



What's Maturity Got to Do with It? The Association of Psychosocial Maturity on Adherence to Services for Youth in Contact with the Legal System

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WHAT'S MATURITY GOT TO DO WITH IT?
THE ASSOCIATION OF PSYCHOSOCIAL MATURITY ON ADHERENCE TO SERVICES FOR
YOUTH IN CONTACT WITH THE LEGAL SYSTEM USING THE RISK NEEDS
RESPONSIVITY FRAMEWORK

by

Megan S. Irgens

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What's Maturity Got to Do with It?
The effect of Psychosocial Maturity on Adherence to Services for Juvenile Offenders using the Risk Needs Responsivity Framework

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Abstract

Introduction: Roughly 3% of all children in the United States are arrested each year. Once arrested, many juvenile detention centers use the Risk-Needs-Responsivity Framework to calculate a youth's risk to reoffend and identify criminogenic needs. In this framework, the responsivity component encompasses factors in a youth's life that may effect the youth's ability to learn from, and engage in, an intervention. The current study investigates if maturity is a responsivity factor. **Methods:** The current study assesses three aims in a sample of youths who have committed a serious offense using the Pathways to Desistance dataset (N=1170). Aim 1 investigates if the modality of therapy (individual or group) was associated with engagement in services. Aim 2A assess the association of therapy type (individual or group) on the likelihood of a participant rating therapy as helpful. Aim 2B assesses the association of probation type (typical or intensive) on the likelihood of probation being helpful. Lastly, Aim 3, examines the potential of tailoring services to one's psychosocial maturity by understanding if psychosocial maturity moderates the relationships of Aims 1 and 2A, and 2B. **Results:** Results revealed there was no statistically significant association between modality of therapy and engagement in services, $b = 0.69$, 95% CI(0.42, 1.11), $p = 0.13$. There was also no statistically significant association between modality of therapy and perceived helpfulness, OR = 0.59, 95% CI(0.26, 1.31), $p = 0.20$. Furthermore, there was no statistically significant association between probation type and helpfulness, OR = 1.06, 95% CI(.67, 1.64), $p = 0.81$. In Aim 2B, the sensitivity analysis of helpfulness revealed a biased bifurcation of helpfulness. Aim 3 revealed, overall, that maturity does not significantly moderate the relationships from Aim 1, 2B and 2C. Some aims revealed statistically significant differences in sex and gender. These findings are discussed. **Discussion:** While these results were not hypothesized, potential reasons for these outcomes are discussed in comparison to the larger literature. The limitations to this study and future directions are also outlined.

Introduction

It is estimated that 2.1 million children, or roughly 3%, of all children in the United States are arrested each year (*Youth Involved with the Juvenile Justice System* / *Youth.Gov*, n.d.). Jurisdictions vary as to what happens after a juvenile arrest. For example, in Pima County, Arizona, juveniles may be issued a citation (i.e., “paper arrested”) or physically arrested. Youths who are paper arrested are not detained. In addition, within 15 days of the paper arrest, a probation officer must contact the youth’s legal guardian(s) to provide information on the offense and the rights of the child. Youths who are physically arrested are taken to the juvenile detention center. After arriving at the center, the youth’s legal guardian is notified, and a risk assessment is conducted by probation staff. The risk assessment calculates the youth’s risk of reoffending and determines if the minor is released back into the community or detained. For children who are detained, a probation officer is assigned to the case and the guardians are informed of the detainment and the logistics of the first court hearing.

While jurisdictions may vary in the reasons why, or how a child is arrested, most jurisdictions follow a framework for assessing the youth’s risk to reoffend and their need for services and interventions. The Risk-Needs-Responsivity Framework (RNR) is widely adopted in adult populations (Bonta & Andrews, 2017; Brogan et al., 2015) and is being implemented in juvenile correction settings (Brogan et al., 2015). Several jurisdictions have provided public information to showcase how the jurisdiction is utilizing the framework to help rehabilitate juveniles (for an example see: Cobb et al., 2013). The RNR framework originates from Andrews and colleagues (1990) who proposed that risk, needs and responsivity were three principles that can be assessed to target interventions aimed at reducing recidivism. Another way to think about this framework is that it addresses three main questions: *who should get services* (the risk principle), *what services should someone be mandated to complete* (the needs principle), and *how can these services be optimized* (the responsivity principle).

The Risk Principle

Research on who receives services (the risk principle) has primarily focused on establishing risk assessments that calculate the risk of reoffending (see Koh et al., 2020 for a review of risk assessment tools). These assessments are often conducted by probation staff and occur after a juvenile becomes involved in the legal system. The risk assessment provides information on the youth’s likelihood to reoffend by categorizing them in low, moderate, or high risk. This categorization then guides the intensity and number of services the juvenile receives. For example, someone who is deemed high risk to reoffend would be mandated to complete more intense services compared to someone who is low risk. The intensity of these services has been previously studied with research demonstrating it is ineffective and costly to mandate a high number of services to youth involved in the legal system who are deemed low risk to recidivate (Lipsey et al., 2010).

The Needs Principle

Once a juvenile’s risk of reoffending is calculated, the court then determines the youth’s criminogenic needs and potential services that will address these needs. Criminogenic needs are factors in the youth’s life that are dynamic and may change with intervention (i.e., aggression, emotion regulation, decision making skills). To assess for the youth’s needs, probation staff may use fourth-generation risk assessment tools that complete a needs assessment simultaneously to

the risk assessment. Other juvenile justice departments may assess the youth's dynamic and static factors that may support or hinder the juvenile from reoffending. Decades of research have used social ecological models to examine risk and protective factors for justice-involved youths. One of the most prominent theories used is the Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1977, 1999, 2005; Bronfenbrenner & Ceci, 1994). Social ecological models put the individuals at the center of the model. The individual level is then surrounded by several others levels/context such as one's family, peers, school, and community. In each of these levels/context there are situations, people, and circumstances that can either protect a juvenile or increase the risk of the juvenile breaking the law. Previous research has examined the influence of several factors on offending such as socio-economic status, self-esteem, coping skills, family conflict, peer conflict, gang involvement, school attendance and motivation (Merrin et al., 2020; Scholte, 1992). If a juvenile justice system is assessing needs outside of a risk assessment tool, they may use the Bronfenbrenner's Ecological Systems Theory to think about different needs the youth may have.

It is important to note, while several factors may be seen as a need for the youth (i.e., education, monetary stipends, mentorship), there are eight specific criminogenic factors assessed in the RNR framework as they have been shown to have the strongest correlation to recidivism risk (Andrews & Bonta, 2010). The eight criminogenic factors include the youth's ability for antisocial cognition (i.e., blaming the victim), antisocial associates (i.e., peers who present antisocial attitudes), antisocial personality patterns (i.e., impulsivity), a history of antisocial behavior (i.e., aggression), family/marital circumstances issues, school/work issues, leisure/recreation issues, and substance abuse (Bonta & Andrews, 2017). It is recommended for juvenile justice centers to spend the most amount of time and resources addressing the eight criminogenic needs because other needs are not correlated as strongly to re-offending (Cobb et al., 2013).

