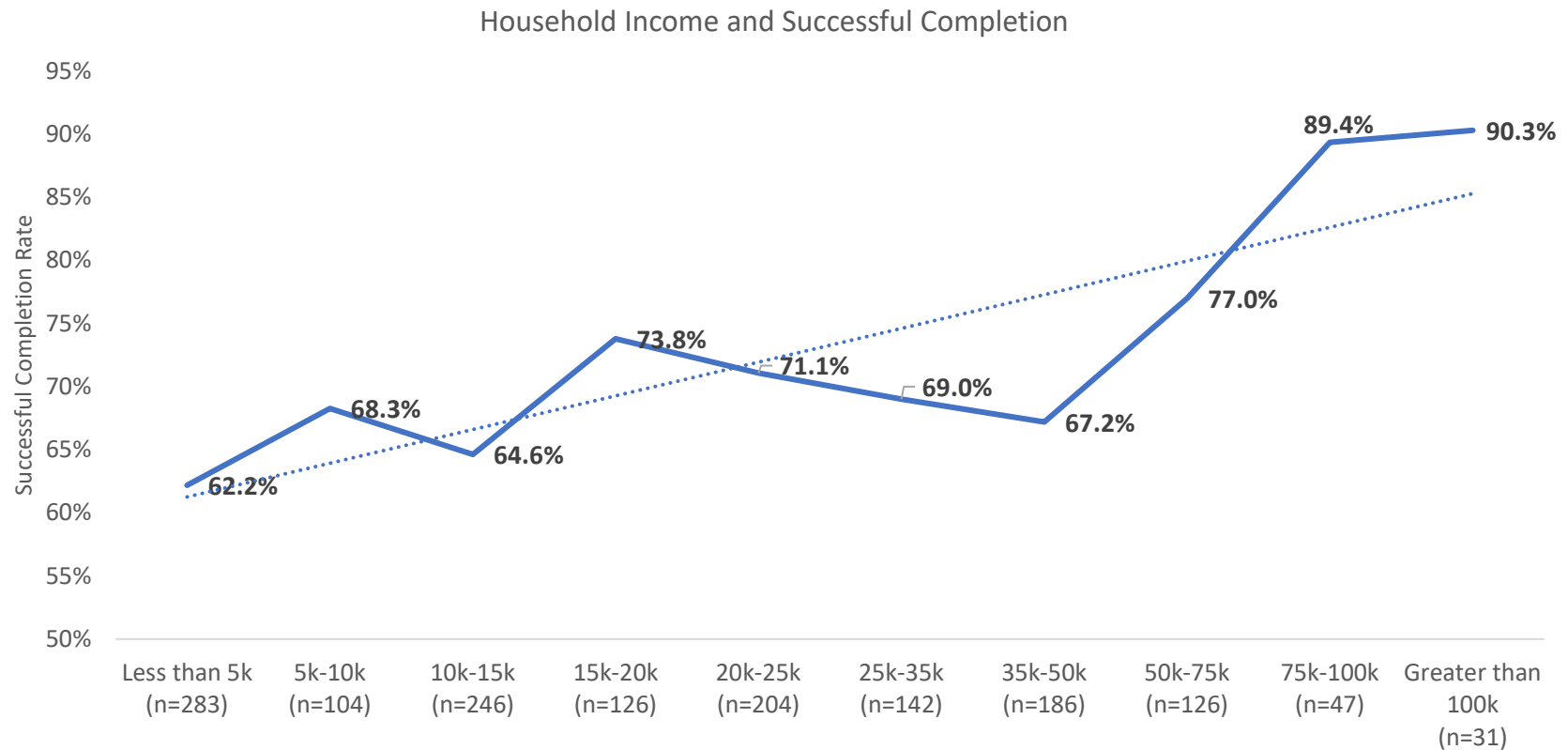
Figure 10



Household Income and Successful Completion

Figure 11 shows the successful completion rate by annual household income category. Generally, as annual household income increased, successful completion rate increased. Approximately 9 out of every 10 youth from families with annual household incomes \$75,000 and higher completed the BHJJ program successfully. **Chi-square analysis found a significant relationship between annual household income and successful completion rates.**

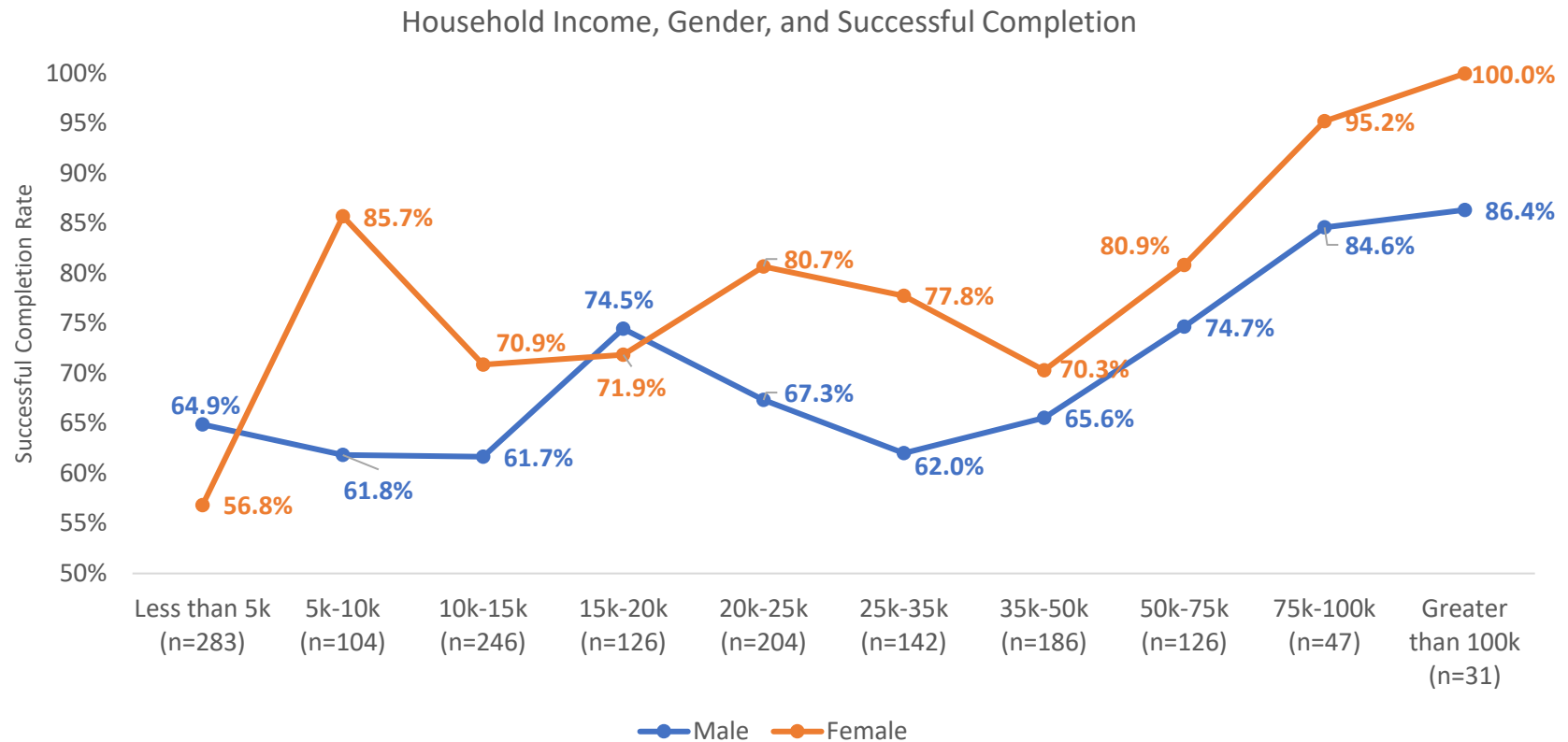
Figure 11



Household Income, Gender, and Successful Completion

Figure 12 displays the successful completion rate by gender across annual household income categories. Females, regardless of annual household income, typically had higher successful completion rates than males. Generally, for both males and females, as annual household income increased, so too did successful completion rates. For example, all females (n=9) from homes with an annual household income greater than \$100,000 completed BHJJ successfully. **Chi-square analysis indicated a statistically significant association between household income and successful completion rates for both males and females.**

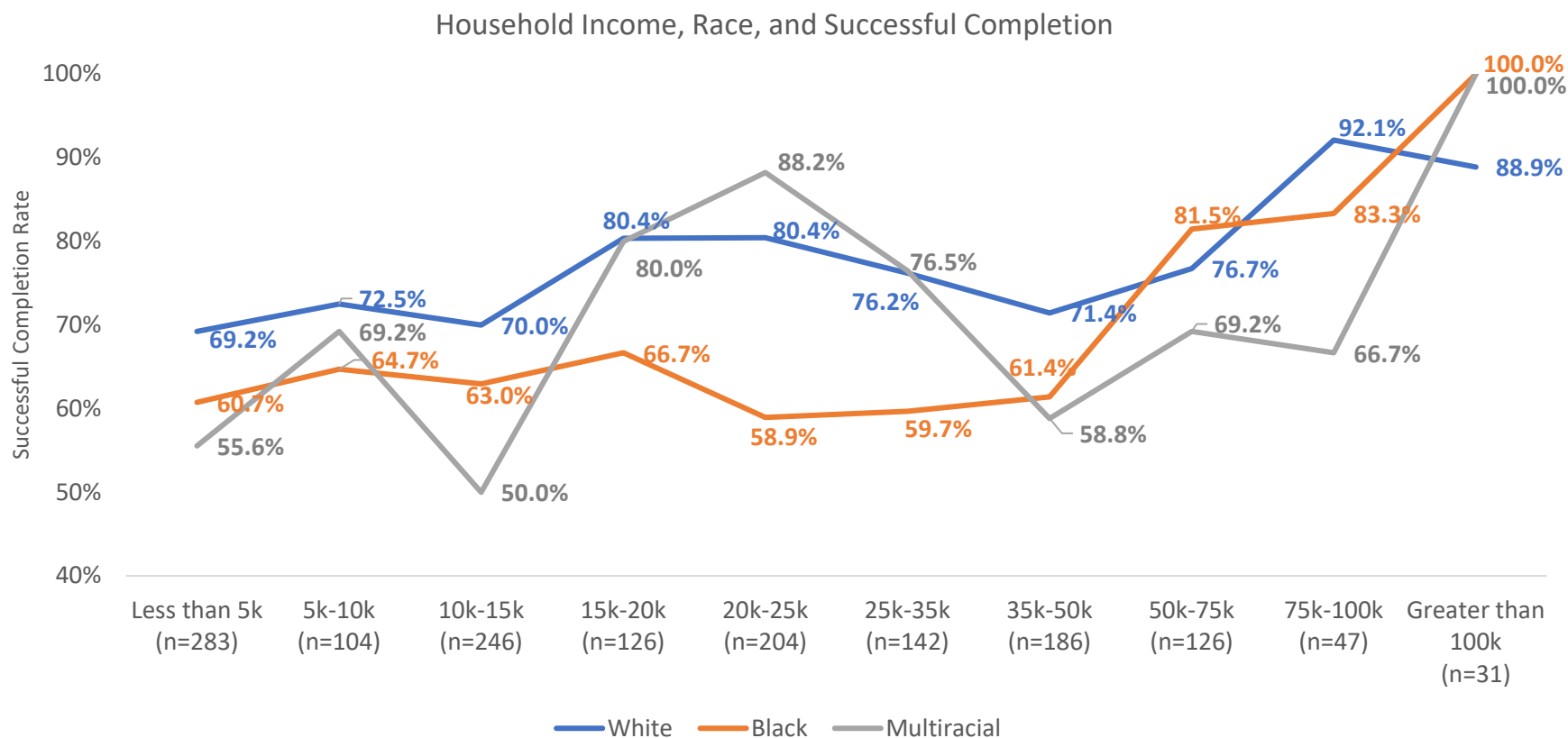
Figure 12



Household Income, Race, and Successful Completion

Across all race categories, successful completion rates generally increased as annual household income increased (Figure 13). At most income levels, White youth had higher successful completion rates than Black or Multiracial youth. **Chi-square testing revealed no statistically significant differences for successful completion rates across annual household income levels for any race.** For example, there was no statistically significant difference in successful completion rate across annual household income for White youth. While 100% of Black and Multiracial youth from households with incomes greater than \$100,000 completed BHJJ successfully, there were only two youth for each race at this income level.

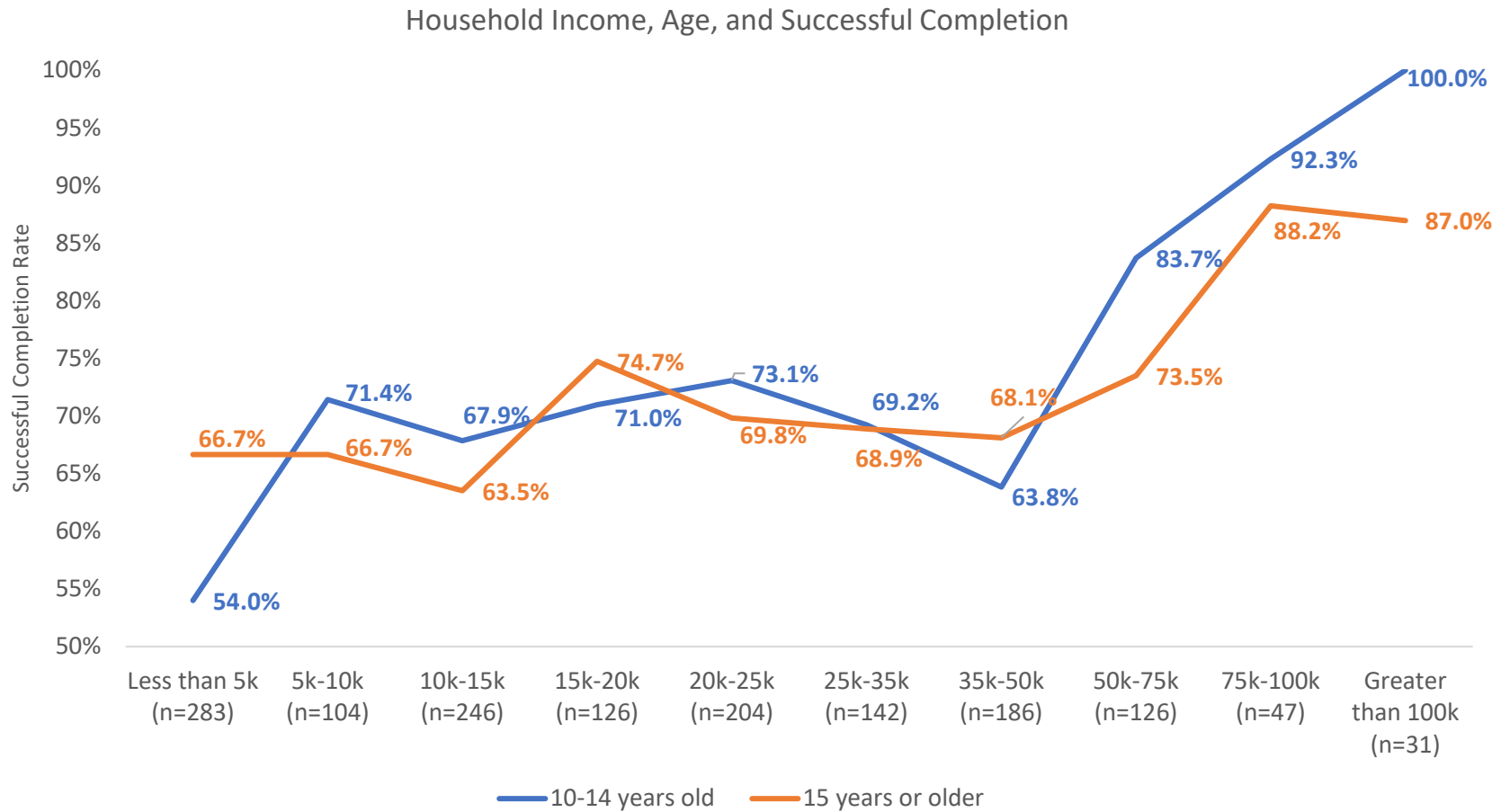
Figure 13



Household Income, Age, and Successful Completion

Figure 14 displays the successful completion rate by age group across income levels. Similar to the results for gender and race, successful completion rates generally increased as income increased for youth in both age groups. **Chi-square testing revealed a statistically significant association between household income and successful completion rates for youth in both age groups.**

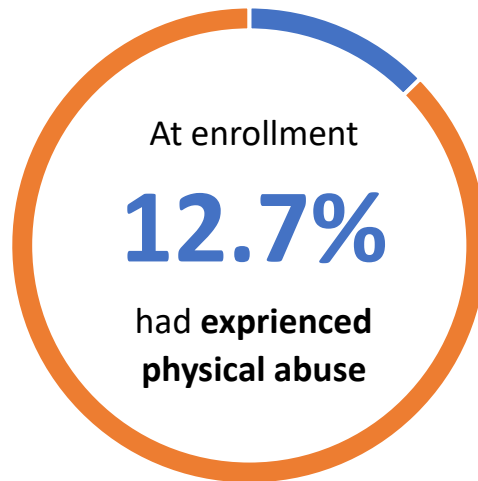
Figure 14



Physical Abuse

At enrollment, caregivers were asked if the youth experienced physical abuse at any point in their life. Data were available for 1,543 youth, 12.7% (n=196) of whom experienced physical abuse (Figure 15).