If juvenile detention centers were to execute the RNR framework perfectly, interventions would be selected based on the evaluation of a youth's criminogenic needs (i.e., interventions for antisocial behavior patterns). However, research has shown that juvenile centers using the RNR framework rarely use this process perfectly (Drawbridge et al., 2019). In practice it is not uncommon for services to be recommended based on the probation officer's discretion, the type of crime the youth has committed (i.e., sexual offenses interventions), or based on the services available. In addition, there are often standard services mandated for juveniles to complete in jurisdictions such as probation or community service hours.

Several interventions for this population have been created to target criminogenic factors and an array of mental and physical health outcomes. There are three categories of interventions someone could be mandated to complete 1) interventions using modalities (i.e., Cognitive Behavioral Therapy (CBT)) that are evidence based, 2) intervention programs that combine elements of a modality and other services (e.g., a CBT group and community service) and 3) standalone services (e.g., community service). A brief literature review of these intervention forms is below.

Evidence Based Modalities

Previous literature has established that Multi Systemic Therapy (MST), Acceptance and Commitment Therapy (ACT), Functional Family Therapy (FFT), and Cognitive Behavioral Therapy (CBT) are beneficial treatment modalities for the juvenile justice population (Henggeler & Schoenwald, 2011; Lipsey et al., 2001; Pearson et al., 2002). While these

treatment modalities may be beneficial, access to clinicians who are sufficiently trained in these modalities and implement the modality well is infrequent in the juvenile justice services (Lipsey et al., 2010). To help alleviate this issue, clinical care providers have partnered with detention centers to create and implement evidence-based programs.

Evidence Based Programs

Evidence based programs are a plethora of services packaged as an intervention. For example, an evidence-based program may be several weeks of therapy or include various components to complete (i.e., therapy, community service, and probation). Currently, there are several evidence-based programs for those who are justice involved. One way to access a list of evidence-based programs is through databases such as CrimeSolutions (<http://www.crimesolutions.gov/programs.aspx>), the Office of Juvenile Justice and Delinquency Prevention's (OJJDP's) Model Programs Guide (<http://www.ojjdp.gov/mpg>), and Blueprints for Healthy Youth Development: (<http://www.blueprintsprograms.org>). Each of these websites has their own criteria for assessing and reporting each interventions strengths, weaknesses, and effectiveness.

Beyond these databases that classify programs as effective or not, scholars have used meta-analyses to understand the effectiveness of some of these programs too. To date, one meta-analysis (Lipsey, 2009) has analyzed effectiveness of 548 juvenile justice programs between the years 1985-2002; finding that “therapeutic” practices were most effective in reducing recidivism when compared to programs emphasizing deterrence and programs with surveillance. Lipsey (2009) also determined four program features that were associated with lower recidivism rates in therapeutic practices: 1) the risk level of juveniles in the program, 2) the type of therapeutic programming being implemented, 3) the duration of service delivered, and 4) the quality of the intervention delivered. Lipsey (2009) argues that this research can help guide treatment approaches for juveniles. Another fruitful way these programs are being researched are through optimization trials where scholars are assessing each program’s components and assessing the optimal duration of the components to maximize individual effects from each piece of programming.

Standalone Services

Standalone services encompass any service that a juvenile must complete that is not a part of an evidence-based program. For example, a youth may be mandated to complete community service and/or a mentorship program. Another example of a standalone service is probation. Generally, there are two types of probation: typical probation and community intensive probation. In Arizona, intensive probation is noted as Juvenile Intensive Probation Services (JIPS) and other jurisdictions may call it community intensive supervision. These services are often mandated to be completed but they may not be a part of an evidence-based program.

Regardless of the intervention, or services mandated for the youth to complete, there is typically the issue of getting juveniles to engage with, and complete, mandated services. As Lipsey and colleagues (2010) noted, juveniles must have an adequate “dose” of the treatment (i.e., enough contact) for the intervention to be effective. Services and interventions cannot be effective without engagement and completion. Consequences of disengaging from services often leads to more punishment (i.e., more intense sanctions or a greater number of sanctions) and result in the intervention not effectively targeting the mechanism of change due to an inadequate

dose of the intervention. Given these consequences, more research is needed on how to tailor services producing more engagement in and learning from them. This idea makes up the responsivity principle.

The Responsivity Principle

Responsiveness to treatment is part of the third principle, responsivity. The responsivity principle concerns tailoring interventions to fit the strengths and deficits of the justice-involved persons to maximize effectiveness of the intervention. The original definition of responsivity is that the intervention must, “maximize the offender's ability to learn from a rehabilitative intervention by providing cognitive behavioural treatment and tailoring the intervention to the learning style, motivation, abilities and strengths of the offender” (Andrews et al., 2011, pg. 738). Incorporating critiques of this definition, responsivity was then expanded into three different levels: *systematic*, *general*, and *specific* (see Taxman, 2014 for a review). *Systemic responsivity* includes examining if jurisdictions have the resources to address the needs and risks of the youths. An example would be assessing if jurisdictions have access to certain evidence-based treatment protocols for detained youths. *General responsivity* concerns examining what treatment modalities are effective in reducing recidivism. In the birth of this model, Bonta and Andrews (2007) argued for interventions that emphasized behavioral strategies to change youth's behaviors. Yet cognitive strategies have been found to be effective as well (Lipsey, 2009). Lastly, *specific responsivity* determines how to tailor interventions to “individual-level factors, and it includes a broad array of non-criminogenic and destabilizing factors that affect behavioral progress” (Taxman, 2014 pg. 39). In short, specific responsivity concerns factors that might increase an youth's ability to learn and engage with the intervention. Some suggestions on how to measure and test *specific responsivity* includes, measuring the magnitude and effect of the therapeutic alliance, overall engagement in the service/treatment, retention in completing the service/treatment, and if there is a reduction of negative behaviors (as cited in Taxman, 2014). The rest of this literature review will focus on *specific responsivity* and the need for more research in this area.

While the RNR framework is gradually becoming present in juvenile detention facilities, the responsivity principle is understudied. To date, the youth perception of probation (Fine et al., 2018), exposure to traumatic experiences (Holloway et al., 2018), a youth's family and lifestyle factors (Kapoor et al., 2018), and a youth's “psychological functioning” have been studied as potential responsivity factors. However, more research is needed to assess if these responsivity factors are found in other samples and directly influence the youth's ability to learn from an intervention.

One of the previous works by Vieira and colleagues (2009) attempted to study if selecting treatments based on responsivity factors would lower recidivism, but they found no significant reduction. The responsivity factors they included were: “psychological functioning (i.e., anxiety, depression, psychosis), medication needs, cognitive capacity, cultural and/or language issues, and youth-staff fit” (Vieira et al., 2009, pg. 390). While Vieira and colleagues found no significant results, one of the major limitations of the study is that specific criminogenic needs were “met” loosely causing too much noise in the variables to concretely observe if selecting treatments based on responsivity factors would lower recidivism.