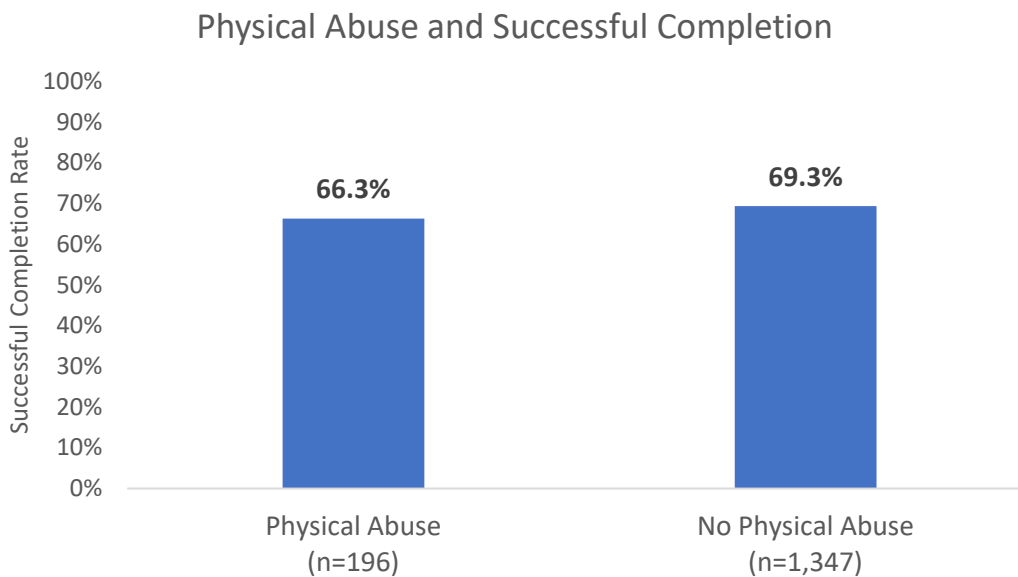
Figure 15



Physical Abuse and Successful Completion

Figure 16 shows the successful completion rate for youth across both physical abuse categories. While youth with no reported history of physical abuse prior to BHJJ enrollment had a higher successful completion rate (69.3%, n=934) than youth with a physical abuse history (66.3%, n=130), **chi-square analysis indicated this difference was not statistically significant.**

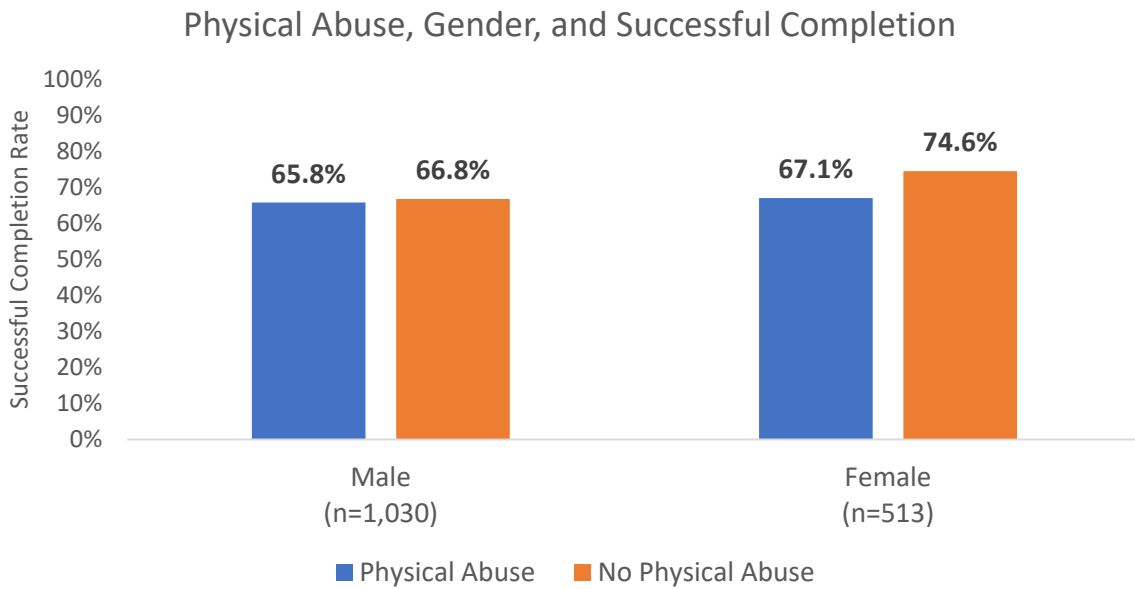
Figure 16



Physical Abuse, Gender, and Successful Completion

Figure 17 presents the successful completion rate by gender across physical abuse categories. Females who were not physically abused had the highest successful completion rate (74.6%, n=326). **Chi-square analyses found no statistically significant difference in successful completion rate based on physical abuse category for males or females.**

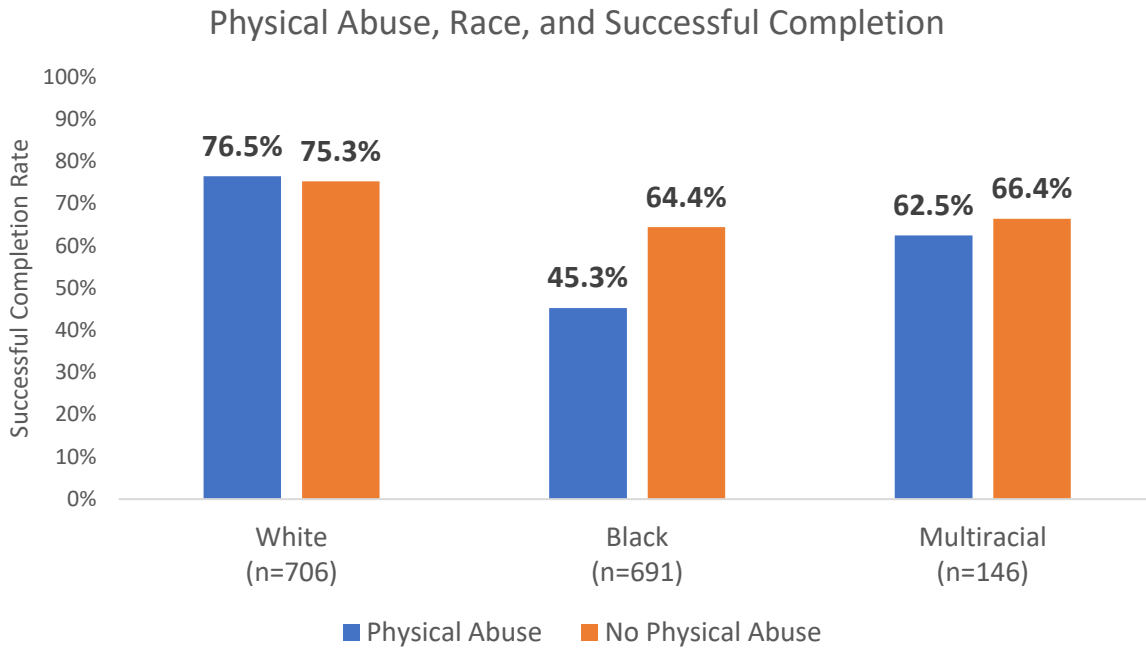
Figure 17



Physical Abuse, Race, and Successful Completion

Figure 18 displays the successful completion rate by race for both physical abuse categories. White youth with a physical abuse history had a successful completion rate of 76.5% (n=91) while White youth without a physical abuse history had a successful completion rate of 75.3% (n=442). **Layered chi-square testing revealed a significant association between physical abuse history and successful completion rates for Black youth but not for White or Multiracial youth.**

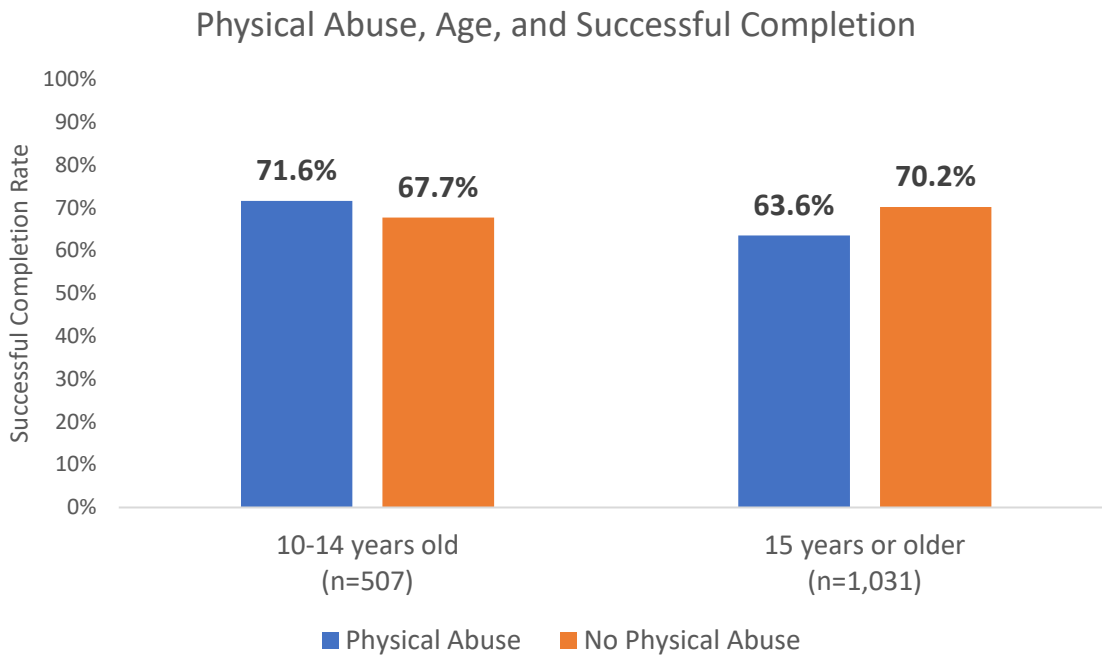
Figure 18



Physical Abuse, Age, and Successful Completion

Figure 19 displays the successful completion rate by age group across physical abuse categories. Youth aged 15 and older who experienced physical abuse prior to their BHJJ enrollment had the lowest successful completion rate (63.6%, n=82). **Chi-square testing indicated no statistically significant difference in successful completion rates across physical abuse category for either age group.**

Figure 19



Sexual Abuse

At enrollment, caregivers were asked if the youth experienced sexual abuse at any point in their life. Data regarding a history of sexual abuse was available for 1,519 youth, 12.6% (n=192) of whom experienced sexual abuse prior to their BHJJ enrollment (Figure 20).

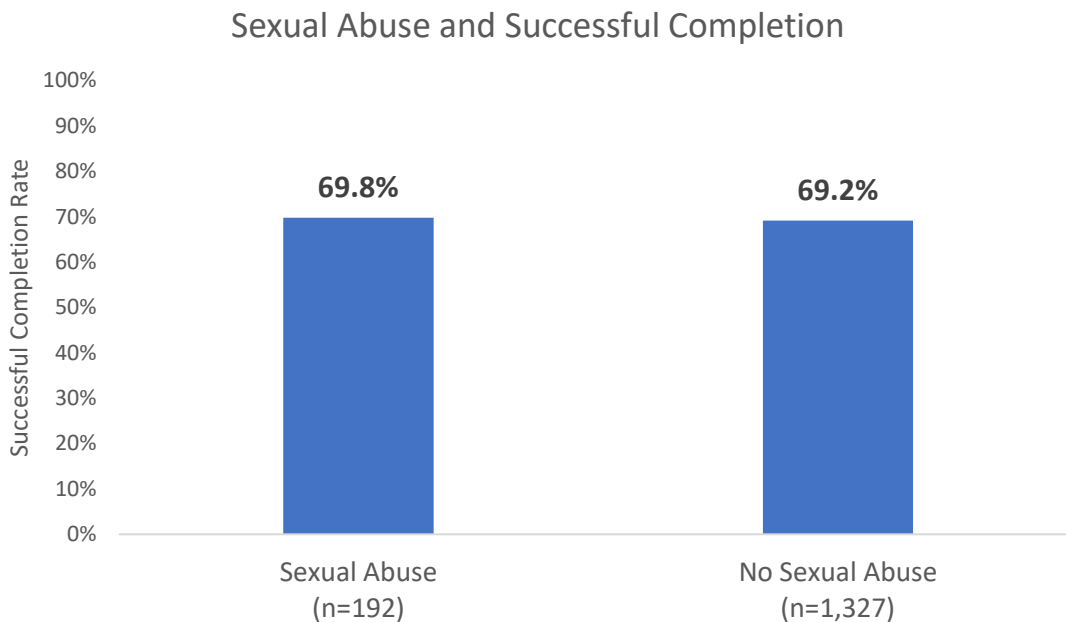
Figure 20



Sexual Abuse and Successful Completion

Figure 21 displays the successful completion rate for youth with and without prior sexual abuse. **A chi-square test found no significant difference in successful completion rates across sexual abuse groups.**

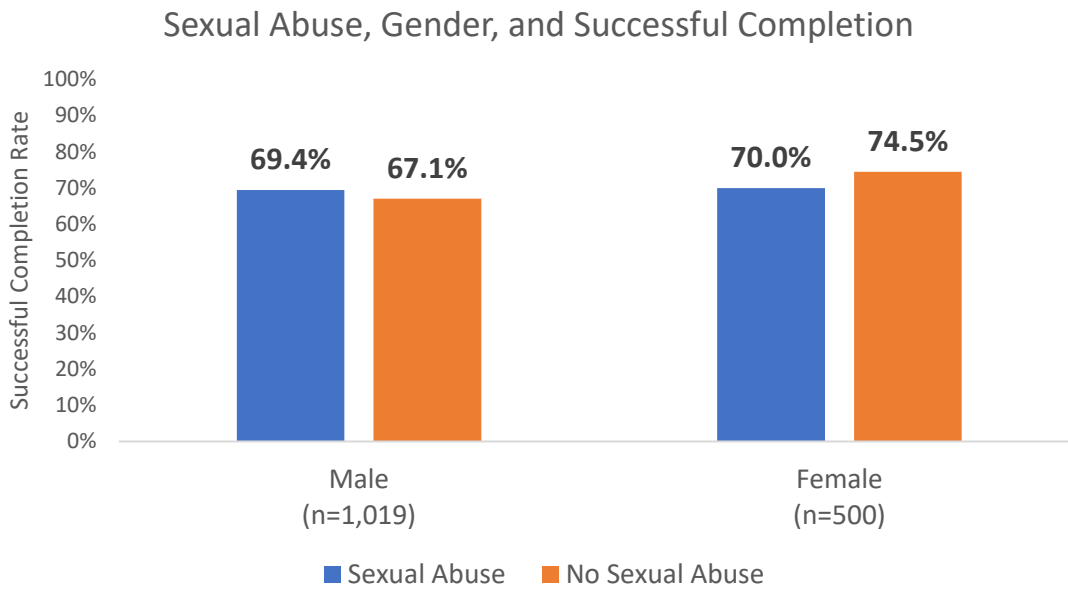
Figure 21



Sexual Abuse, Gender, and Successful Completion

Figure 22 shows the successful completion rate by gender across sexual abuse categories. Females with no history of sexual abuse prior to BHJJ had the highest successful completion rate (74.5%, n=283). **Chi-square analysis found no significant difference for successful completion rate across sexual abuse categories for males or females.**

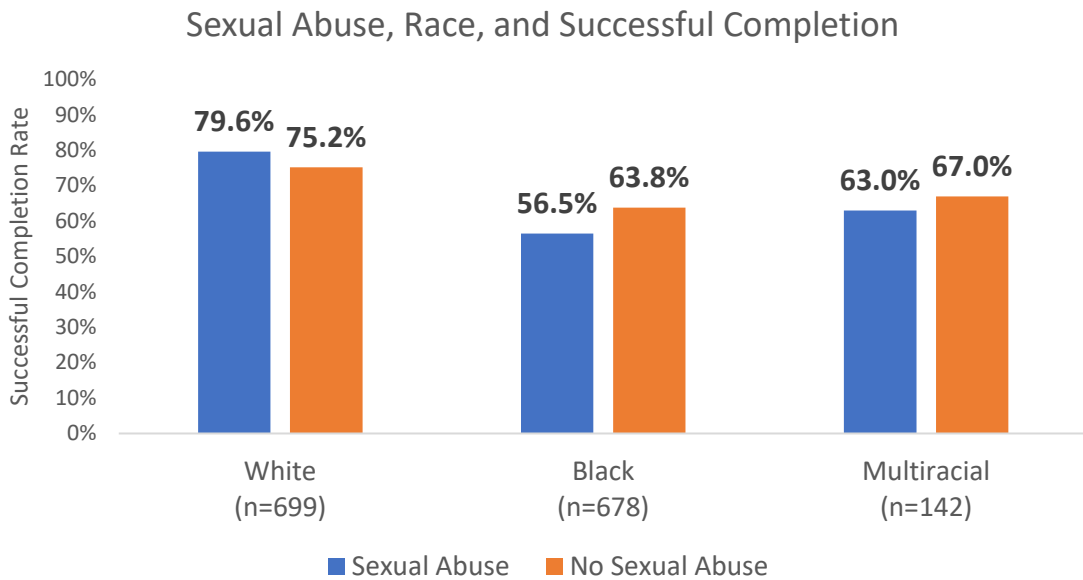
Figure 22



Sexual Abuse, Race, and Successful Completion

Figure 23 displays the successful completion rate by race across sexual abuse categories. White youth with prior sexual abuse had the highest successful completion rate (79.6%, n=82). **Chi-square testing indicated no statistically significant difference in successful completion rate across sexual abuse categories for any race.**

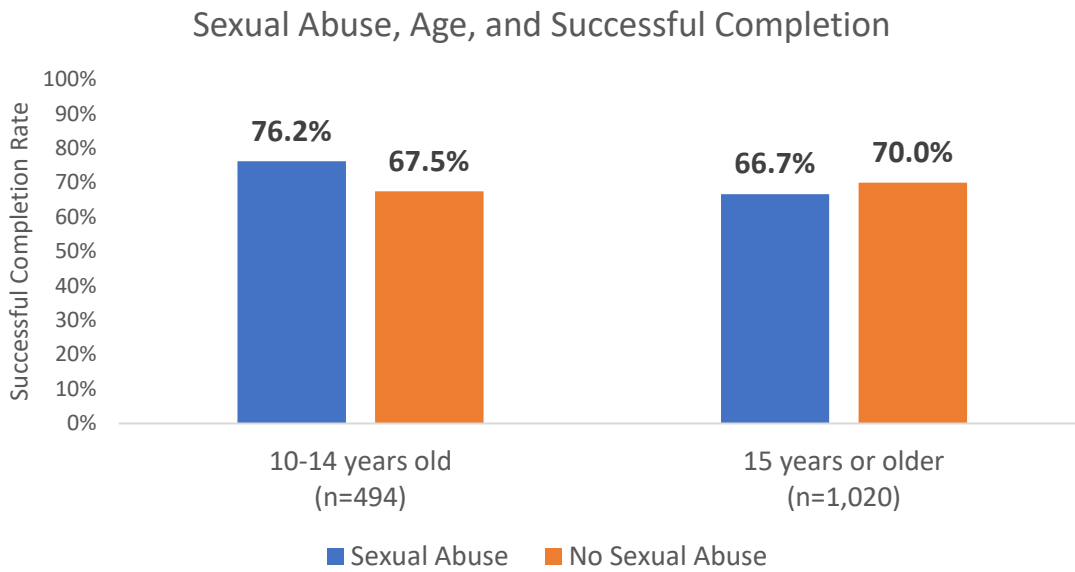
Figure 23



Sexual Abuse, Age, and Successful Completion

Figure 24 shows the successful completion rate by age across sexual abuse categories. Youth aged 10-14 who experienced sexual abuse prior to their BHJJ enrollment had the highest successful completion rate (76.2%, n=48). **Chi-square analyses indicated no significant differences in successful completion rate across sexual abuse categories for either age group.**

Figure 24

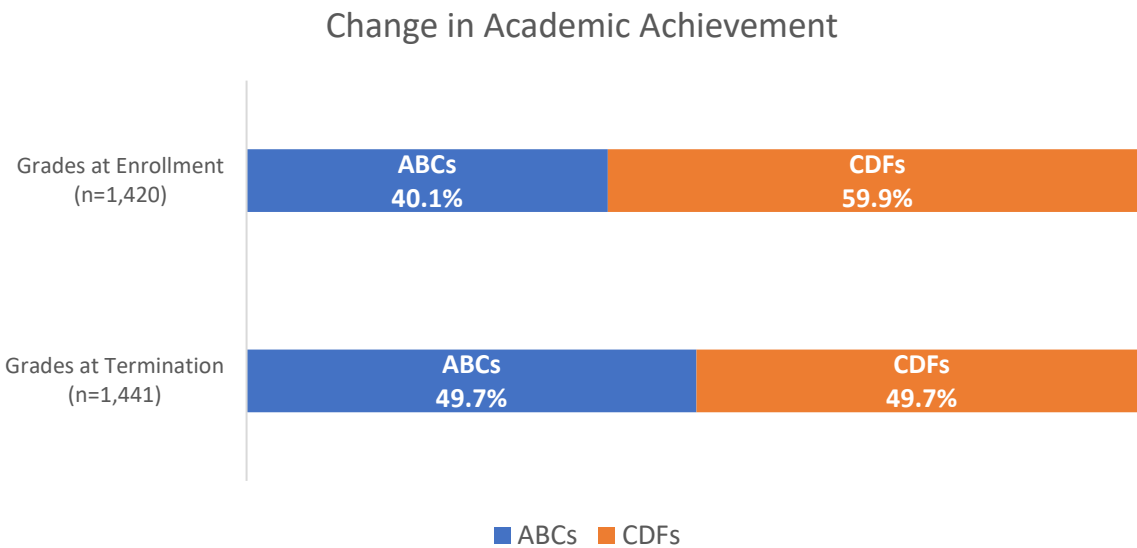


Academic Achievement

At enrollment and termination, youth academic performance was measured using the following grade categories: “mostly As and Bs”, “mostly Bs and Cs”, “mostly Cs and Ds”, or “mostly Ds and Fs”. These were further collapsed into the categories of “ABCs”, comprised of “mostly As and Bs” and “mostly Bs and Cs”, and “CDFs”, comprised of “mostly Cs and Ds” and “mostly Ds and Fs”.

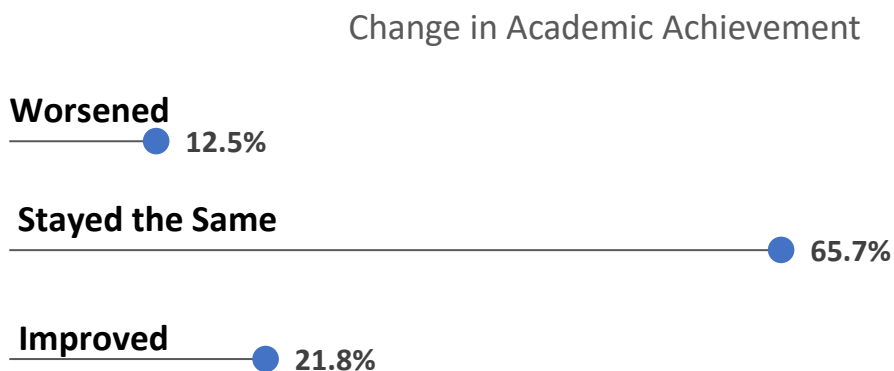
At enrollment, 40.1% (n=570) of youth were earning mostly ABCs in school (Figure 25), which increased to 49.7% (n=716) at termination.

Figure 25



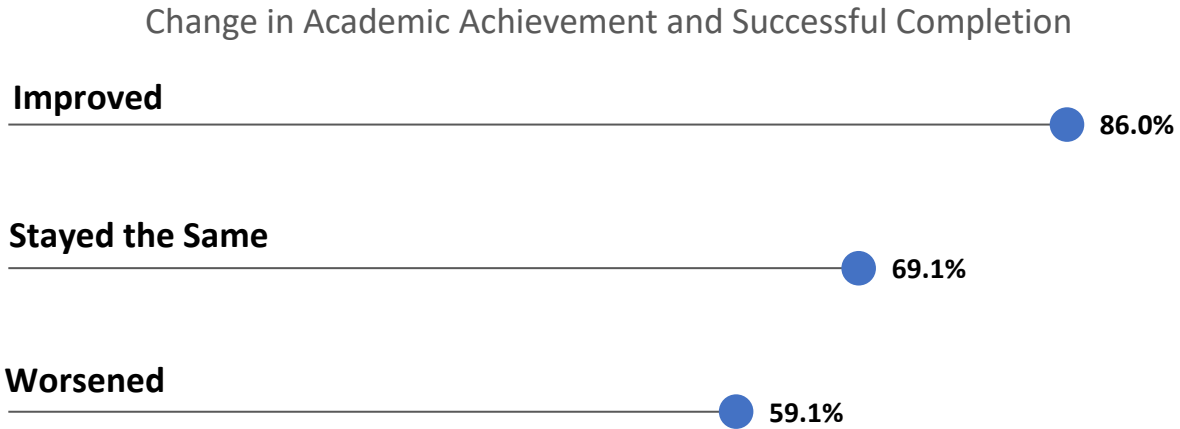
Most youth (65.7%, n=861) maintained similar grades throughout participation in BHJJ while 21.8% (n=286) improved their grades (Figure 26).

Figure 26



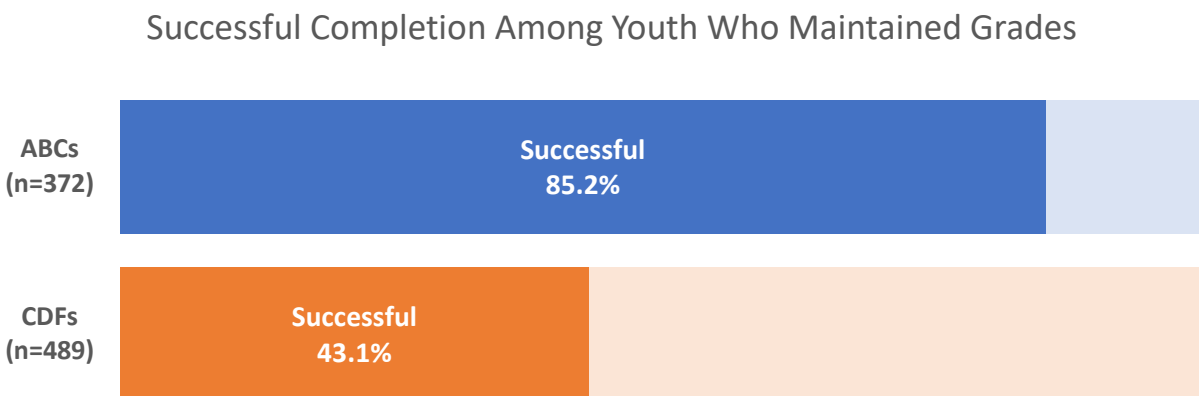
Among youth who improved their grades, 86.0% (n=246) successfully completed BHJJ, compared to 69.1% (n=595) of those who maintained their grades and 59.1% (n=97) of those whose grades worsened (Figure 27).

Figure 27



Of the 861 youth who maintained their grades, 43.2% (n=372) maintained ABCs and 56.8% (n=489) maintained CDFs. Among the 372 youth who maintained their grades at the ABCs level, 85.2% (n=317) went on to successfully complete BHJJ, compared to 43.1% (n=211) of those who maintained CDFs (Figure 28). **Chi-square testing found that youth who maintained ABCs had a significantly higher successful completion rate than youth who maintained CDFs.**

Figure 28

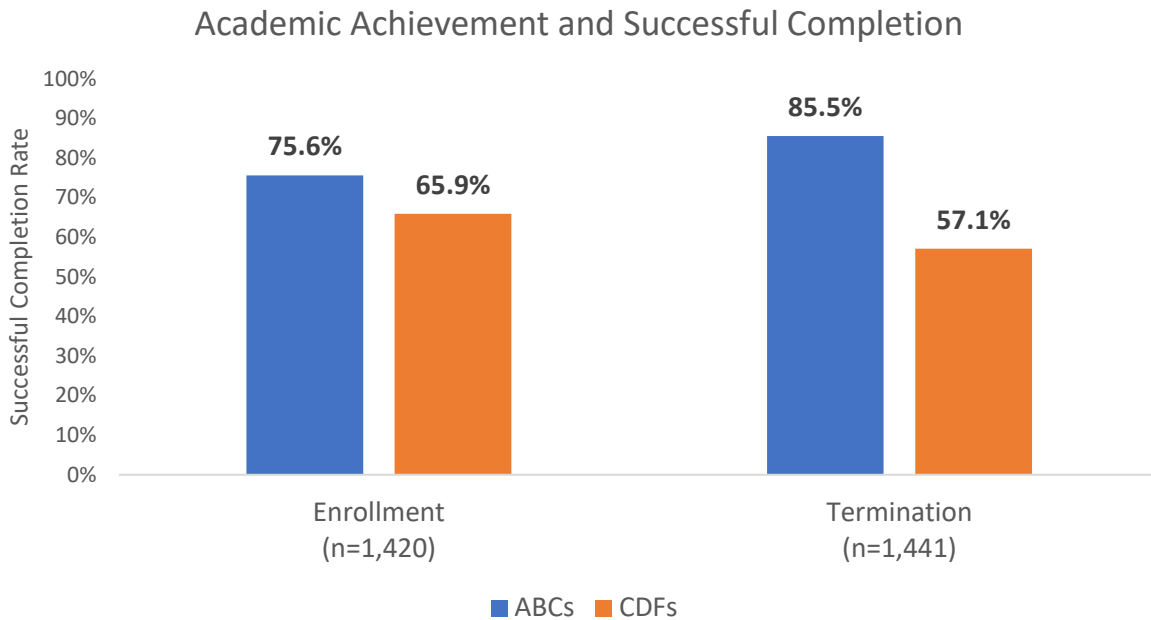


Academic Achievement and Successful Completion

Three quarters (75.6%, n=431) of youth who earned mostly ABCs at enrollment successfully completed BHJJ compared to 65.9% (n=560) of youth who earned mostly CDFs at enrollment (Figure 29). Over eighty-five percent (85.5%, n=612) of youth who earned mostly ABCs at termination successfully completed the program compared to 57.1% (n=414) of youth who earned mostly CDFs at termination.

Chi-square testing found a significant association between academic achievement and successful completion rate at both enrollment and termination.

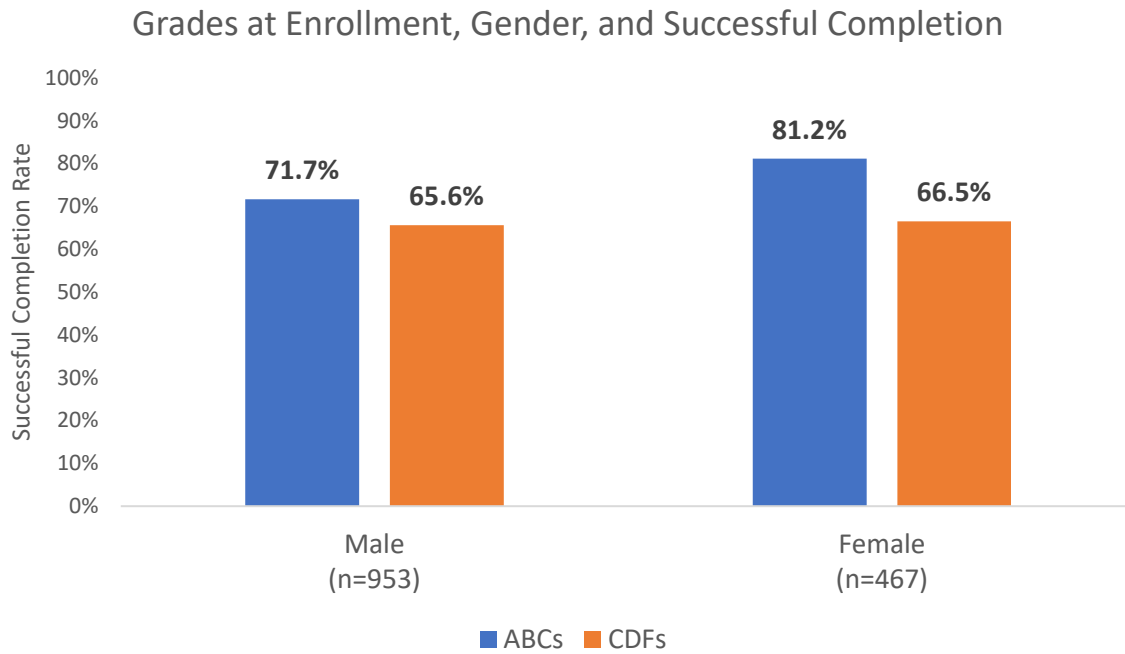
Figure 29



Grades at Enrollment, Gender, and Successful Completion

Females who earned mostly ABCs at enrollment had the highest successful completion rate (81.2%, n=190) (Figure 30). **Layered chi-square testing found a significant association between grades at enrollment and successful completion rate among females but not males.**

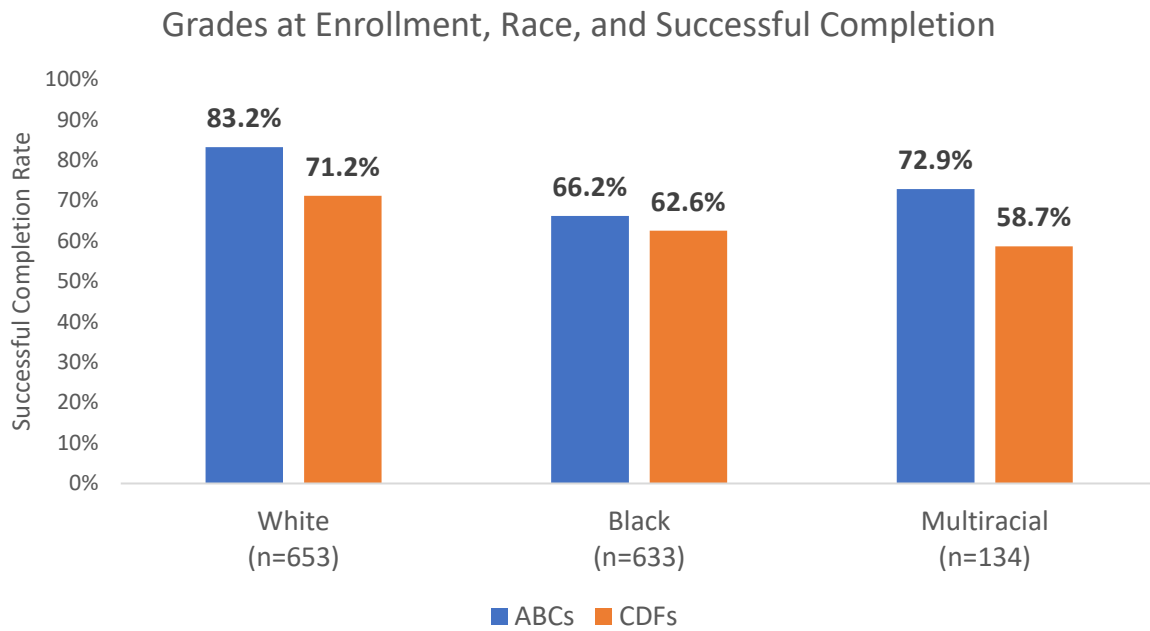
Figure 30



Grades at Enrollment, Race, and Successful Completion

Regardless of race, youth who earned mostly ABCs at enrollment had a higher successful completion rate than youth of the same race who earned mostly CDFs at enrollment (Figure 31). **A layered chi-square revealed a statistically significant association between grades at enrollment and successful completion rates for White youth but not Black or Multiracial youth.**

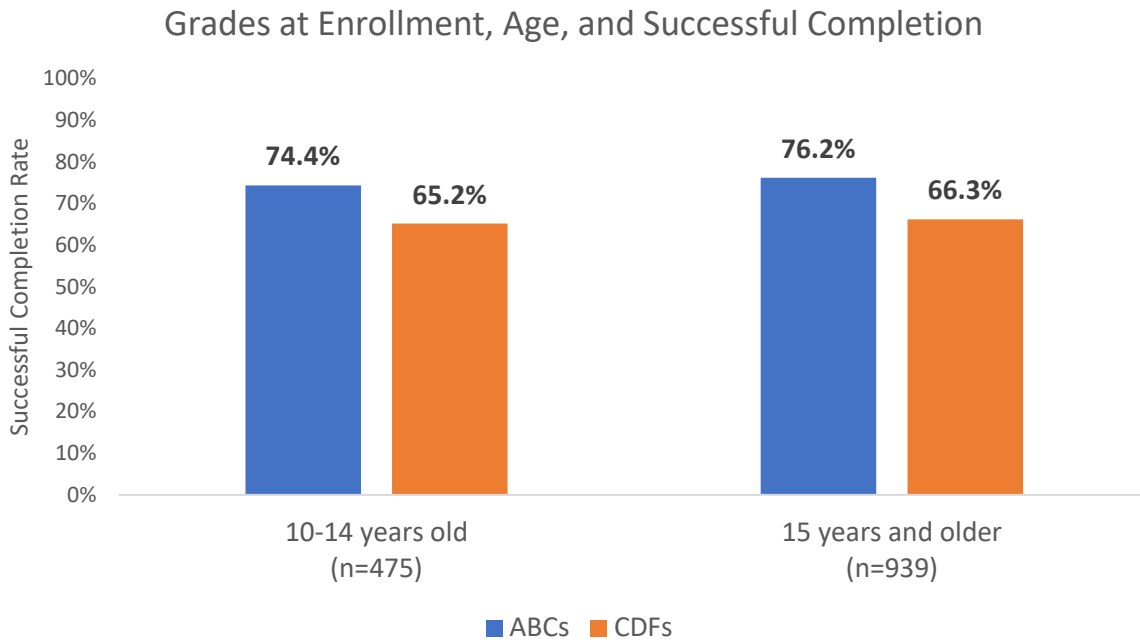
Figure 31



Grades at Enrollment, Age, and Successful Completion

Across age groups, youth who earned mostly ABCs at enrollment had higher successful completion rates than youth who earned mostly CDFs at enrollment (Figure 32). **Layered chi square testing found a significant association between grades at enrollment and successful completion rate for both age groups.**

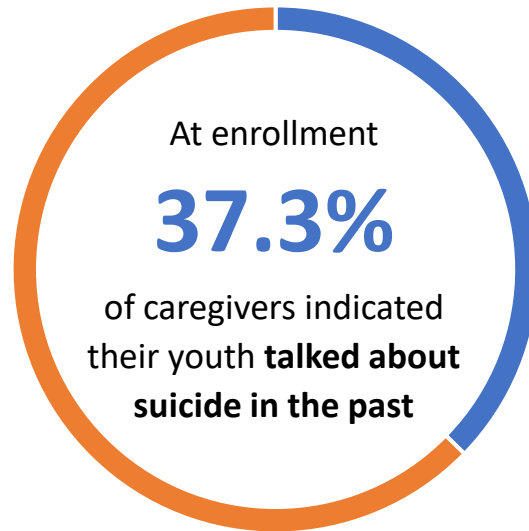
Figure 32



Suicide Talk

At enrollment, caregivers were asked if the youth had ever talked about suicide. Data were available for 1,552 youth. Caregivers reported that 37.3% (n=579) of the youth had previously talked about suicide (Figure 33).