For example, a participant's need for an anger management intervention may have been matched to medication management, this pairing would be considered a met responsivity factor. The issue with this is they did not capture information about treatment success or adherence,

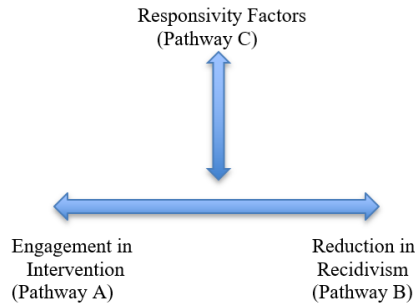
which are key pieces to the responsivity factor being met. Instead, Vieira and colleagues used recidivism as the outcome, which limits and understanding if the factors being tested were truly responsivity factors.

Luong and Wormith (2011), examined the inclusion of responsivity factors on probation using a fourth-generation risk assessment tool. As noted previously, risk assessments typically assess the youth's likelihood of reoffending. In the fourth generation of risk assessment tools, the tool assesses risk, criminogenic needs, and responsivity factors to help develop a plan for the youth who is justice involved. This study examined how often these tools assessed responsivity factors for youths on probation. In short, they found that most youths did not have identified responsivity factors (Luong & Wormith, 2011). Of the cases where a responsivity factor was identified they were: Aboriginal culture, educational needs (i.e., learning disability, special education), attention deficit/hyperactivity, mental health issues, and fetal alcohol syndrome (Luong & Wormith, 2011). This study exemplifies that despite assessment tools being developed to assess for responsivity factors, there is still a lack of identifying them.

Previous research has failed to determine an exhaustive list of responsivity factors. Bonta and Andrews (2007) note gender, race, and a few other factors that contribute to the justice-involved person learning are responsivity factors but there is a lack of knowledge detailing what the other responsivity factors may be and empirical support for the factors. The field must begin to test specific responsivity factors. Without adequate research on identifying responsivity factors, a couple problems exist. First, the field continues to guess what factors may be influencing responsivity to an intervention. This leads to research that is asynchronous and limited in scope. Second, more interventions are being created for this population (see Kim et al., 2016 for a review of interventions for offenses, and Walker et al., 2019 for interventions for specific genders) rather than tailoring existing ones because the field is unsure what factors the interventions should be tailored to. This leads to future implementation issues and limited access to interventions for each jurisdiction.

Specific responsivity encompasses tailoring treatment for specific traits that may increase the youth's ability to engage with, and learn from, the intervention. While it may seem beneficial to list potential options to tailoring interventions to increase engagement including, (i.e., juvenile preference, individual goals, access to services being mandated to complete, cognitive level, parental involvement, etc.), to be included in the RNR framework, responsivity factors must be directly related to the justice involved person's ability to learn from the intervention. This is because if a person's ability to engage with and learn from the intervention is increased, the likelihood of becoming justice involved again goes down. Figure 1 depicts a simple model of the relationship between responsivity factors impacting engagement in services and a reduction in recidivism.

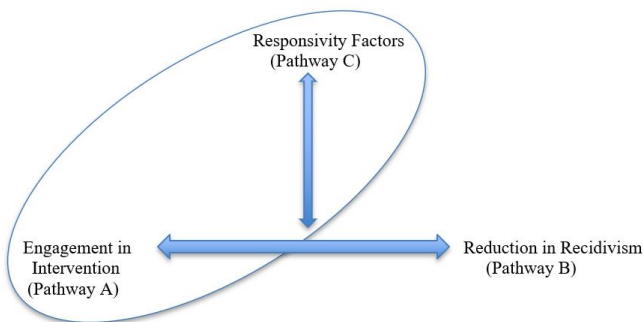
Figure 1: A model based on previous research of the relationship between responsivity factors moderating engagement in services and a reduction in recidivism



In using this model, if the intervention mandated is a drug abuse program and the youth has severe social anxiety, the responsivity factor may be using a drug abuse programming that is in an individual format, rather than a group format. This would allow for an environment that would better suit learning for someone with a severe anxiety disorder. In matching the youth's criminogenic needs (the need for drug abuse programming) to their responsivity factor (needing one-on-one services), a reduction in recidivism would be expected, barring that the drug abuse programming is evidence based.

In the goal of testing responsivity factors, one issue with this model is the reliance on the outcome variable, the reduction of recidivism. If the intervention is ineffective, it could overshadow the potential of the variable being a responsivity factor. As Taxman (2014) noted, responsivity can be tested and measured by the magnitude and effect of the therapeutic alliance, overall engagement in the service/treatment, retention in completing the service/treatment and if there is a reduction of negative behaviors. Given this, a way to test a responsivity factor could be focusing on the relationship between engagement in services and the responsivity factor (see blue circle in Figure 2).

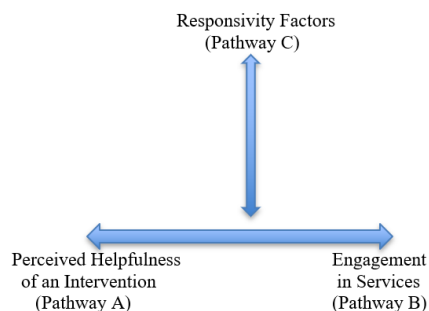
Figure 2: Adjusting the proposed model (Figure 1) to include Taxman's (2014) declaration that responsivity factors impact engagement in the intervention. The blue circle highlights the relationship Taxman references.



Using the model in Figure 2 and the original example, it would be expected that youths who have severe social anxiety would have more engagement in tailored abuse programming (i.e., one-on-one drug) compared to the youths who have severe social anxiety and receive group drug abuse programming. Again, the one-on-one format would lead to more engagement and ultimately be more effective because it allows for a learning environment tailored to that youth.

While this is a testable research question, one piece that may be missing from this model is the role of perceived helpfulness of the drug abuse programming. Perceived helpfulness is important in completing services. This idea is supported by research detailing the effects of perceived helpfulness on attendance and treatment outcomes in a therapeutic setting (Addis & Jacobson, 1996; Smith et al., 2013). For example, even if a youth is mandated to complete individual substance abuse programming, if they do not find it helpful, they are likely to not engage. Given the importance of helpfulness, research must begin to focus on what responsivity factors may influence (i.e., moderate) the relationship between helpfulness and engagement in services (see Figure 3).

Figure 3: Model detailing the relationship between helpfulness and engagement in services while conceptualizing responsivity factors as a moderating variable in this relationship.



This model allows for engagement in services as an outcome variable, which reflects one of the targeted outcomes of tailoring a treatment to responsivity factors. In addition, in alliance with the RNR framework, higher engagement in services allows for the opportunity for more learning to occur from the intervention.

Possible Responsivity Factor: Maturity

While a small portion of previous research has isolated variables to test as responsivity factors (i.e., mental health, cognitive skills, cultural/language issues etc.) no one has tested the construct of maturity. The definition of maturity is distinct to different disciplines (i.e., psychological, emotional, social, cognitive, and developmental) yet many of these concepts relate back to a youth's ability for decision making.

Previous literature examining maturity, and immaturity have largely been used to craft arguments for culpability of offenses. In this work, Cauffman and Steinberg (2000) have noted immaturity may stem from two veins: cognitive and psychological differences between adolescents and adults. The differences in cognitive and psychological abilities are a result in deficiencies in thinking and social and emotional capability. Cauffman and Steinberg (2000) have shown that these deficits may affect one's ability to make mature judgments because

decision making is complex and is affected by a range of cognitive, emotional, and social factors (Caffman and Steinberg, 2000, pg. 743).

Taken together, the construct of maturity, specifically psychosocial maturity, could be influencing a range of behaviors, including the youth's ability to make a mature decision about how helpful the services are and the decision to engage in the mandated services. This lack of engagement is likely to have a relationship to the effectiveness of the intervention.

Psychosocial Maturity Inventory

In the juvenile justice field, there are two main measures of maturity. The first is known as the Psychosocial Maturity Inventory (PSMI). This measure is often used to capture self-reported maturity. The PSMI is a 30-item self-report questionnaire that calculates overall maturity and three subscales: self-reliance, identity, and work. The second measure is known as Maturity of Judgment which encompasses pieces of the PSMI and subscales of other components. Maturity of Judgment is different than the PSMI as it has three distinct components it measures: "... (1) *responsibility*, which encompasses such characteristics as self-reliance, clarity of identity, and independence; (2) *perspective*, which refers to one's likelihood of considering situations from different viewpoints and placing them in broader social and temporal contexts; and (3) *temperance*, which is the tendencies to limit impulsivity and to evaluate situations before acting" (Caffman and Steinberg, 2000, pg. 745).

A large amount of literature has used maturity (both the PSMI and Maturity of Judgment) to better understand decision making (Caffman & Steinberg, 2000), criminal activity (Cruise et al., 2008), and the use of drugs (Chassin et al., 2010). In addition, a recent study used the construct of psychosocial maturity in a randomized control trial (Riggs Romaine et al., 2018). Collectively, this body of works constitutes that psychosocial maturity may affect several areas of decision making. The effect to which psychosocial maturity influences the decision and level of engagement in treatment or services and how helpful the youth perceive the service to be, has not been evaluated. Yet, it is hypothesized that psychosocial maturity moderates the relationship between perceived helpfulness and engagement in services.

Psychosocial Maturity as a Moderator

Responsibility

The construct of responsibility in psychosocial maturity is the reliance the youth have on themselves and the clarity of their identity (Caffman and Steinberg, 2000). This measures how reliant the youth is on others when making decisions. This is an important aspect to consider when mandating services because if a youth has a strong sense of relying on themselves, or a strong sense of their identity, they are likely to not rely on others. This may be a barrier for engaging with services that remove the power of relying on oneself (i.e., probation) or challenge the youth's identity (i.e., therapy). In addition, youths may not find these services to be helpful. On the other hand, if youths do not have a strong sense of self-reliance or identity, this may be a critical period of developing reliance on self and support teams and helping them define who they are. This may lead to youths wanting to engage with treatment and finding it helpful.

Perspective

Perspective is the ability for youths to see the world from the viewpoint of others. Again, this is another important aspect to consider in mandating services because youths may lack this ability. If lacking the ability, services like group therapy, community service, and mentorship

programs may have a limited effect on adherence or perceived helpfulness. On the other hand, if youths have awareness of perspective taking, these skills may be useful to employ when thinking through the consequence of their actions and those affected. These youths may be more willing to engage in services and find them helpful.

Temperance

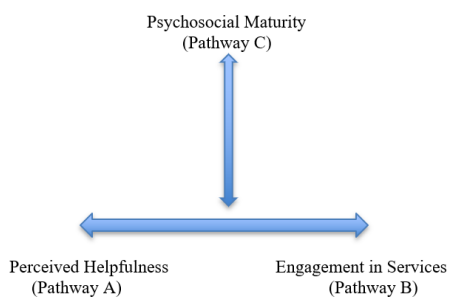
Lastly, the construct of temperance is the ability to limit impulsivity and to evaluate situations before acting. Services such as probation with global positions system (GPS) tracking may be hard for youth to adhere to given impulsivity. This may lead to inability to adhere to this service and the youth may find that the service is not helpful.

Collectively, responsibility, perspective, and temperance may be important factors to consider when mandating services. Given that juvenile justice courts use a rehabilitate approach, success in completing services and treatments is necessary. In addition, research shows that longer duration detained does not predict less recidivism (Holman & Ziedenberg, 2013) which argues for quick and successful completion of services may be beneficial. If psychosocial maturity influences engagement and the perceived helpfulness of services, courts should begin to assess for maturity level when mandating services.

Testing if Psychosocial Maturity Moderates Helpfulness and Engagement

Based on previous work, it is expected that the more helpful a service is perceived to be, the more engagement one will have in it. This is likely to hold true for juvenile's mandated to complete services; if the service is helpful, the youth will engage more (A – B pathway). Yet, there are a host of individual level factors that may be moderating the relationship between perceived helpfulness and engagement in services. For example, psychosocial maturity (C pathway).

Figure 4: Model detailing the relationship between helpfulness and engagement in services while conceptualizing psychosocial maturity as a responsibility factor as a moderating variable.



One way to test this model is by examining this model in two services: probation (typical and community intensive) and mental health services (group and individual). These two services were chosen because they are well researched in the literature and are highly mandated for juveniles to complete as standalone services and in treatment programs for juveniles in the justice system. A brief review of these services and potential reasons why these services could be influenced by psychosocial maturity is below.

Probation

In a report by Hockenberry and Puzanchera (2018), approximately 62% of juveniles in 2016 were placed on probation. Furthermore, probation is the most sanctioned service (Hockenberry & Puzanchera, 2018). There are two types of probation: regular (i.e., typical) probation and community intensive supervision. Both types of probation are grounded in older, more punitive theory of the juvenile justice system. For those who are enrolled in a community intensive supervision, these youths must make regular contact with a special parole officer or program staff more often than is required in typical probation program. When they don't comply, they may be sanctioned to more services.

While it may seem obvious that youths who do not find the value in probation do not comply, there is the potential that one's maturity is influencing this relationship. Specifically, the factor of *responsibility*. Youths on probation may need to ask for permission to leave the home, state, or other activities. This requires the youth to ask for permission and engage with the officer. This relationship demands that the youth rely on the probation officer to answer the phone and allow them permission for such privileges. For youths that take more responsibility in themselves than relying on others, they may not find the benefit in asking for permission or engaging with the officer. Furthermore, asking for permission, takes a great deal of *temperance*. Youths must limit the impulsivity to disregard the probation terms. This may be hard for those who are not accustomed to asking for permission from others. In short, one's psychosocial maturity could be directly affecting the relationship between finding the service helpful and engaging in it.

Mental Health Services

Scholars examining mental health needs of youths in the juvenile justice system have found that there is an over representation of youths in the system with health and mental health needs (Brown et al., 2020; Snehil & Sagar, 2020). However, subclinical levels of symptoms are also widely present (Kang et al., 2015). These issues are not new, in fact, in 2001 the office of Juvenile Justice and Delinquency Prevention launched a project to guide mental health service for children in the justice system (Skowrya & Coccozza, 2006). Scholars continue to debate the long-term effects of addressing mental health concerns of juvenile justice involved youths because research has shown it does not predict recidivism (McCormick et al., 2017) yet it may contribute to positive wellbeing and skill development.