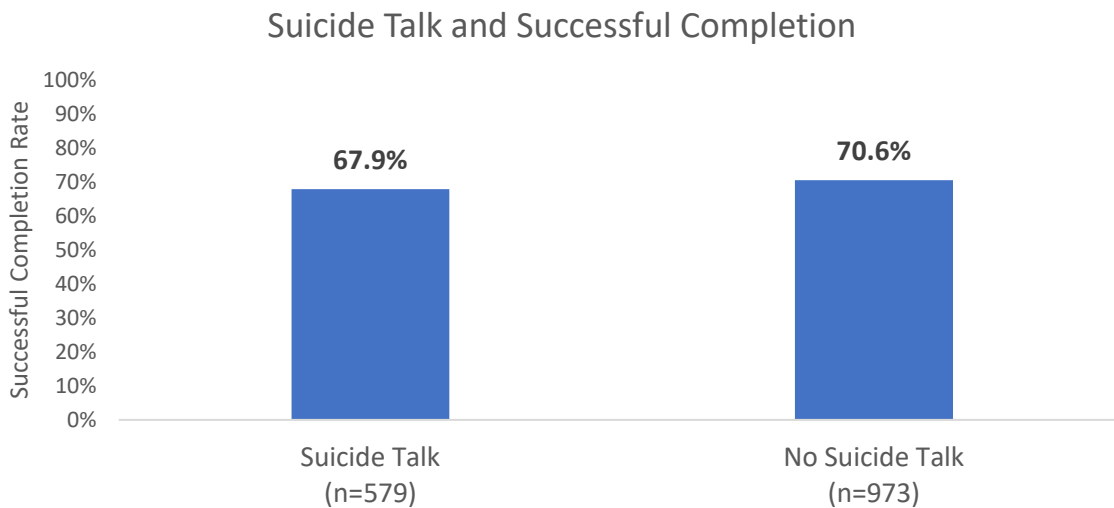
Figure 33



Suicide Talk and Successful Completion

Figure 34 displays the successful completion rate for youth who did and did not previously talk about suicide. **Chi-square analysis indicated no significant difference in successful completion rates across the two groups.**

Figure 34

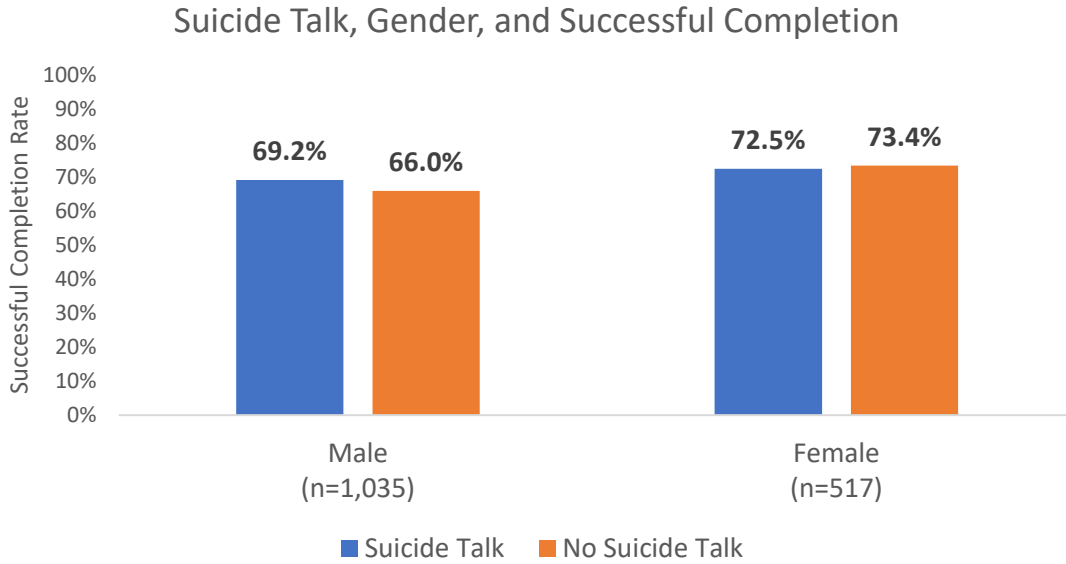


Suicide Talk, Gender, and Successful Completion

Figure 35 displays the successful completion rates by gender for youth who did and did not talk about suicide prior to their BHJJ enrollment. Among youth who talked about suicide prior to their BHJJ enrollment, females (72.5%, n=187) had a higher successful completion rate than males (69.2%, n=222).

A layered chi-square indicated no statistically significant difference in successful completion rates based on the presence or absence of previous suicide talk for either males or females.

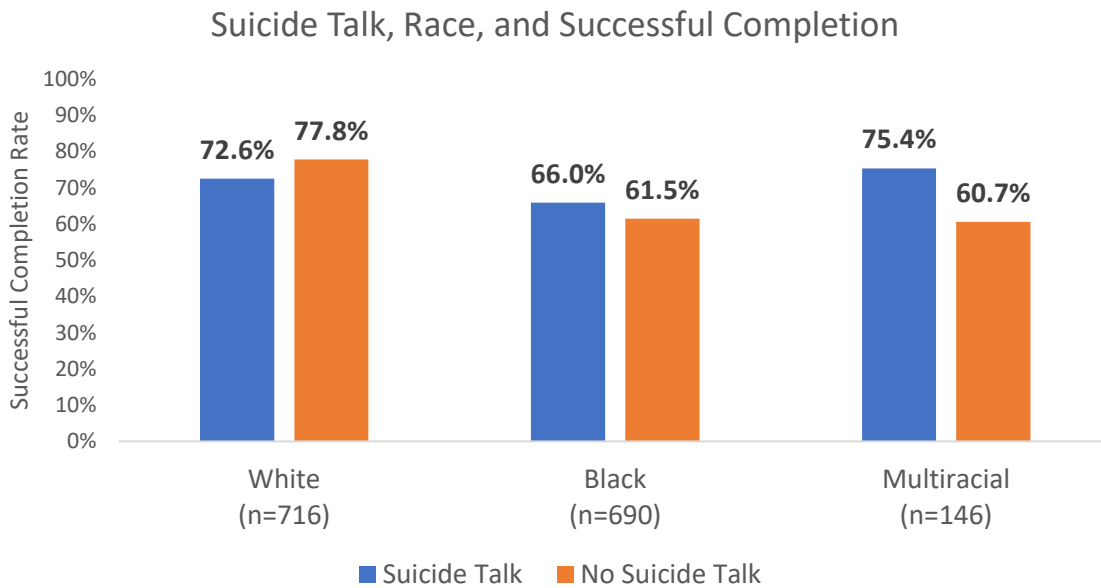
Figure 35



Suicidal Talk, Race, and Successful Completion

Figure 36 shows the successful completion rate by race for youth who did and did not talk about suicide prior to their BHJJ enrollment. White youth who never talked about suicide prior to their BHJJ enrollment had a higher successful completion rate (77.8%, n=302) than White youth who did talk about suicide (72.6%, n=238). For Black and Multiracial youth, those who talked about suicide prior to their BHJJ enrollment had higher successful completion rates than youth who did not talk about suicide. **Chi-square testing found no significant association between successful completion rates and previous suicide talk category for any racial group.**

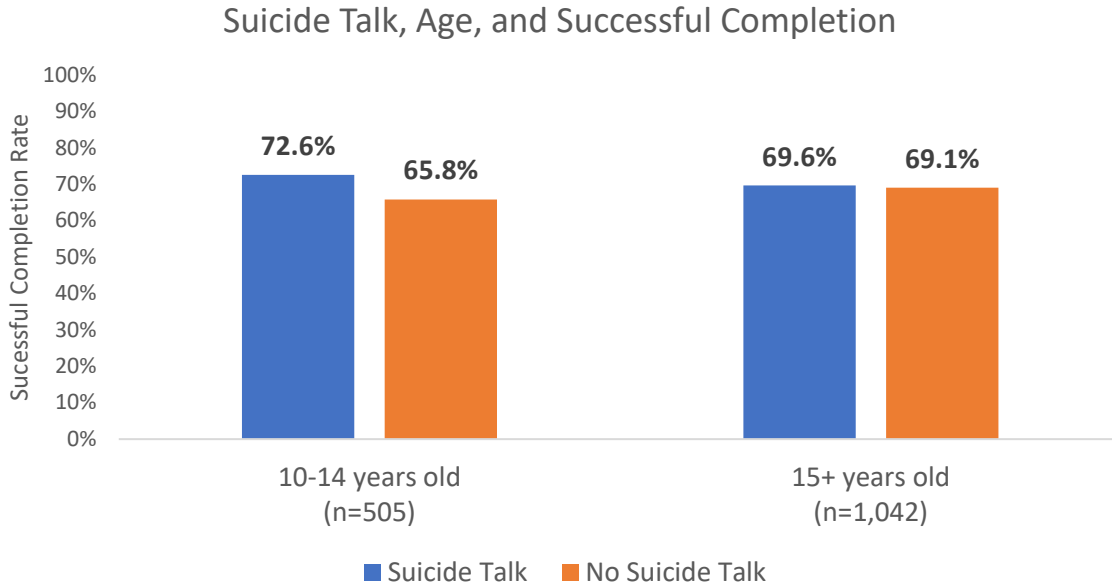
Figure 36



Suicidal Talk, Age, and Successful Completion

Figure 37 displays the successful completion rates across age groups for youth who did and did not talk about suicide prior to their BHJJ enrollment. Youth aged 10-14 who talked about suicide in the past had a higher successful completion rate (72.6%, n=135) than youth aged 10-14 who did not talk about suicide in the past (65.8%, n=210). **Chi-square testing found no significant association between successful completion rates and previous suicide talk category for either age group.**

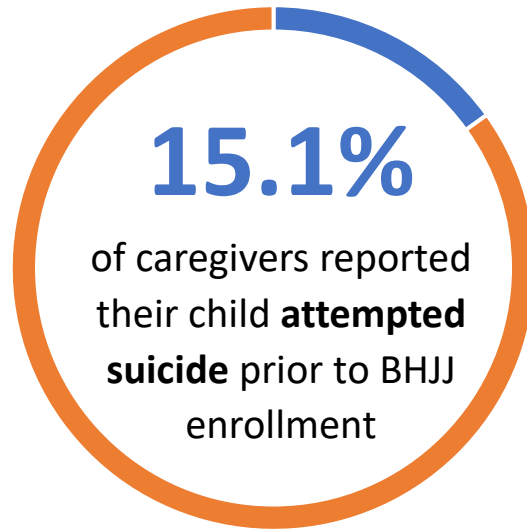
Figure 37



Suicide Attempts

Caregivers were asked to indicate whether the youth had attempted suicide prior to their BHJJ enrollment. Data on previous suicide attempts were available for 1,544 youth. Caregivers reported that 15.1% (n=233) of the youth had attempted suicide prior to their BHJJ enrollment (Figure 38).

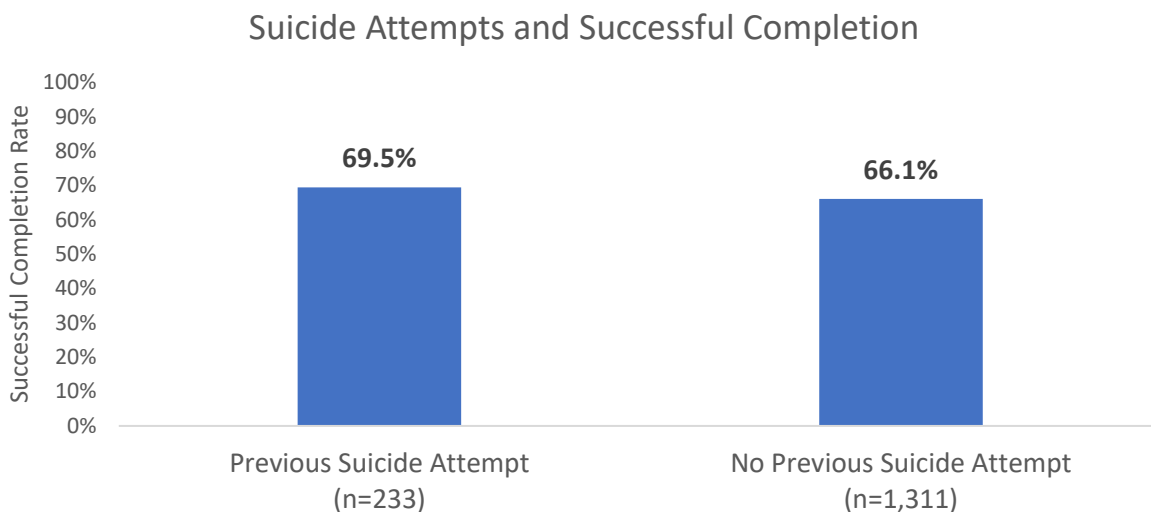
Figure 38



Suicide Attempts and Successful Completion

Figure 39 displays the successful completion rates for youth who did and did not have a previous suicide attempt. Youth with a previous suicide attempt had a successful completion rate of 69.5% (n=911), compared to 66.1% (n=154) among youth with no previous suicide attempt. **Chi-square analysis found no significant association between past suicide attempt category and successful completion rates.**

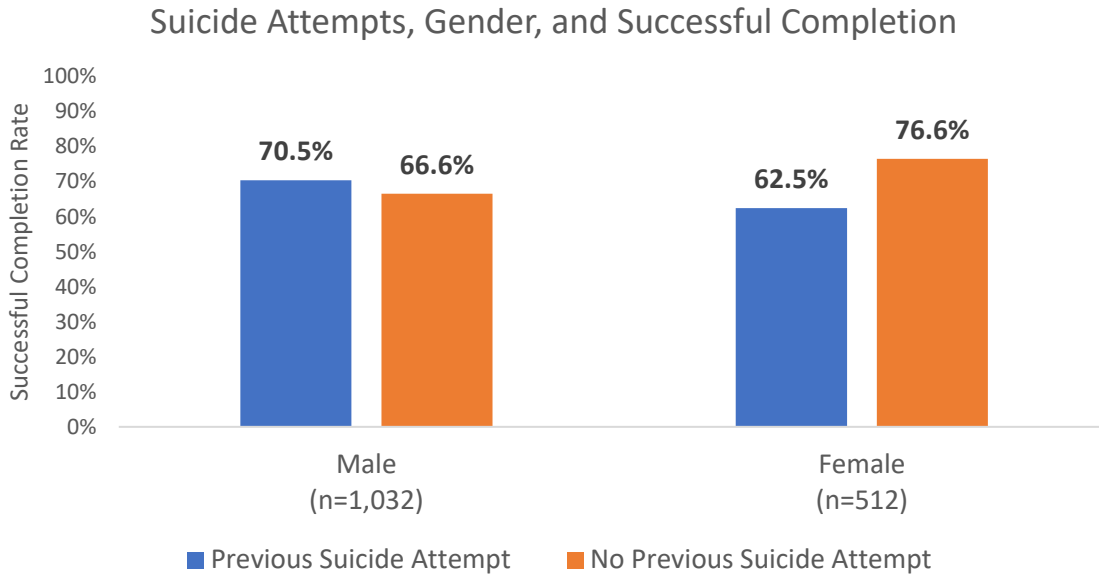
Figure 39



Suicide Attempts, Gender, and Successful Completion

Females with no past suicide attempt had the highest successful completion rate (76.6%, n=294) (Figure 40). **A layered chi-square revealed a statistically significant association between successful completion rates and previous suicide attempt category for females but not for males.**

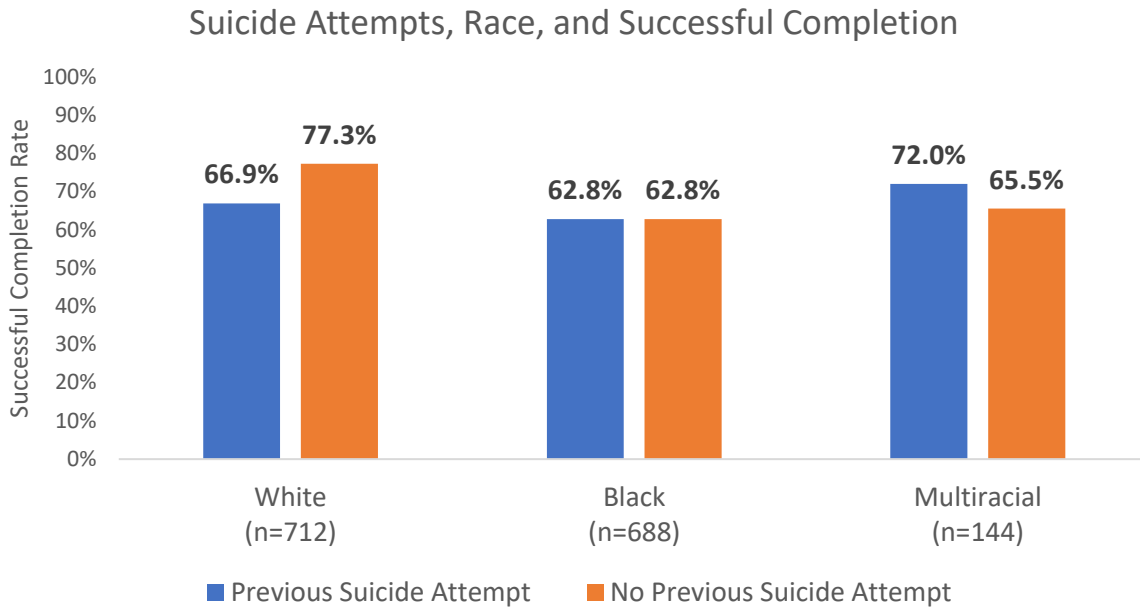
Figure 40



Suicide Attempts, Race, and Successful Completion

White youth with no past suicide attempt had the highest successful completion rate (77.3%, n=450) while Black youth, regardless of a past suicide attempt, had the lowest successful completion rates (Figure 41). **Layered chi-square testing found a statistically significant association between successful completion rate and a previous suicide attempt category for White youth but not for Black or Multiracial youth.**

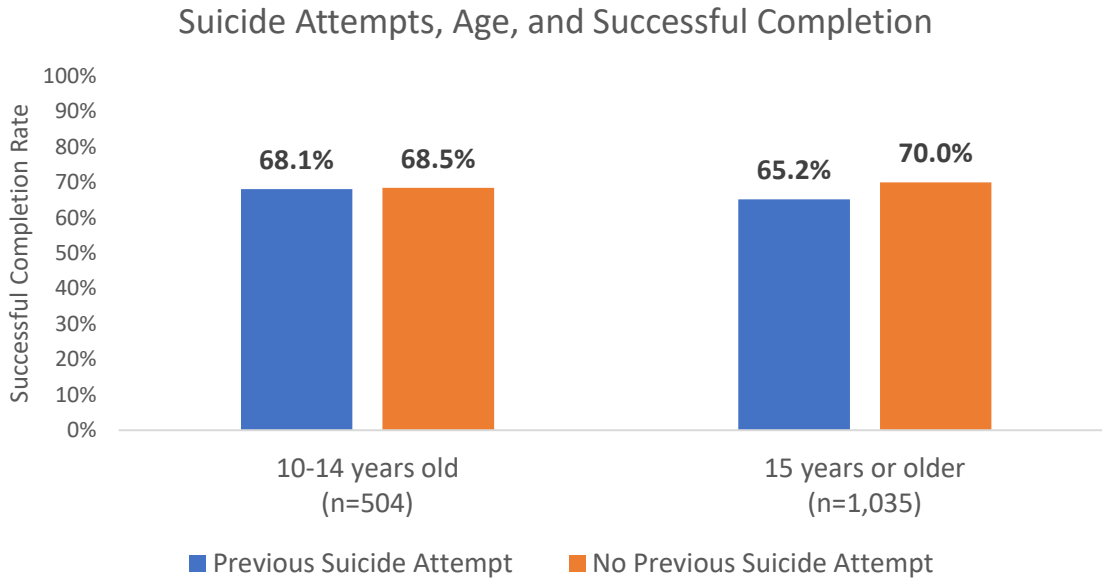
Figure 41



Suicide Attempts, Age, and Successful Completion

Youth aged 15 years or older with no past suicide attempt had the highest successful completion rate (70.0%, n=610) (Figure 42). **Layered chi-square testing found no statistically significant association between successful completion rates and previous suicide attempt category for either age group.**

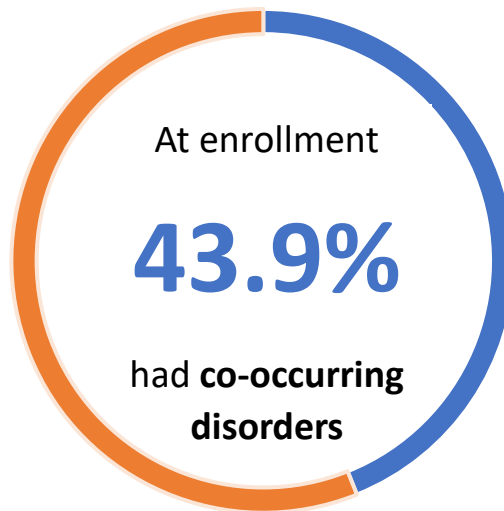
Figure 42



Co-Occurring Disorders

Co-occurring disorders were defined as having at least one mental health diagnosis and at least one substance use diagnosis. Data on co-occurring disorders were available for 1,163 youth. Among this group, 43.9% (n=511) had a co-occurring disorder (Figure 43).

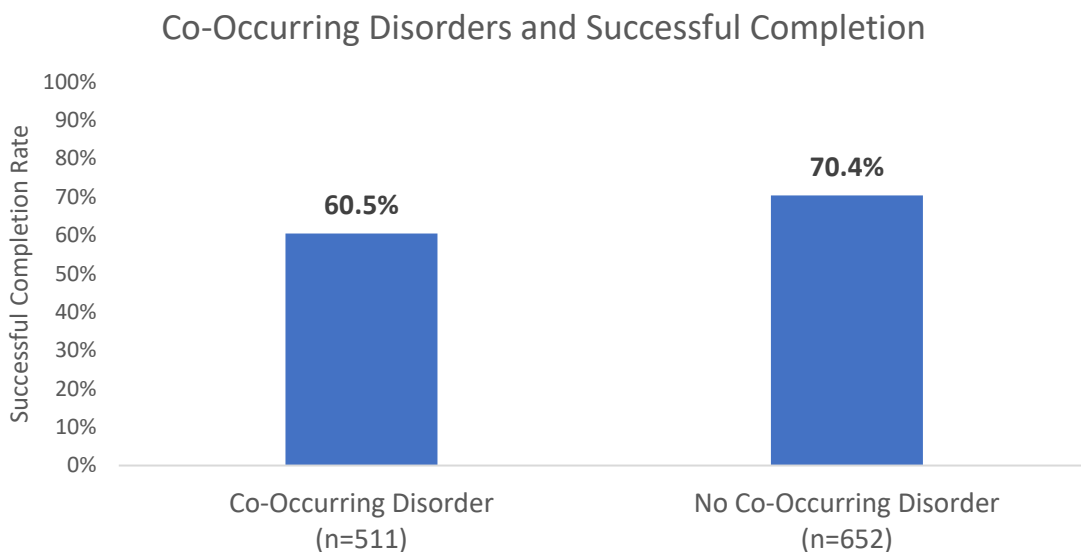
Figure 43



Co-Occurring Disorders and Successful Completion

Youth without co-occurring disorders had a successful completion rate of 70.4% (n=459) while youth with co-occurring disorders had a successful completion rate of 60.5% (n=309) (Figure 44). **Chi square testing found that youth without a co-occurring disorder had a significantly higher successful completion rate than youth with a co-occurring disorder.**

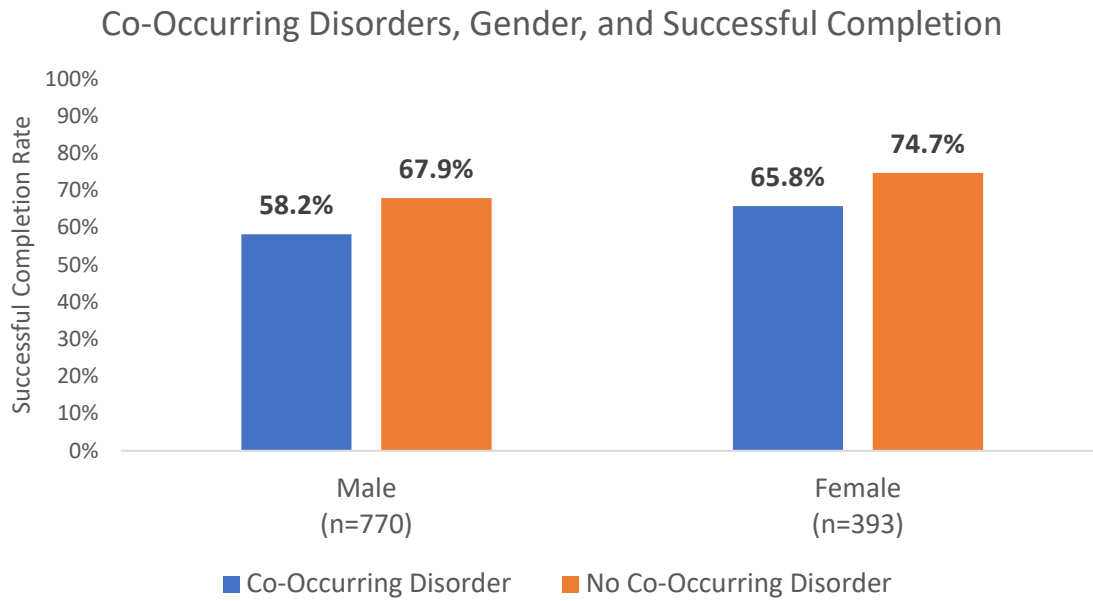
Figure 44



Co-Occurring Disorders, Gender, and Successful Completion

For both males and females, youth without a co-occurring disorder had a higher successful completion rate than youth of the same gender with a co-occurring disorder (Figure 45). Males without a co-occurring disorder had a successful completion rate of 67.9% (n=279) while males with a co-occurring disorder had a successful completion rate of 58.2% (n=209). **Layered chi-square testing found a significant relationship between co-occurring disorder category and successful completion rates among males and females.**

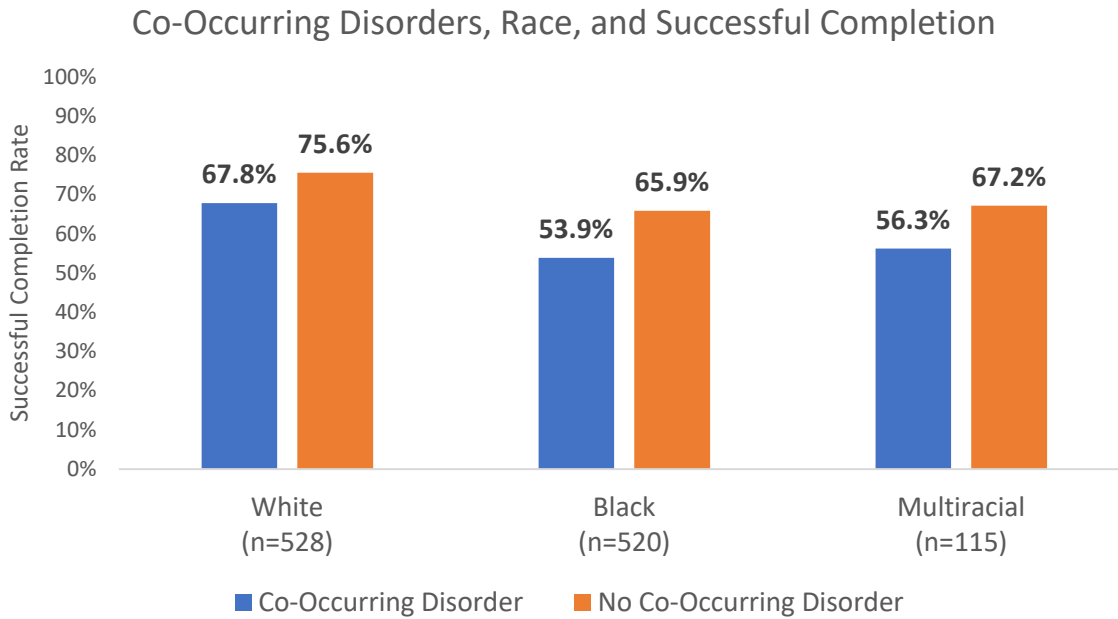
Figure 45



Co-Occurring Disorders, Race, and Successful Completion

Regardless of race, youth without co-occurring disorders had higher successful completion rates than youth with co-occurring disorders (Figure 46). White youth without co-occurring disorders had the highest successful completion rate (75.6%, n=223). **Layered chi-square testing found a significant relationship between successful completion rate and co-occurring disorder category for Black and White youth but not for Multiracial youth.**

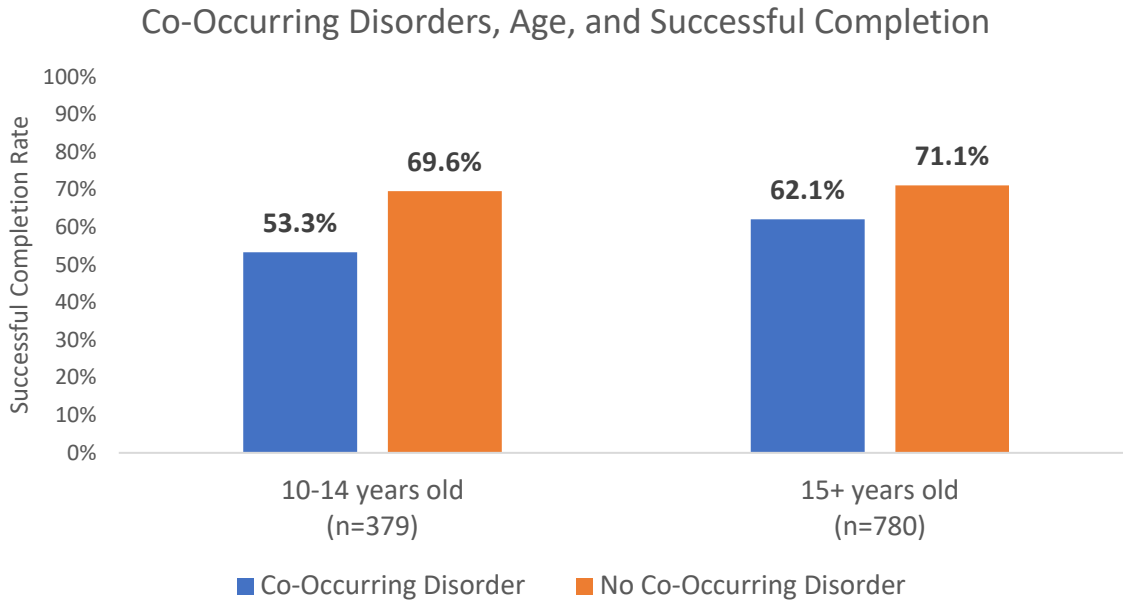
Figure 46



Co-Occurring Disorders, Age, and Successful Completion

Across both age categories, youth without a co-occurring disorder had higher successful completion rates than youth with co-occurring disorders (Figure 47). **Layered chi-square testing found a significant association between co-occurring disorder status and successful completion rates for both age groups.**

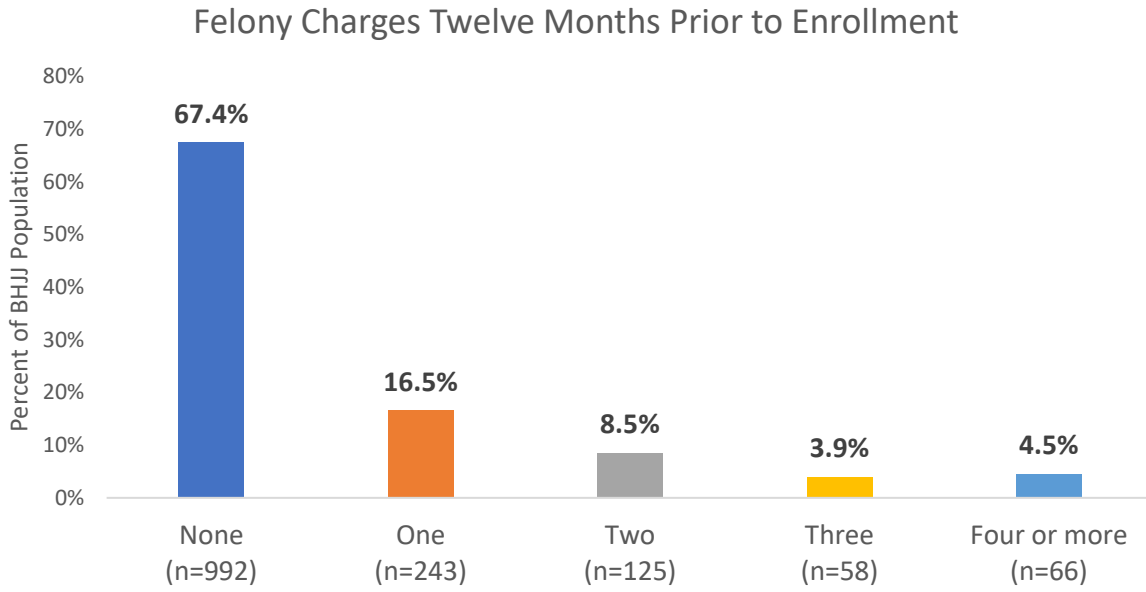
Figure 47



Prior Felony Charges

Data on the number of felony charges 12 months prior to BHJJ enrollment were available for 1,471 youth. Sixty-seven percent (67.4%, n=992) of youth were not charged with a felony 12 months prior to enrollment (Figure 48).

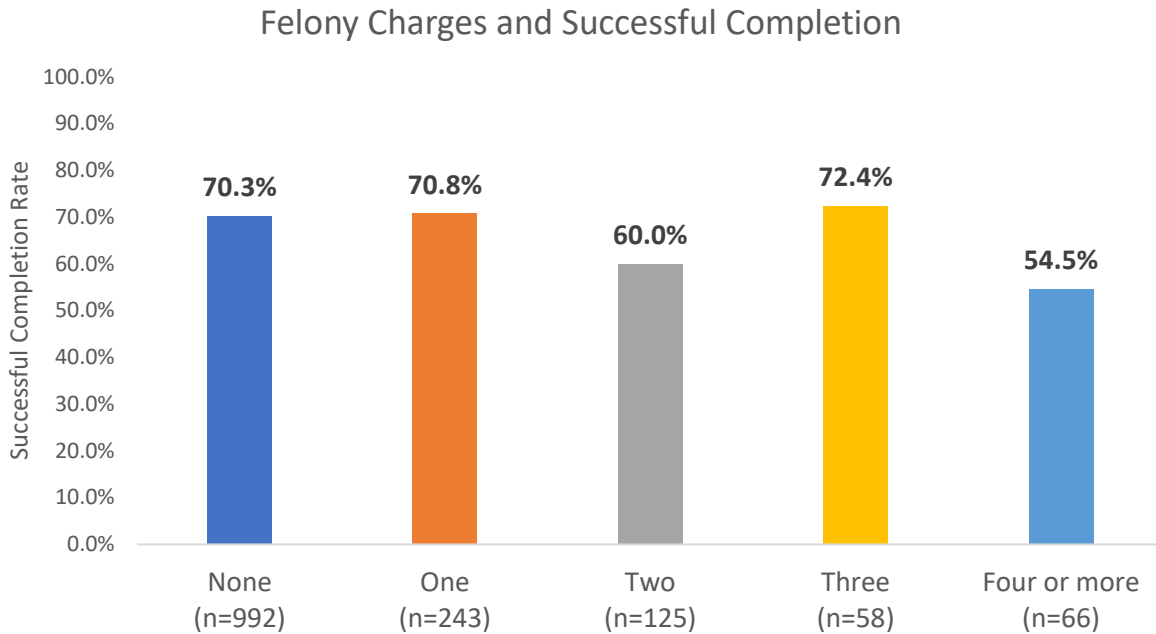
Figure 48



Felonies and Successful Completion

Figure 49 displays the successful completion rates based on number of felony charges in the 12 months prior to BHJJ enrollment. The lowest successful completion rate belonged to youth charged with four or more felonies in the 12 months prior to their BHJJ enrollment (54.5%, n=36). **Chi-square testing found a significant relationship between successful completion rate and number of felony charges 12 months prior to BHJJ enrollment.**

Figure 49

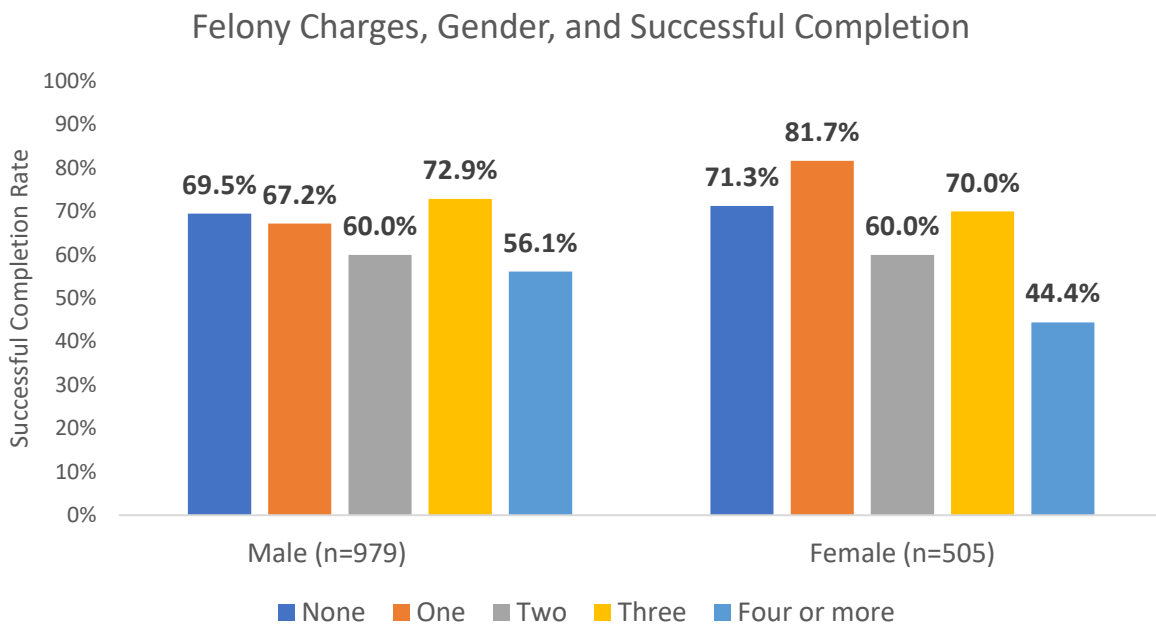


Felonies, Gender, and Successful Completion

Figure 50 displays the successful completion rate by gender across all felony charge categories. For example, the successful completion rate for males who were charged with one felony in the 12 months prior to their BHJJ enrollment was 67.2% (n=123) while the successful completion rate for females who were charged with one felony in the 12 months prior to their BHJJ enrollment was 81.7% (n=49).

Layered chi-square testing found no statistically significant relationship between successful completion rate and the number of felony charges in the 12 months prior to BHJJ enrollment for either males or females.