While mental health services may address issues associated with factors of psychosocial maturity (i.e., impulse control, trusting others, asking for help, flexible thinking), youths must engage with services for them to be helpful. One's maturity may affect the youth's ability to engage with this service. For example, clients who predominately only rely on themselves may find a therapeutic relationship difficult to develop. In addition, therapy may directly challenge a youth's understanding of their identity. These difficulties may be affecting the relationship between finding the service helpful and engaging in it.

Overall, there is a need to further investigate what type of probation (typical v intensive) service is perceived to be helpful as it may lead to more engagement. In addition, there is a need to identify which mental health services (group or individual) are engaging and which services the juvenile finds to be helpful. The knowledge generated by this understanding will expand the field by understanding which modality is associated with engagement in services and perceived

helpfulness. Furthermore, the moderating role of psychosocial maturity must be evaluated to determine if existing services and interventions can use psychosocial maturity as way to tailor interventions.

Current Study

The current study assesses three research questions in a sample of youths who have committed a serious offense (predominantly felonies, with a few exceptions for some misdemeanor property offenses, sexual assault, or weapons offenses). For all research questions, data from time 2 and baselines was used from the Pathways to Desistance data set.

1A) Which therapeutic environment (group v individual) is associated with more engagement in services?

2A) Which therapeutic environment (group v individual) is associated with youth's perception of the service being helpful?

2B) Which probation style (typical v intensive probation) is associated with youth's perception of the service being helpful?

The third aim assesses the potential of tailoring services to one's psychosocial maturity by the following question:

3C) Does psychosocial maturity moderate the relationships of 1A, 2A, and 2B?

Methods

Data Source

The current study is a secondary analysis from the Pathways to Desistance Study (see: <https://www.icpsr.umich.edu/web/ICPSR/studies/29961>). Two restricted data sets were used. The first contained demographic information and the longitudinal measure of psychosocial maturity via the Psychosocial Maturity Inventory (Greenberger et., al, 1974). The second data set includes the longitudinal data of involvement in services (therapy and probation) as well as the degree to which the youth found the service helpful. Both data sets contained a participant ID and this was used to merge the datasets together. To obtain the data from the Inter-university Consortium for Political and Social Research (ICPSR), it was required that the principal investigator hold an appointment at a research institution and have obtained a doctorate. Therefore, Dr. John Ruiz was the official person requesting the data. All documents requested by the ICPSR were completed and IRB approval was obtained.

Participants

The current study included 1,354 youths in contact with the legal system for predominately felonies (see Table 1). All of the juveniles were enrolled in the study between the years 2000 and 2003. Data came from two counties, Maricopa County (Phoenix), Arizona (N=654) or Philadelphia County, Pennsylvania (N=700). A majority of the sample were male (N=1170; 86.4%) and were between the ages of 14 and 19 (M = 16.53). Most of the participants self-identified as Black (N=561, 41.4%). Table 1 contains additional individual demographic information. In addition, some family characteristics were also captured at baseline. On average,

1 parental figure lived in the home at baseline ($M=1.57$, Range = 0 – 5). Only 14.7% ($N=199$) lived with a biological mother and biological father.

Table 1: *Baseline Demographics Baseline Demographics*

	Philadelphia County, Pennsylvania		Maricopa County, Arizona		Total Sample				
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%			
Gender									
Male	605	86.4%	565	86.4%	1170	86.4%			
Female	95	13.6%	89	13.6%	184	13.6%			
Ethnicity									
White	72	10.3%	202	30.9%	274	20.2%			
Black	502	71.7%	59	9.0%	561	41.4%			
Hispanic	107	15.3%	347	53.1%	454	33.5%			
Other	19	2.7%	46	7.0%	65	4.8%			
Identify as Hispanic									
Yes	107	15.3%	347	53.1%	454	33.5%			
No	593	84.7%	307	46.9%	900	66.5%			
Country of Birth									
United States	676	96.6%	595	91.0%	1271	93.9%			
Other	24	3.4%	59	9.0%	83	6.1%			
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Age	16.61	1.14	14.05- 19.52	16.45	1.05	14.12- 18.59	16.53	1.10	14.05- 19.52

Procedure

Data was collected through an interview assisted computer at baseline, every 6 months for 5 years, and at release (within 30 days from release at a residential facility). Trained interviewers would meet the participant in their home, a residential facility, or a public place to complete the interviews. The trained interviewer would then read aloud the question and the participant would select the answer using the keypad or verbally. The associated skip patterns were programmed into the computers. For the current study, all data were self-report measures. For a complete explanation of the sampling and study procedures, please see Schubert and colleagues (2004).

Measures

Demographic Information

Demographic information was collected at baseline, every 6 months for 5 years, and at release. Baseline demographic information included variables such as age, ethnicity, gender, and the total number of people living in the house. Follow up demographic information contained gender, ethnicity, and age. The current study does not utilize release information. However,

demographic information from each participant's baseline interview were included as well as follow up demographics. The time between baseline and time 2 was about 1 year.

Psychosocial Maturity Inventory

The Psychosocial Maturity Inventory (PSMI; Greenberger et., al, 1974) contains 30 items to which participants respond on a 4-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree". All items in the PSMI, except one question, were reverse coded. Higher scores on this inventory indicate more responsible behavior. It also includes three subscales: self-reliance, identity, and work orientation. Greenberger and colleagues (1974) have not established cut-off scores for this measure. For the current project, the overall score of psychosocial maturity at the second time point of the follow-up interview was a continuous variable. In addition, participants must have had at least 22 of the 30 questions completed to be included in the analyses. Reverse coded sample items include: "I change the way I feel and act so often that I sometimes wonder who the 'real' me is" and "I hate to admit it, but I give up on my work when things go wrong" and "Luck decides most things that happen to me". A change score between baseline and time 2 was created. See Table 2 to see descriptive information of the PSMI by time points. The decision to use PSMI rather than Maturity of Judgement was due to availability of the data.

Table 2: *Descriptive Statistics of the PSMI by Time points*

Variable	N	Mean	SD	Range
PSMI Full Baseline	1,346	3.02	0.46	1.10-4.00
PSMI Time 1	1,258	3.06	0.47	1.10-4.00
PSMI Time 2	1,260	3.12	0.47	1.10-4.00

Group or Individual Therapy

If the youth engaged in community support groups (e.g., Alcoholic Anonymous (AA)) or individual therapy this data was captured at the follow-up time points. For the current study, the time 2 follow up interview was used. During this follow up interview, the youth indicated if they had received [insert service here] services since the previous interview due to "a drug, alcohol or other behavioral or emotional problem like being depressed or feeling out of control". Those who indicated seeing a psychologist/counselor/social worker were used to identify those who received individual therapy. It should be noted that for the youths in Phoenix, counseling services as part of the intensive probation were not included in this group. Those who indicated attending Community Support Groups in community settings (e.g., anger management groups) were used to identify those who received group therapy. Community Support Groups are different than mental health treatment groups. The current study utilized the Community Support Group sample due to the limited sample size of those who attended mental health treatment groups at time 2 (N=7). Attending either a Community Support Group and/or individual therapy was collected as a binary, yes/no variable. If a participant had attended both a community intensive group and individual therapy, they were coded in only the community intensive group. This was done ensure each participant was only being counted once in the analyses.