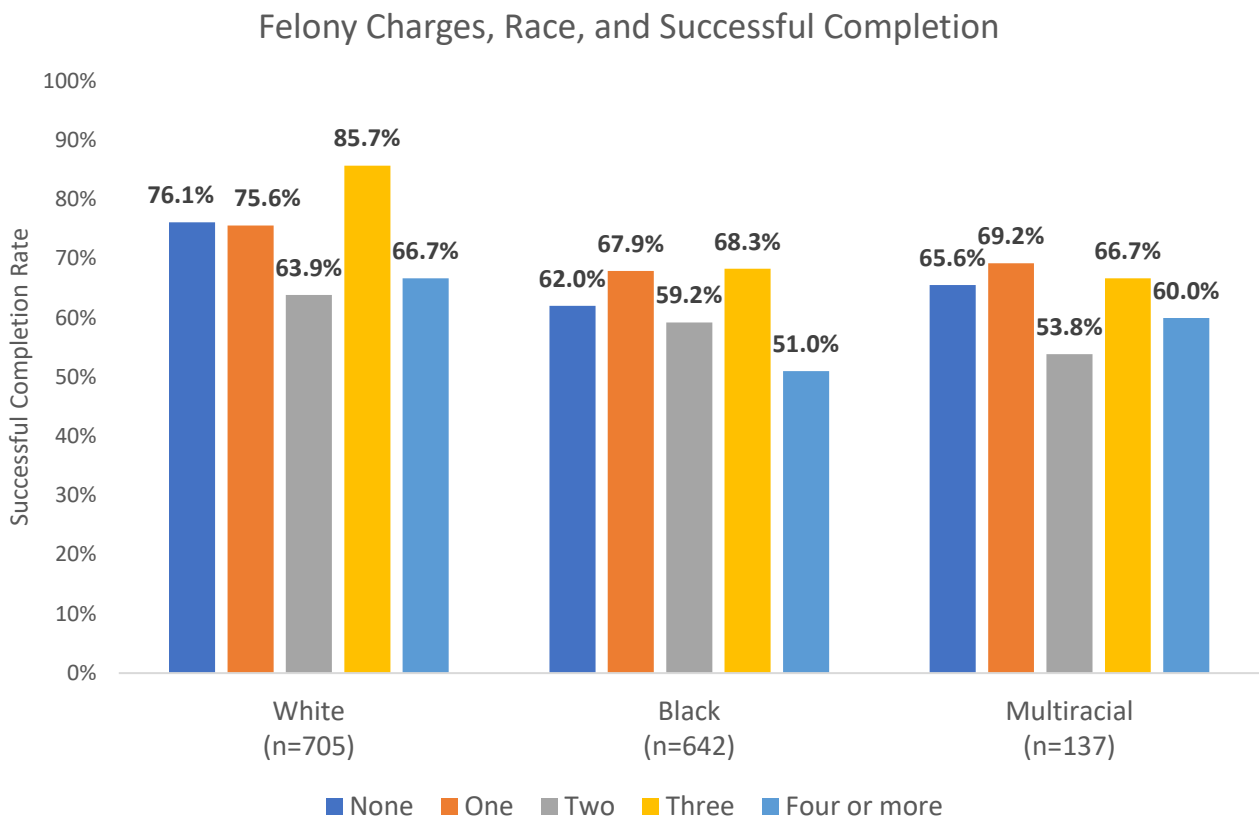
Figure 50



Felonies, Race, and Successful Completion

Figure 51 displays the successful completion rates by race across all felony charge categories. The highest successful completion rate (85.7%, n=12) was for White youth charged with three felonies in the 12 months prior to their BHJJ enrollment, although the sample size for that category (n=14) requires cautious interpretation. **Layered chi-square testing found no statistically significant relationship between the successful completion rate and the number of felony charges in the 12 months prior to BHJJ enrollment for any racial group.**

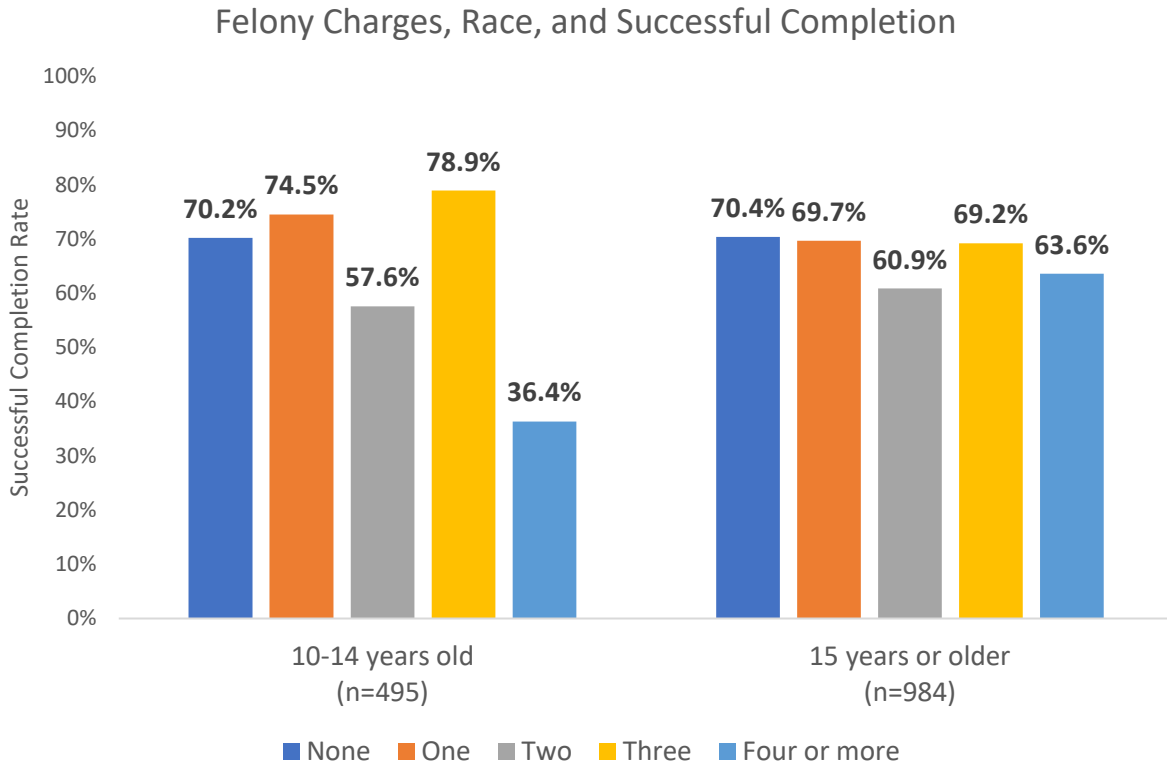
Figure 51



Felonies, Age, and Successful Completion

Figure 52 displays the successful completion rates by age group across all felony charge categories. The group with the lowest successful completion rate was youth aged 10-14 years charged with four or more felonies (36.4%, n=8). **Layered chi-square testing found a significant association between the successful completion rate and number of felony charges 12 months prior to BHJJ enrollment for youth ages 10-14 years old but not for youth aged 15 and older.**

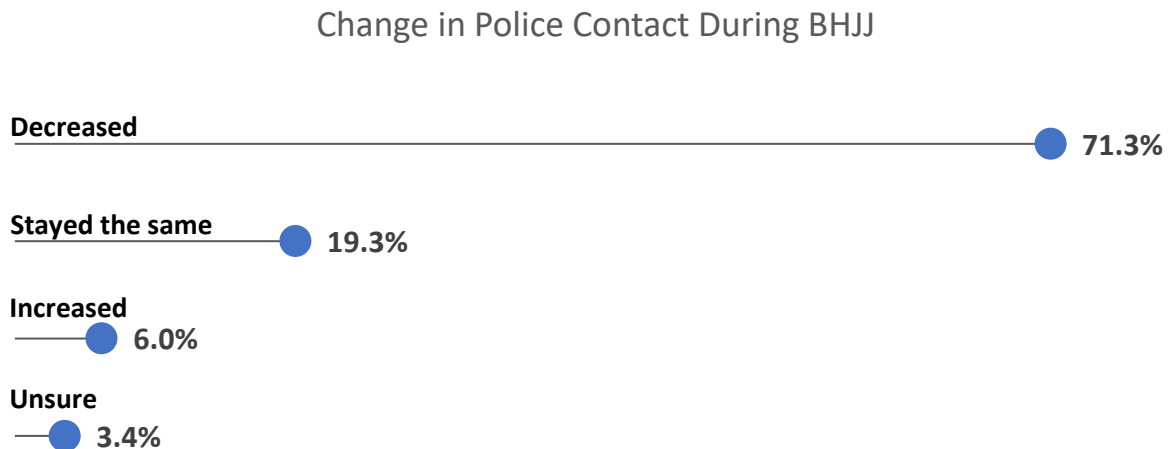
Figure 52



Police Contact

At termination, staff were asked to compare the youth's police contacts at enrollment into BHJJ to police contacts during BHJJ. Staff estimated contact with police decreased during BHJJ for 71.3% (n=1,122) of the youth (Figure 53).

Figure 53



Police Contact and Successful Completion

Youth who decreased their police contacts while in BHJJ had a successful completion rate of 84.0% (n=943) while youth who increased their police contacts while in BHJJ had a successful completion rate of 18.1% (n=17) (Figure 54). **Chi-square analysis indicated a statistically significant association between successful completion rate and police contact category during BHJJ.**

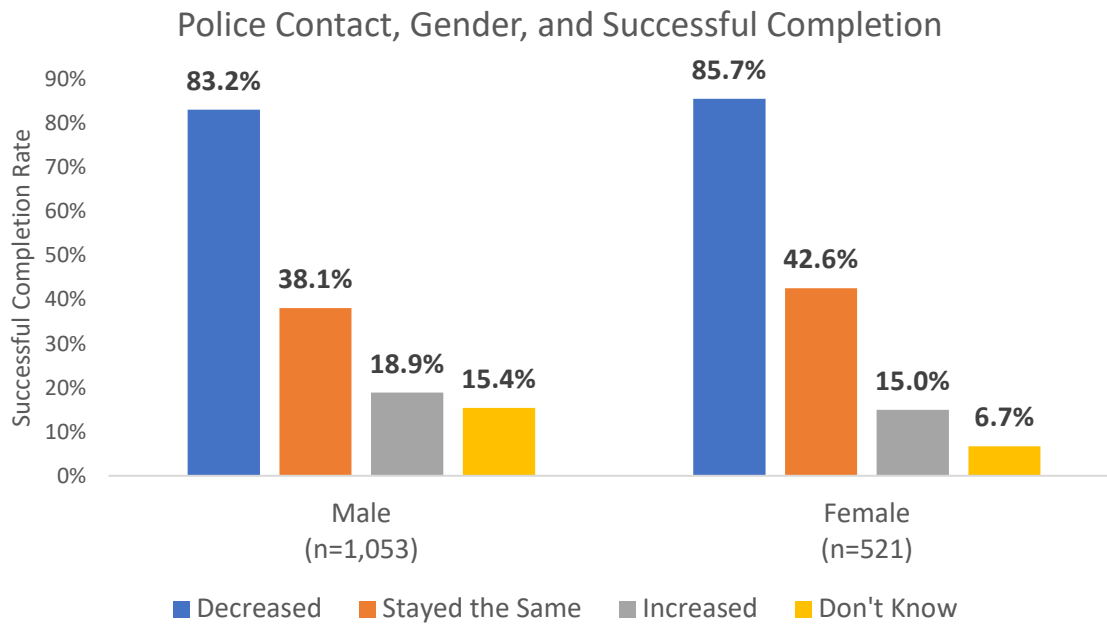
Figure 54



Police Contact, Gender, and Successful Completion

Females with decreased police contacts had a successful completion rate of 85.7% (n=336) while males with decreased police contacts had a successful completion rate of 83.2% (n=607) (Figure 55). **Layered chi-square testing found a statistically significant association between successful completion rate and police contact category for both males and females.**

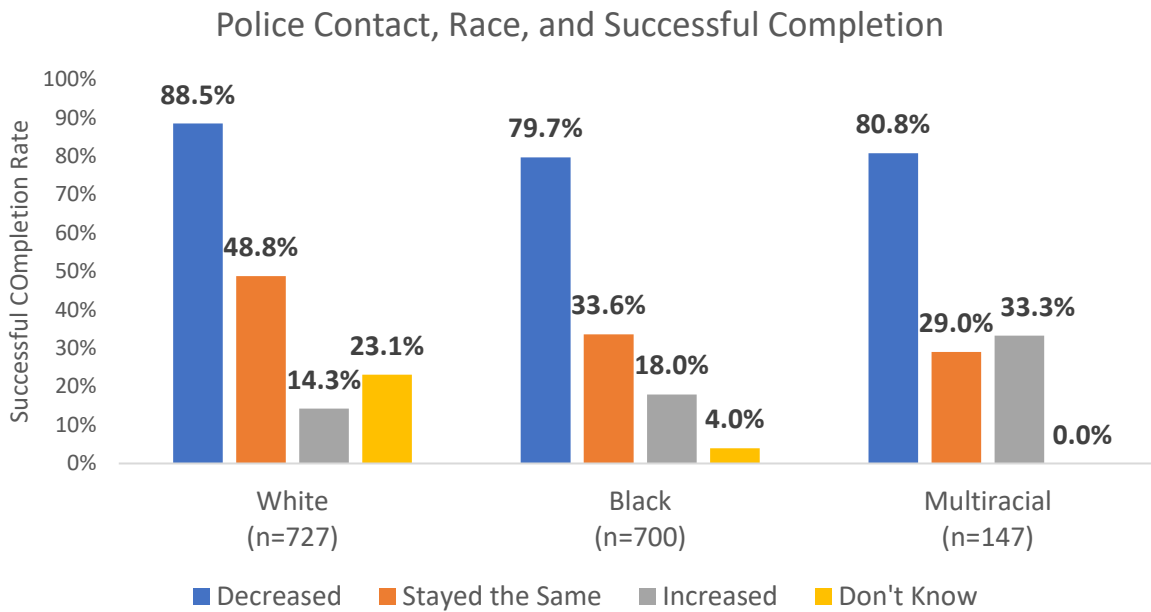
Figure 55



Police Contact, Race, and Successful Completion

Figure 56 displays the successful completion rates across racial groups based on police contact while in the program. For youth with decreased police contact, White youth had the highest successful completion rate (88.5%, n=477) (Figure 5). **Layered chi-square testing found a statistically significant association between successful completion rates and police contact category for all races.**

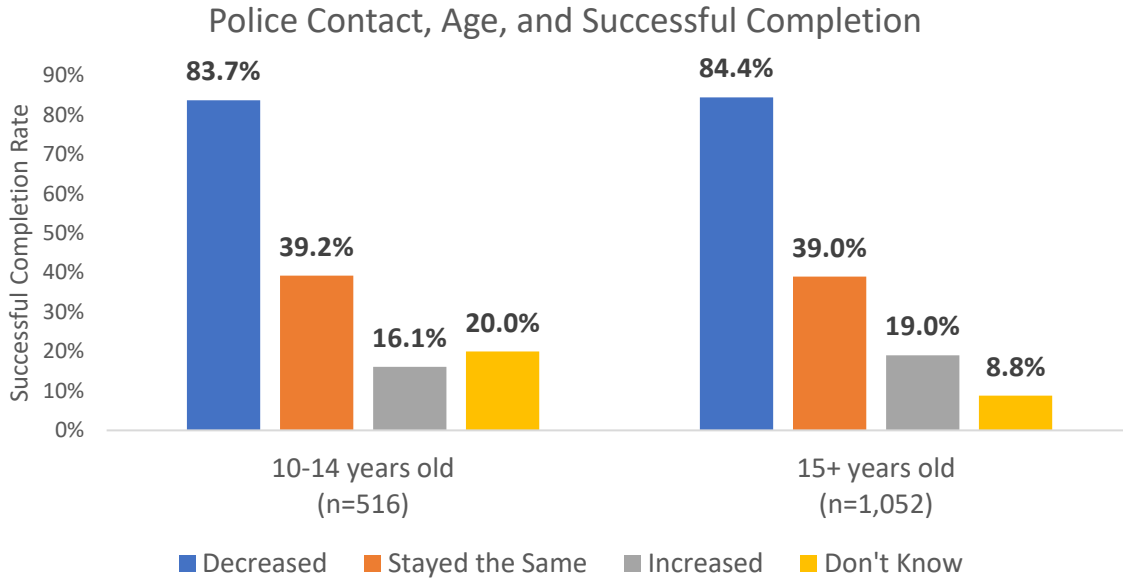
Figure 56



Police Contact, Age, and Successful Completion

The successful completion rate for youth between ages 10-14 years old and 15 years old and older was relatively consistent across levels of police contact. For example, 83.7% (n=304) of youth 10-14 years old and 84.4% (n=637) of youth 15 years or older with decreased police contact successfully completed the program (Figure 57). **Layered chi-square testing found a statistically significant association between successful completion rate and police contact category for each age group.**

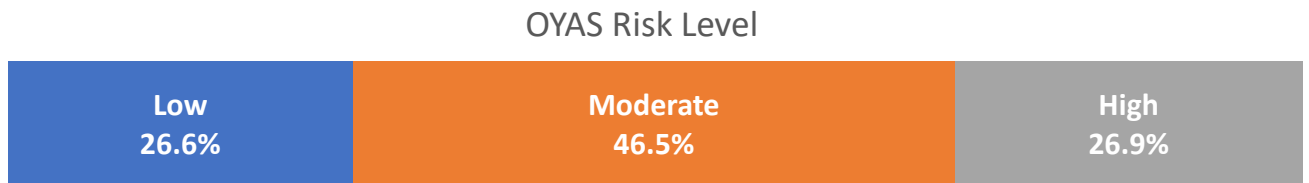
Figure 57



OYAS Risk Level

At enrollment, youth are assessed for criminogenic risk using the Ohio Youth Assessment System (OYAS). Over a quarter of the youth (26.6%, n=364) were assessed as low risk, 46.5% (n=635) were assessed as moderate risk, and 26.9% (n=367) were assessed as high risk (Figure 58).