Community Intensive Supervision or Probation

Data on what court monitoring services the youth completed was collected at the follow-up periods. For the current study, the time 2 of the follow up interviews were used. There are two types of probation, typical probation and community intensive supervision. For those who were enrolled in a community intensive supervision, these youths must make regular contact with a special parole officer or program staff more often than is required in a regular probation program. Determining which type of probation a youth is engaged in was collected as a binary, yes/no variable. For a few cases, during the recall period youths indicated being mandated to complete both typical and community intensive probation, youths were coded in the community intensive probation group. This was done to ensure each participant was only being counted once in the analyses.

Engagement in Services

Engagement of services was determined by the total number of sessions the youth attended during the follow-up period. For the current study, the total number of sessions someone attended represents the time between the time 1 follow up interview and the start of time 2 interview. This was measured by asking the youth: “how many times did you [receive X service] during this month?” This variable was analyzed as a continuous variable. For engagement in probation, this was measured by asking the youth “How many times did you see your PO (face to face) during this month?” and “How many times did you talk to your PO during this month?” Answers to these questions were summed to compute the total number of contacts with the probation officer.

Helpfulness of Services

Youths rated how helpful they felt the service was for both individual and group therapy. For the current study, the time 2 follow up interview was use. Specifically, youths were asked: “You said that in the past N months, you had [received service X]. How much do you feel that this placement/service was helpful to you?” Answers were on a 5-point Likert scale from 1 (not at all helpful) to 5 (very helpful). For probation and community intensive supervision, youths were asked: “How much do you feel that this placement/service was helpful to you?” answers were on the same 5-point Likert scale.

Covariates

The covariates included in the current aims are being court ordered to complete a therapeutic service, age of the youth, ethnicity, gender, and the site location. These covariates were extracted from the time 2 follow up interview. Being court-ordered to complete a therapeutic service was included because being court-ordered typically requires a number on contacts needed each month with a service which is likely to influence the attendance/engagement in the service. The age of the youth was determined as a covariate given the empirical work detailing the relationship between age and maturity (Icenogle et al., 2019). While the current study does not exclusively examine differences by ethnicity or gender, both were included in the analysis as covariates for the rich literature pointing to developmental difference in criminal involvement, justice-involved experiences, and response to interventions (Grella et al., 2005). Lastly, the site location was included to detect any differences by the participant's location.

Data Analysis Plan

Data was cleaned using SPSS Version 27 and analyzed using RStudio. Pairwise deletion was used for all aims. While the full sample included 1,354 justice involved juveniles, a subsample of juveniles were used for each aim. The sample size, inclusion criteria, and demographic information can be found in the following paragraphs.

Aim 1 sought to understand if group or individual therapy was associated with engagement in therapy. For this aim, 107 juveniles from the larger sample were included (see Table 2 for the demographics). For a youth's data to be included they must have attended a therapy session (either individual or group) at least once during the recall period between Time 1 to Time 2. If an individual attended both individual and group therapy within the recall period, they were coded as only attending group therapy. I utilized a multiple, ordinary least squares regression after log transforming the categorical independent variable. I then ran the basic model with the independent and dependent variable. After running the basic model, I then built a model with the following covariates: mean centered age, gender, ethnicity, site location, and court-ordered status to complete therapy.

Aim 2A, used a logistic regression to understand if group or individual therapy was associated with perceived helpfulness of therapy. This Aim, much like Aim 1, used the same 107 juveniles because they engaged in therapy (either individual or group) at least once between the recall period from time 1 to time 2 (see Table 2 for the demographics). Again, if an individual attended both group and individual therapy within the recall period, they were coded as only attending group therapy. The outcome "helpfulness" was bifurcated into a value of 0 not helpful, (values: 1 and 2), and 1 helpful, (values: 3, 4, 5). I then build ran a basic model with the intendent and dependent variable. This model was then run again with the following covariates: mean centered age, gender, ethnicity, site location, and court-ordered status to complete therapy. Then, to ensure my bifurcation was not biased, I also conducted a sensitivity analysis with the bifurcation of helpfulness into a value of 0 not helpful, (value of 1), and 1 helpful, (values: 2, 3, 4, 5). The sensitivity analysis followed the same progression using a simple model and then another model including the following covariates: mean centered age, gender, ethnicity, site location, and court-ordered status to complete therapy.

In Aim 2B, a logistic regression was used to examine if typical probation or community intensive probation was associated with engagement in probation. From the larger sample, there were 853 juveniles included in this analysis (see Table 3 for the demographics). To be included in this aim, juveniles must have engaged in typical or community intensive probation at least once during the recall period between time 1 to time 2. Probation type was coded as a categorical variable with two levels (typical probation and community intensive probation). If an individual participated in both services, they were categorized in the community intensive probation category. Similar to the previous aim, helpfulness was bifurcated into a value of 0 not helpful, (values: 1 and 2), and 1 helpful, (values: 3, 4, 5). After running the basic model with the independent and dependent variable, this model was then run again with the following covariates: mean centered age, gender, ethnicity, and site location. Then, to ensure my bifurcation was not biased, I also conducted a sensitivity analysis of helpfulness. For this analysis, helpfulness was bifurcated into a value of 0 not helpful, (value of 1), and 1 helpful, (values: 2, 3, 4, 5). Then, after running the basic model for the sensitivity analysis, I included in the model the following covariates: mean centered age, gender, ethnicity, and site location.

Aim 3A investigated if the change in maturity from baseline to time 2 moderated the relationship between therapy type (individual and group) and engagement. This question utilized the same variables as Aim 1 but included the change in maturity variable, and the interaction

term of therapy type and the change in maturity. Similar to Aim 1, I utilized a multiple ordinary least squares regression with the log transformed outcome variable, engagement. This model included the 107 individuals from Aim 1.

Aim 3B examined if the change in maturity from baseline to time 2 moderated the relationship between therapy type (individual and group) and perceived helpfulness of therapy. This model utilized the same variables at Aim 2A but included the change in maturity variable, and the interaction term of therapy type and change in maturity. Similar to Aim 2A, I utilized logistic regression with the bifurcated variable, helpfulness, and the sensitivity analysis. This model included the 107 individuals from Aim 2A.

Aim 3C, utilized a logistic regression to examine if the change in maturity from baseline to time 2 moderated the relationship between probation type (typical and intensive) and helpfulness of therapy. This model utilized the same variables at Aim 2B but included the change in maturity variable, and the interaction term of probation type and change in maturity. Similar to Aim 2B, I utilized logistic regression with the bifurcated variable, helpfulness, and the sensitivity analysis. This model included the 853 individuals from Aim 2B.

Missing Variables and Cases

The Pathways to Desistence dataset was sent with missing variables coded as missing. This section outlines the reasons why data was missing for each of the variables used. For the variable describing if a participant engaged in probation and therapy a few reasons exist as to why it would be missing. These explanations for missing data include: An error in the interview programming code that allowed participants to not complete the questions about probation and therapy, incomplete data or a partial interview, participants indicated they “don’t know” or a youth refused to complete these questions. For the variable rating the helpfulness of therapy and/or probation data could have been missing due to: the error in the programming code (as described above), the youth missed the interview or only completed a portion of it, the youth said “I don’t know”, refused to participate, or did not received that services and therefore this question was not asked. For the question about the engage in probation and/or therapy, this variable may have been missing due to the youth not knowing which month they received the service in, a missed or partial interview, or the programming issue prevented the youth from answering this question. Lastly, for the PSMI, scores were missing if the youth did not complete at least 22 of the 30 questions, the youth only completed a portion of the interview or terminated the interview early, reported “I don’t know” or refused to participate.