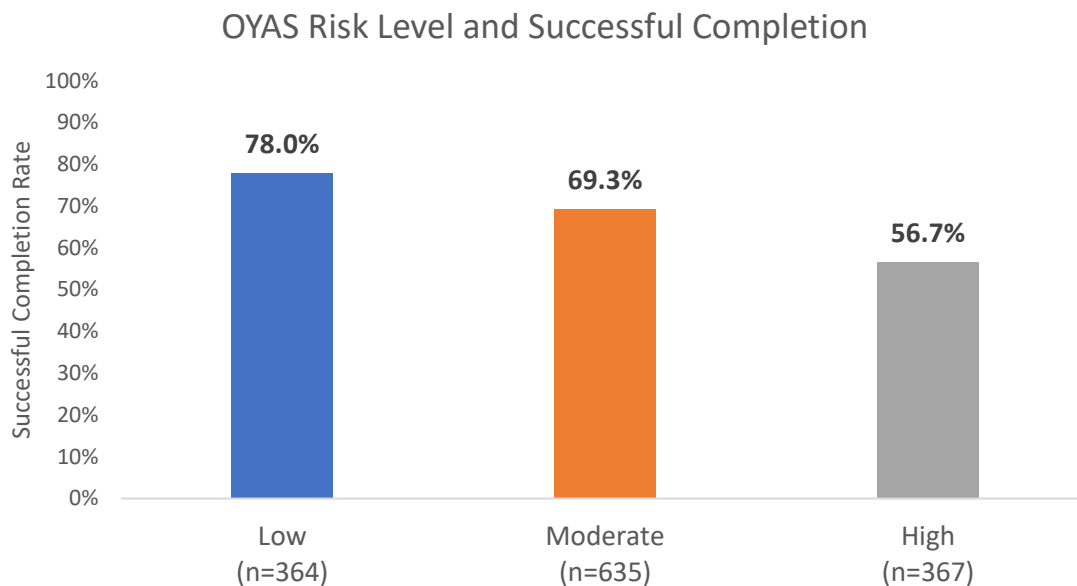
Figure 58



OYAS Risk Level and Successful Completion

Figure 59 displays successful completion rates by OYAS risk level. As the risk of recidivism increased, the successful completion rate decreased. Youth identified as low risk to recidivate had the highest successful completion rate (78.0%, n=284). **Chi-square testing found a statistically significant association between OYAS risk level and successful completion rate.**

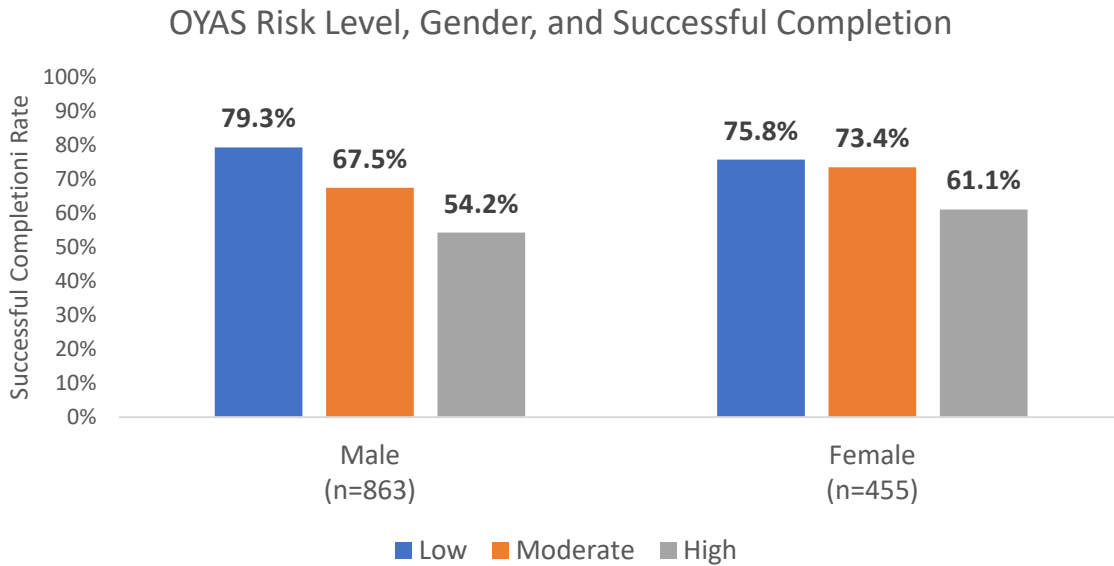
Figure 59



OYAS Risk Level, Gender, and Successful Completion

For both males and females, as the risk of recidivism increased, successful completion rates decreased (Figure 60). For example, the highest successful completion rates for both males (79.3%, n=184) and females (75.8%, n=100) were for youth identified as low risk to reoffend. **Layered chi-square testing revealed a statistically significant relationship between successful completion rates and OYAS risk level for both males and females.**

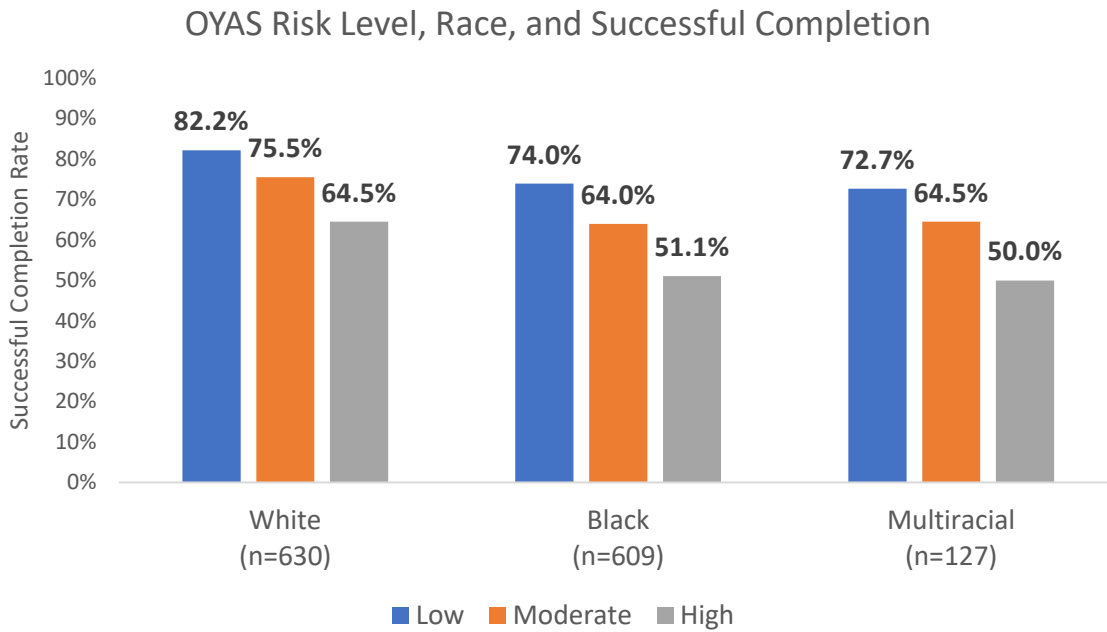
Figure 60



OYAS Risk Level, Race, and Successful Completion

Figure 61 displays the successful completion rate across OYAS risk levels by race. For each race, the successful completion rate decreased as the risk of recidivism increased. Across all three levels of risk, White youth had the highest successful completion rates. **Layered chi-square analyses indicated a statistically significant relationship between successful completion rates and OYAS risk level for Black and White youth but not Multiracial youth.**

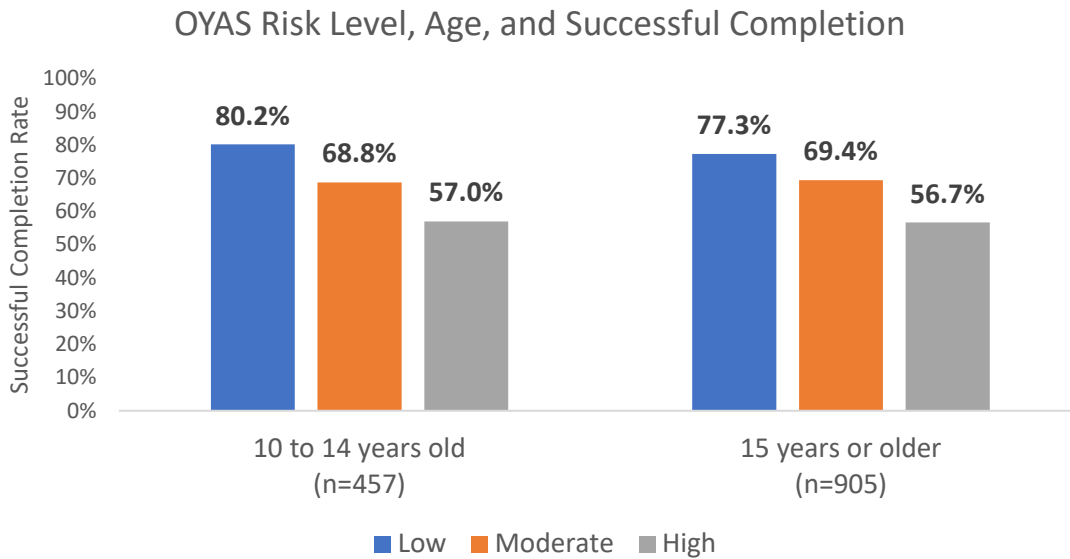
Figure 61



OYAS Risk Level, Age, and Successful Completion

Figure 62 displays the successful completion rate across OYAS risk levels by age group. For both youth 10-14 years old and youth 15 years or older, successful completion rates decreased as risk for recidivism increased. Low-risk youth aged 10-14 years old had a successful completion rate of 80.2% (n=85) while low-risk youth aged 15 and older had a successful completion rate of 77.3% (n=198). **Layered chi-square testing found a statistically significant association between successful completion rate and OYAS risk level for both age groups.**

Figure 62



Ohio Scales Problem Severity and Functioning

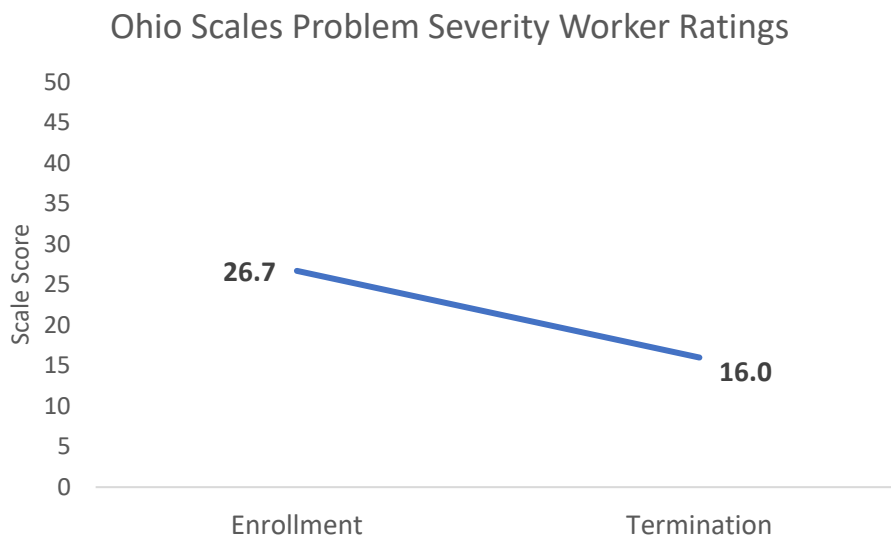
At enrollment, throughout program participation and at termination, youth are assessed for problem severity and functioning using the Ohio Scales. The Ohio Scales were developed to measure outcomes among youth aged 5 to 18 years old receiving mental health care. Typically, the Ohio Scales are completed by the caregiver, youth, and the worker assigned to the case. **The data in this section are limited to worker ratings of the youth.** The analytical approach employed in this section differs from other sections, as it involves testing differences in means using paired-samples t-tests instead of comparing differences in percentages using chi-square tests.

Problem Severity

The problem severity scale assesses the presence of challenging thoughts or behaviors using 20 Likert-style questions. Examples include arguing with others, refusing to do things when asked by teachers or parents, using drugs or alcohol, skipping school, having feelings of worthlessness or uselessness, etc. Response options ranged from “not at all”, “once or twice”, “several times”, “often”, “most of the time”, and “all of the time”. Total possible scores ranged from 0, (no problem severity) to 100 (total problem severity).

For youth with worker ratings at both enrollment and termination (n=1,435), the average problem severity score decreased (improved) from 26.7 at enrollment to 16.0 at termination (Figure 63), which represents a 40.1% improvement in problem severity. **A paired-samples t-test indicated problem severity scores significantly decreased (improved) from enrollment to termination.**

Figure 63

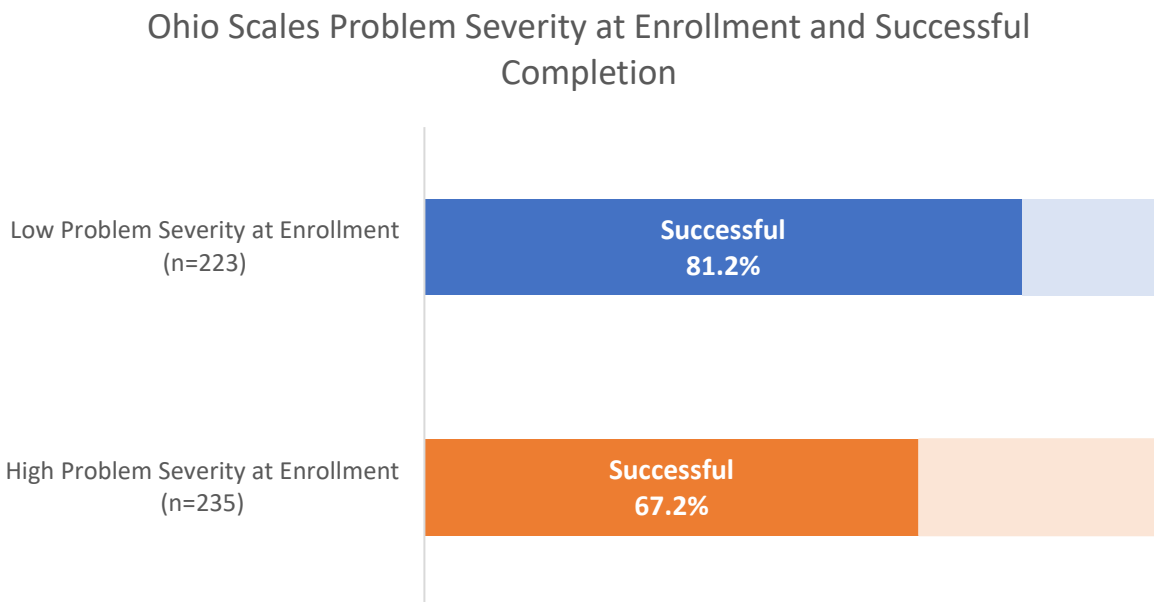


Problem Severity and Successful Completion

We compared youth with low problem severity scores at enrollment and high problem severity scores at enrollment to determine the impact of problem severity scores at enrollment on successful program completion. In order to categorize scores as “low”, one standard deviation was subtracted from the mean problem severity score at enrollment. Similarly, to determine scores classified as “high”, one standard deviation was added to the mean problem severity score at enrollment. This resulted in a comparison of youth with low problem severity scores relative to the entire group and youth with high problem severity scores relative to the entire group.

A total of 458 youth had scores that fell into either the “low” (n=223) or “high” (n=235) groups. Of the 223 youth with low problem severity scores at enrollment, 81.2% (n=181) completed the BHJJ program successfully (see Figure 64). Of the 235 youth with high problem severity scores at enrollment, 67.2% (n=158) completed BHJJ successfully. **A chi-square indicated youth who entered BHJJ with low problem severity scores had a significantly higher successful completion rate than youth who entered BHJJ with high problem severity scores.**

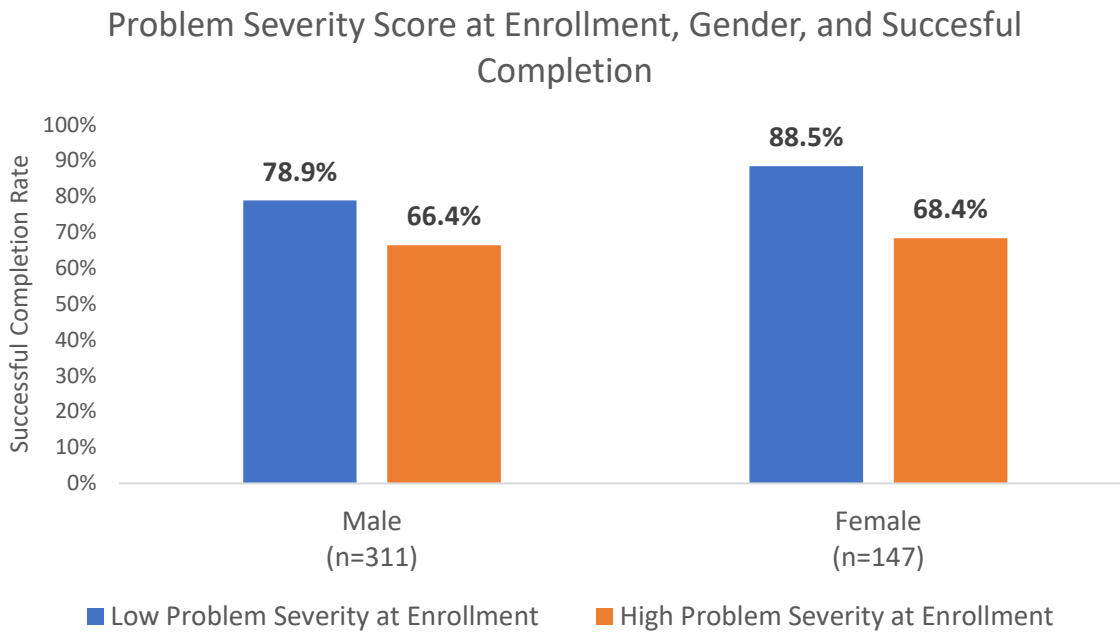
Figure 64



Problem Severity, Gender, and Successful Completion

For both males and females, youth who enrolled in BHJJ with low problem severity scores had higher successful completion rates than youth who enrolled in BHJJ with high problem severity scores (Figure 65). For example, females who entered BHJJ with low problem severity scores had a successful completion rate of 88.5% (n=46) while females who entered BHJJ with high problem severity scores had a successful completion rate of 68.4% (n=65). **Layered chi-square testing indicated a statistically significant association between problem severity score group at enrollment and successful completion rate for both males and females.**

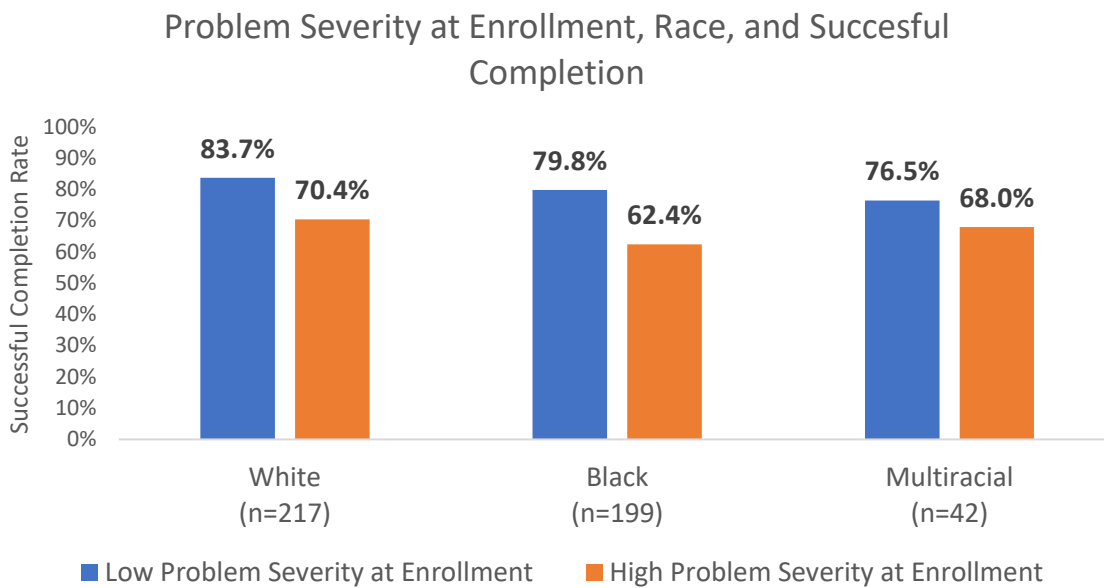
Figure 65



Problem Severity, Race, and Successful Completion

Regardless of race, youth who enrolled in BHJJ with low problem severity scores had higher successful completion rates than youth who enrolled in BHJJ with high problem severity scores. For example, White youth who scored low in problem severity at enrollment had a higher successful completion rate (83.7%, n=77) than White youth who scored high in problem severity at enrollment (70.4%, n=88) (Figure 66). **Layered chi-square testing indicated a statistically significant association between problem severity score group at enrollment and successful completion rate for both White and Black youth but not for Multiracial youth.**

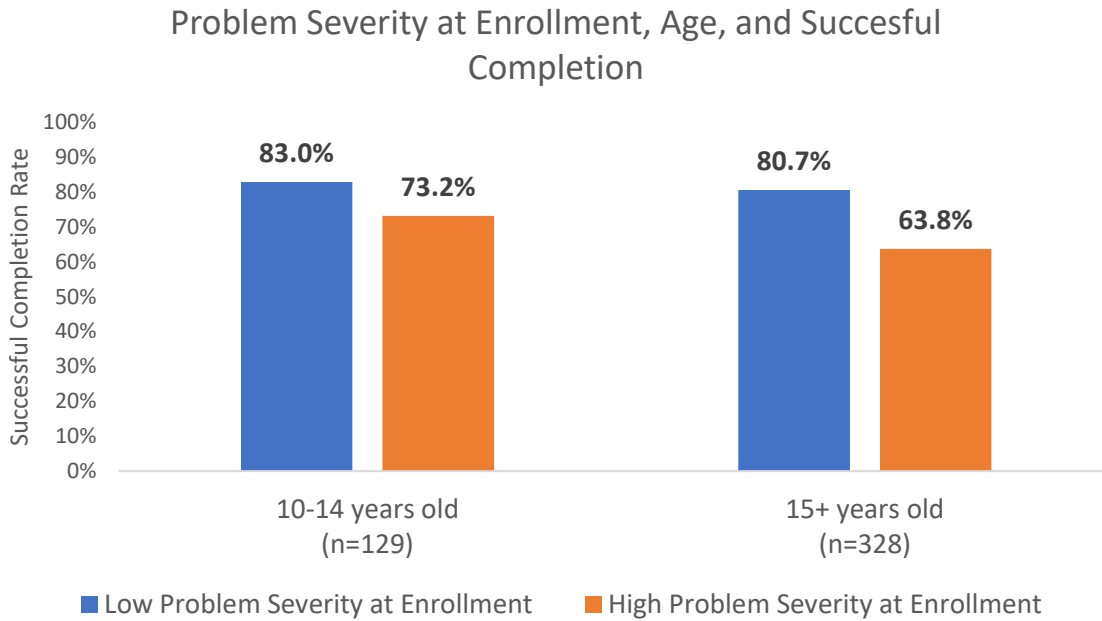
Figure 66



Problem Severity, Age, and Successful Completion

Figure 67 displays successful completion rates by age and problem severity score at enrollment. The highest successful completion rate (83.0%, n=39) was for youth aged 10-14 who enrolled in BHJJ with low problem severity scores. **Layered chi-square testing indicated a statistically significant association between problem severity score group at enrollment and successful completion rate for youth aged 15 years and older but not for youth between 10 and 14 years old.**

Figure 67

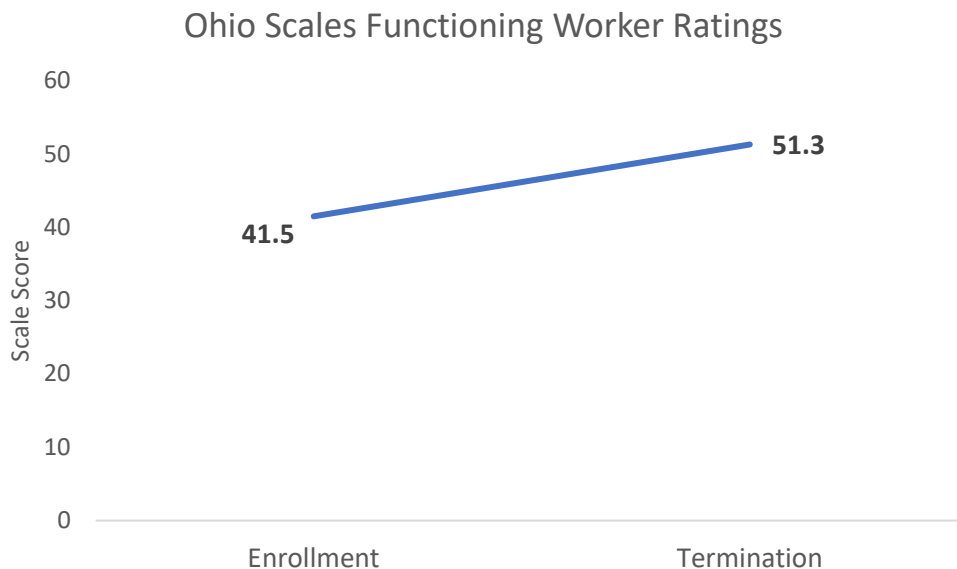


Functioning

The functioning scale assesses youth engagement in a variety of areas of daily life. Examples of functioning areas include getting along with friends and family, controlling emotions, participation in hobbies or recreational activities, attending school, ability to express feelings, and accept responsibility for actions. Response options on the 20-item, Likert-style survey include “extreme troubles”, “quite a few troubles”, “some troubles”, “okay”, and “doing very well”. Total possible scores range from 0, indicating extreme troubles implementing daily functioning skills, to 80, indicating no troubles implementing daily functioning skills. Higher scores indicate a greater ability to function in daily activities.

Among all youth with Ohio Scales functioning data at both enrollment and termination (n=1,428), the average score increased (improved) from 41.5 to 51.3, resulting in a 23.7% improvement in scores (Figure 68). **A paired samples t-test indicated a statistically significant improvement in functioning scores from enrollment to termination.**

Figure 68

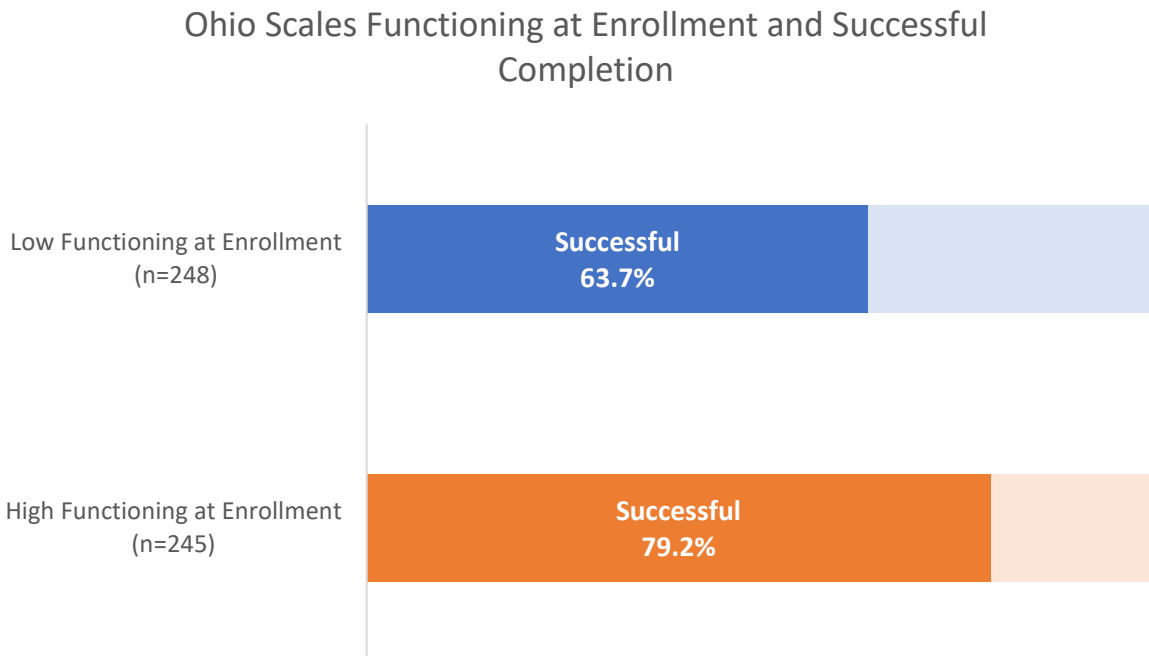


Functioning and Successful Completion

We compared youth with low functioning scores and high functioning scores to determine the impact of functioning scores at enrollment on successful program completion. In order to categorize scores as “low”, one standard deviation was subtracted from the mean functioning score at enrollment. Similarly, to determine scores classified as “high”, one standard deviation was added to the mean functioning score at enrollment. This resulted in a comparison of youth with low functioning scores relative to the entire group and youth with high functioning scores relative to the entire group.

A total of 493 youth had scores that fell into either the “low” (n=248) or “high” (n=245) groups. Of the 245 youth with high functioning scores at enrollment, 79.2% (n=194) completed the BHJJ program successfully (see Figure 69). Of the 248 youth with low functioning scores at enrollment, 63.7% (n=158) completed BHJJ successfully. **A chi-square indicated youth who entered BHJJ with high functioning scores had a significantly higher successful completion rate than youth who entered BHJJ with low functioning scores.**

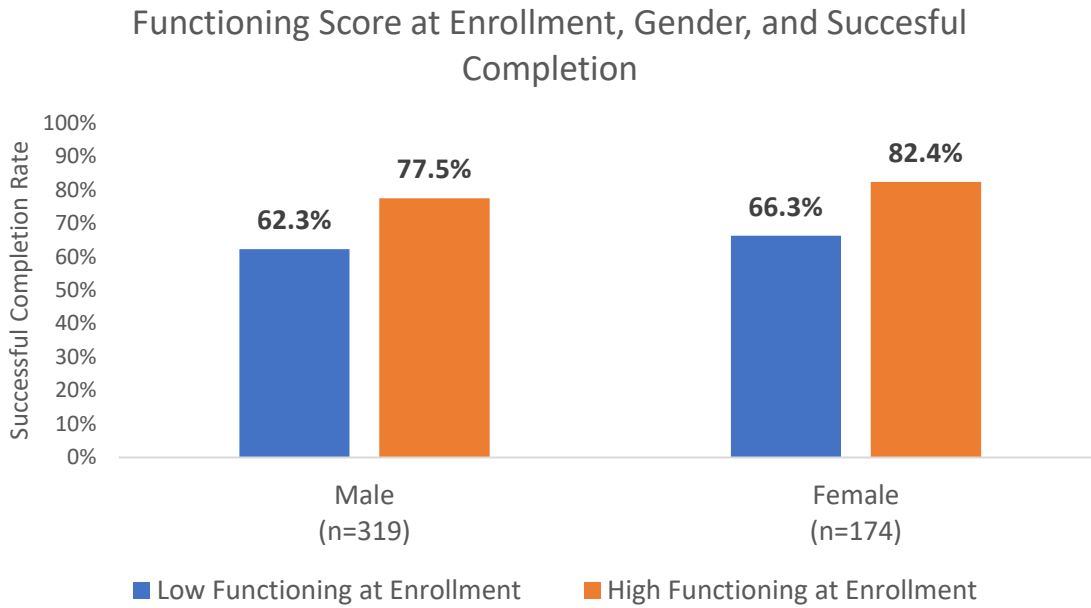
Figure 69



Functioning, Gender, and Successful Completion

Figure 70 displays the successful completion rate by gender and functioning score group. For example, females who entered BHJJ with high functioning scores had the highest successful completion rate (82.4%, n=70). **Layered chi-square testing indicated a statistically significant association between functioning score group at enrollment and successful completion rates for both males and females.**

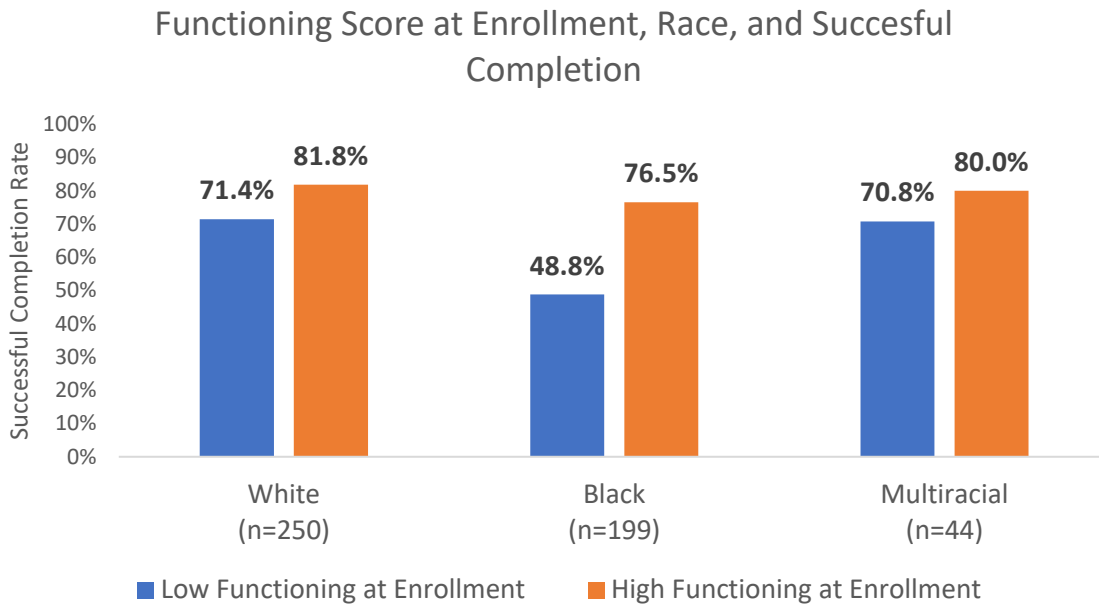
Figure 70



Functioning, Race, and Successful Completion

Regardless of race, youth who entered BHJJ with high functioning scores had higher successful completion rates than youth who entered BHJJ with low functioning scores. White youth who entered BHJJ with high functioning scores had the highest successful completion rate (81.8%, n=90) (Figure 71). **Layered chi-square testing indicated a statistically significant association between functioning score group at enrollment and successful completion rates for Black and White youth but not for Multiracial youth.**

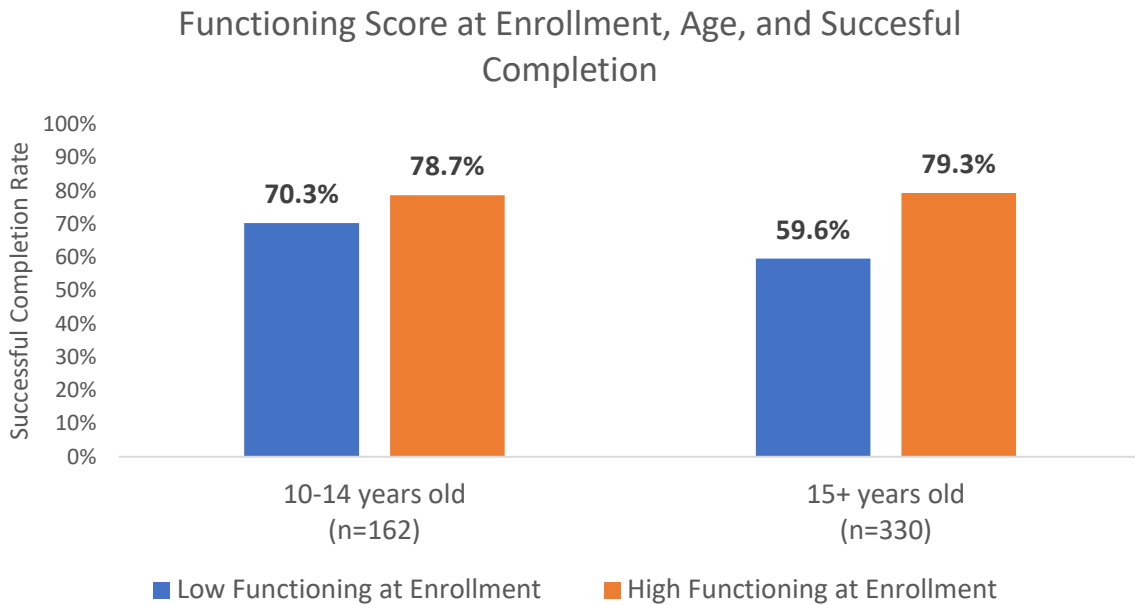
Figure 71



Functioning, Age, and Successful Completion

Regardless of age group, youth who entered BHJJ with high functioning scores had higher successful completion rates than youth who entered BHJJ with low functioning scores (Figure 72). Youth 15 years and older who entered BHJJ with high functioning scores had the highest successful completion rate (79.3%, n=146). **Layered chi-square testing indicated a statistically significant association between functioning score group at enrollment and successful completion rate for youth aged 15 and older but not for youth between 10 and 14 years old.**

Figure 72



Logistic Regression

Throughout the previous chapters, we used chi-square analysis to examine bivariate relationships, or the association between two variables. For example, what was the impact of annual household income on successful completion rate? Where possible, we also examined those bivariate relationships in the context of a youth's gender, race, and age group. While that approach provides straightforward and valuable information about how changes in one variable relate to changes in another variable, it does not account for the impact other variables may have on that relationship.

A logistic regression is used to model the probability of a binary outcome, which means predicting the likelihood of an event occurring or not occurring based on one or more predictor variables. In the case of this report, the binary outcome of interest is successful or unsuccessful program completion. Logistic regression allows for the inclusion of multiple predictors and accounts for their simultaneous effects on the outcome.

Table 1 presents a logistic regression model predicting successful completion from all of the variables highlighted throughout the report:

- Race
- Gender
- Age
- Custody Status
- Annual Household Income
- OYAS Risk Level
- Ohio Scales Problem Severity and Functioning at Enrollment
- Police Contact
- Suicide Talk and Attempts
- Co-Occurring Disorders
- Grades at Enrollment and Termination
- Felony Charges Prior to Enrollment
- Physical and Sexual Abuse History

Odds ratios as presented in Table 1 as Exp(B) represent the strength of the relationship between the dependent variable (i.e. successful completion) and each of the independent variables (e.g. OYAS risk level, police contact). An odds ratio of 1 indicates no impact and the further away from 1 in either direction indicates a stronger relationship. Here, odds ratios are expressed as a percentage for easier interpretation. For example, an odds ratio of 1.01 would indicate a 1% increase in the odds of an outcome.

For the purposes of this analysis, race was divided into White and Nonwhite. Youth who were identified as Multiracial comprised less than 10% of the sample and therefore were included in the Nonwhite category. Based on the univariate distribution, custody status was collapsed into two biological parents, biological mother only, and all other custody arrangements. Income was collapsed into four categories including less than \$10,000, \$10,000 - \$19,999, \$20,000 - \$34,999, and \$35,000 and over. Police contact at termination was originally recorded as three categories including reduced, stayed the same, or increased. Because 'staying the same' and 'increased' may both indicate continued contact with police, we collapsed the variable into two categories: reduction in police contact and no reduction in police contact. Finally, based on univariate distributions, we collapsed the number of felony charges 12 months prior to enrollment into none, one, and two or more.

After deleting missing cases listwise, the final sample included in the model was 712, of which 68% completed successfully. The model chi-squared test indicated that the model was able to distinguish between successful and unsuccessful completers and identified six significant predictors of successful completion. Results indicated:

- ✓ Nonwhite youth had a 69%¹ decrease in the odds of completing successfully compared to White youth.
- ✓ Youth who scored High on the OYAS had a 133% decrease in the odds of completing successfully compared to youth who scored Low.
- ✓ Youth whose police contact either stayed the same or increased during BHJJ had an 809% decrease in the odds of completing successfully compared to youth whose police contacts were reduced during BHJJ.
- ✓ Youth who earned mostly ABCs at termination had a 201% increase in the odds of successful completion compared to youth who earned mostly CDFs at termination.
- ✓ For each one-point improvement in problem severity and functioning score at enrollment, the odds of successful completion increased 2% and 3% respectively.

¹ Odds ratios less than 1 were reversed for easier interpretation.

Table 2. Logistic Regression Predicting Successful Termination

	B	SE	Exp(B)
Race (White)			
Nonwhite	-.52*	.22	.59
Gender (Male)			
Female	.32	.23	1.37
Age	-.11	.07	.90
Custody Status (Two Biological)			
Biological Mother	.30	.29	1.35
Other	.19	.33	1.21
Income (Less than \$10k)			
\$10k - \$19.9k	-.31	.27	.73
\$20k - \$34.9k	-.18	.29	.83
Over \$35k	-.16	.31	.85
Physical Abuse	-.16	.32	.85
Sexual Abuse	-.24	.27	1.01
OYAS			
Moderate	-.24	.27	.79
High	-.85**	.29	.43
Police Contact – No Reduction	-2.23***	.22	.11
Talked about Suicide	0.49	0.26	1.64
Attempted Suicide	-.51	.32	.60
Co-occurring Disorder	-.28	.22	.76
Good Grades at Enrollment	-.20	.22	.82
Good Grades at Termination	1.10***	0.22	3.01
Problem Severity	-.02*	.01	.98
Functioning	.03*	.01	1.03
Felony Charges (None)			
1	.29	.29	1.34
2 or more	.37	.29	1.45
X²		275.13***	
Nagelkerke R²		.44	
N		712	