Table 3: Demographic Information of Participants included in Aim 1, 2A, 3A and 3B

	Philadelphia County, Pennsylvania		Maricopa County, Arizona		Total Sample				
	<i>N</i> (38)	%	<i>N</i> (69)	%	<i>N</i> (107)	%			
Gender									
Male	31	81.6%	57	82.6%	88	82.2%			
Female	7	8.4%	12	30.8%	19	17.8%			
Ethnicity									
White	11	28.9%	30	43.5%	41	38.1%			
Black	19	50.0%	4	5.8%	23	21.5%			
Hispanic	7	18.4%	34	49.3%	41	38.3%			
Other	1	2.6%	1	1.4%	2	1.9%			
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Age	17.33	1.1	15.34-	17.28	0.96	15.32-	17.29	1.02	15.31-
		5	19.15			19.02			19.14

Table 4: Demographic Information of Participants included in Aim 2B and 3C

	Philadelphia County, Pennsylvania		Maricopa County, Arizona		Total Sample				
	<i>N</i> (465)	%	<i>N</i> (388)	%	<i>N</i> (853)	%			
Gender									
Male	399	85.8%	331	85.3%	730	86.4%			
Female	66	14.2%	57	14.7%	123	13.6%			
Ethnicity									
White	60	12.9%	128	33.0%	188	30.9%			
Black	320	68.8%	31	8.0%	351	9.0%			
Hispanic	74	15.9%	208	53.6%	282	53.1%			
Other	11	2.4%	21	5.4%	32	7.0%			
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Age	17.47	1.12	15.05-	17.22	0.99	15.14-	17.35	1.07	15.04 -
			20.62			19.29			20.61

Results

Aim 1 Summary: Aim 1 yielded two main results. First, results indicated there was no association between therapy type and engagement. Second, youths in Philadelphia County engage more in therapy in comparison to Maricopa County. This result was statistically significant.

A multiple, ordinary least squares regression was used to investigate if the modality of therapy (individual or group) was associated with engagement in services. Although not

statistically, significant, youths in group therapy reported greater engagement than those in individual therapy, $b = 0.69$, 95% CI(0.42, 1.11), $p = 0.13$.

This question was further examined by modeling the following covariates: mean centered age, gender, ethnicity, location of the participant, and whether the participant was court ordered to complete therapy. See Table 4 for model estimates. Results from the multiple ordinary least squares regression indicated that therapeutic environment was not associated with engagement in therapy, $b = .83$, $se = 1.28$, 95% CI(0.50, 1.33), $p = 0.43$. Unexpectedly, site location was significantly associated with engagement in therapy, $b = 0.56$, $se = 1.32$, 95% CI(.32, .98), $p = 0.0460$, indicating that youths in Philadelphia County were more likely to engage in therapy than those in Maricopa County.

Table 5: Aim 1 OLS Regression with co-variates

Variable	<i>b</i>	<i>SE</i>	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.83	1.28	0.50	1.33	0.43
Age	0.96	1.12	0.76	1.20	0.71
Gender: female	0.93	1.37	0.49	1.72	0.81
White	ref	ref	ref	ref	ref
Black	0.55	1.42	0.27	1.09	0.09
Hispanic	0.93	1.31	0.54	1.58	0.80
Other	3.80	2.38	0.67	21.23	0.13
Site Location	0.56	1.32	0.32	0.98	0.0460*
Not Court Ordered	0.98	1.34	0.54	1.75	0.93

Note. ref = reference; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy. (F(8,96) = 1.265, $p = .2709$), with an R^2 of .09536.

Aim 2A Summary: Aim 2A indicated that therapy type was not associated with perceived helpfulness. The sensitivity analysis indicated the same results.

A logistic regression was performed to assess the association of therapy type (individual or group) on the likelihood of a participant rating therapy as helpful. Results were not statistically different from zero and indicated that youths in group therapy versus those in individual therapy were 41% more likely to report that therapy was helpful, OR = 0.59, 95% CI(0.26, 1.31), $p = 0.20$.

This question was further investigated with the addition of the covariates mean centered age, gender, ethnicity, location of the participant, and if the participant was court ordered to complete therapy. The results for this model are presented in Table 5. Results indicated that youths in group therapy versus those in individual therapy were 42% more likely to report that therapy was helpful, OR = 0.58, 95% CI(0.02, 1.36), $p = 0.21$, however, this result was not statistically different from zero.

Table 6: *Aim 2A Logistic Regression with co-variates*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.58	0.02	1.36	0.21
Age	0.89	0.05	1.33	0.59
Gender: Female	1.52	0.04	5.34	0.48
White	ref	ref	ref	ref
Black	1.26	0.03	4.24	0.70
Hispanic	2.30	0.88	6.26	0.09
Other	--	--	--	--
Site Location	1.32	0.04	3.62	0.59
Not Court Ordered	0.47	0.01	1.38	0.19

Note. ref = reference; OR = Odds Ratio; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy. The dashes in this table represent that the model could not calculate values for due to the small sub-sample size in the “other” categorization. The decision to keep the “other” category was because this aim is to not investigate the difference between ethnicities.

Since the outcome variable “helpfulness” was artificially bifurcated, a sensitivity analysis was completed using a logistic regression to examine the same question but with a different cutoff point for helpfulness. This analysis was meant to assess whether my original cutoff point biased the estimates in the previous model. Results indicated that youth in group therapy versus those in individual therapy were 36% less likely to report that therapy was helpful, OR = 0.64, 95% CI(0.24, 1.64), $p = 0.35$, however, again, this result was not statistically different from zero (see Table 6).

Table 7: *Aim 2A Logistic Regression with co-variates and different bifurcation of helpfulness*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.64	0.24	1.64	0.35
Age	0.97	0.61	1.51	0.89
Gender: Female	3.12	0.77	21.16	0.16
White	ref	ref	ref	ref
Black	1.07	0.29	4.00	0.92
Hispanic	1.09	0.37	3.23	0.87
Other	0.39	0.01	11.05	0.53
Site Location	2.15	0.73	6.30	0.16
Not Court Ordered	0.75	0.19	2.48	0.66

Note. ref = reference; OR = Odds Ratio; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

Aim 2B Summary: Aim 2B revealed that there is no association between probation type and helpfulness. There was however a statistically significant difference between engagement in probation; youths in Philadelphia County, PA were more likely to rate probation as helpful than those in Maricopa County, AZ. Furthermore, a statistically significant sex difference was observed; females were more likely than males to rate probation as helpful. The sensitivity analysis ran in Aim 2B revealed that the bifurcation of helpfulness was biased. This was

concluded because the model was statistically significant and indicated that youths in community intensive probation perceived probation as more helpful than typical probation. Lastly, the sensitivity analysis revealed with a one unit increase in age, the likelihood of probation being helpful increased.

A logistic regression was performed to assess the association of probation type (typical or intensive) on the likelihood of probation being helpful. Results indicated, although not statistically significant, youths in intensive probation compared to those in typical therapy were 6% more likely to report that probation was as helpful, OR = 1.06, 95% CI(0.67, 1.64), $p = 0.81$.

This question was investigated again with the inclusion of the following covariates: mean centered age, gender, ethnicity, and the location of the participant. The results for this model are presented in Table 7. Results indicated that youths in typical probation versus those in intensive probation were 16% less likely to report that probation was helpful, OR = 1.16, 95% CI(0.73, 1.83), $p = 0.53$, however, this result was not statistically different from zero. Surprisingly, this model indicated that females versus males were 50% more likely to report that probation was helpful, OR = 1.50, 95% CI(1.00, 2.24), $p = 0.0477$. This finding was statistically different from zero. Furthermore, youths located in Philadelphia County versus Maricopa County were 33% more likely to report that probation was helpful, OR = 0.67, 95% CI(0.46, 0.96), $p = 0.03$.

Table 8: *Aim 2B Logistic Regression with co-variates*

Variable	OR	2.5% CI	97.5% CI	p
Probation Type	1.16	0.73	1.83	0.53
Age	0.90	0.79	1.03	0.14
Gender: Female	1.50	1.00	2.24	0.0477*
White	ref	ref	ref	ref
Black	1.02	0.66	1.55	0.93
Hispanic	1.37	0.93	2.01	0.11
Other	0.96	0.43	2.06	0.91
Site Location	0.67	0.46	0.96	0.03*

Note. ref = reference; OR = Odds Ratio; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia.

A sensitivity analysis was completed using a logistic regression to examine the same question but with a different cut off point for helpfulness. Similar to previous results assessing the association of therapy type (individual or group) on the likelihood of a participant rating therapy as helpful (Aim 2A), this model revealed that youths in typical probation versus those in intensive probation were 6.44 times less likely to report that probation was helpful, OR = 6.44, 95% CI(3.10, 15.67), $p < .01$, this association was highly significant (see Table 8). Furthermore, a one unit increase in age was associated with 15% less likelihood of rating the therapy as helpful, OR = 0.85, 95% CI(0.73, 0.97), $p = .02$.

Table 9: *Aim 2B Logistic Regression with co-variates and different bifurcation of helpfulness*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Probation Type	6.44	3.10	15.67	4.74e-06*
Age	0.85	0.73	0.97	0.02*
Gender: Female	1.33	0.86	2.08	0.20
White	ref	ref	ref	ref
Black	0.98	0.62	1.54	0.95
Hispanic	1.26	0.82	1.93	0.28
Other	0.76	0.33	1.75	0.51
Site Location	0.82	0.55	1.20	0.31

Note. ref = reference; OR = Odds Ratio; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia.

Aim 3A Summary: Aim 3A found that change in maturity did not predict engagement in therapy. In addition, the interaction of change in maturity and therapy type, did not predict engagement in therapy.

A multiple, ordinary least squares regression was used to investigate if the modality of therapy (individual or group) and/or the change in maturity from baseline to time 2 was associated with engagement in services. Although not statistically, significant, youths engaging in group therapy reported greater engagement than those in individual therapy, $b = 0.71$, 95% CI(0.43, 1.34), $p = 0.15$. Results for the change in maturity indicated, although not statistically, significant, those with an increase in maturity had an increase in engaging in therapy, $b = 0.73$, 95% CI(.41, 1.28), $p = .27$.

This question was further examined with the following covariates: mean centered age, gender, ethnicity, location of the participant, and if the participant was court ordered to complete therapy. Results of this model are presented in Table 9. Results from the ordinary least squares regression indicated that therapeutic environment was not associated with engagement in therapy, $b = .83$, $se = 1.28$, 95% CI(0.50, 1.34), $p = 0.44$.

Table 10: *Aim 3A OLS Regression with Effect of Maturity co-variates*

Variable	<i>b</i>	<i>SE</i>	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.83	1.28	0.50	1.34	0.44
Age	0.96	1.12	0.76	1.20	0.71
Gender: female	0.93	1.37	0.49	1.73	0.82
White	ref	ref	ref	ref	ref
Black	0.55	1.42	0.27	1.10	0.09
Hispanic	0.94	1.31	0.55	1.60	0.82
Other	3.73	2.40	0.65	21.14	0.14
Site Location	0.57	1.33	0.32	1.00	0.05
Not Court Ordered	1.02	1.35	0.56	1.84	0.95
Change in Maturity	0.92	1.35	0.50	1.34	0.78

Note. ref = reference; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy, and is engaged in individual therapy.

A multiple, ordinary least squares regression was used to investigate if the modality of therapy (group and individual), the change of maturity from baseline to time 2, and the interaction of these two variables was associated with engagement in therapeutic services. Results were similar to the previous aim, indicating that although not statistically significant, youths engaging in group therapy reported greater engagement than those in individual therapy, $b = 0.71$, 95% CI(0.43, 1.15), $p = 0.17$. Model results revealed that a one unit increase in a change of maturity was associated with an increase in engagement in therapy, however, these were not different than zero, $b = 0.75$, 95% CI(.37, 1.50), $p = .41$. The interactive effect of therapy type by change in maturity was not statistically significant, $b = 0.92$, 95% CI(0.26, 3.11), $p = 0.89$.

This question was further examined with the following covariates: mean centered age, gender, ethnicity, location of the participant, and if the participant was court ordered to complete therapy. Results of this model are presented in Table 10. Results from the ordinary least squares regression indicated that therapeutic environment was not associated with engagement in therapy, $b = .82$, $se = 1.28$, 95% CI(0.49, 1.34), $p = 0.43$.

Table 11: Aim 3A OLS Regression with Interaction of Maturity co-variates

Variable	<i>b</i>	<i>SE</i>	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.82	1.28	0.49	1.34	0.43
Age	0.95	1.12	0.76	1.20	0.70
Gender: female	0.93	1.37	0.49	1.74	0.82
White	ref	ref	ref	ref	ref
Black	0.55	1.42	0.27	1.11	0.10
Hispanic	0.93	1.31	0.54	1.60	0.81
Other	3.68	2.41	0.63	21.20	0.14
Site Location	0.57	1.33	0.32	1.01	0.06
Not Court Ordered	1.02	1.35	0.56	1.87	0.93
Change in Maturity	0.89	1.42	0.43	1.81	0.75
Therapy Type*Change Maturity	1.11	1.92	0.30	4.08	0.87

Note. ref = reference; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy, and is engaged in individual therapy.

Aim 3B Summary: Aim 3B found that change in maturity did not predict helpfulness of therapy, nor did the interaction between change in maturity and therapy type. The sensitivity analysis indicated the same results.

A logistic regression was performed to assess the association of therapy type (individual or group) and the change in maturity from baseline to time 2 on the likelihood of therapy being helpful. Results indicated that youths in group therapy versus those in individual therapy were 41% less likely to report that therapy was helpful, OR = 0.59, 95% CI(0.26, 1.32), $p = 0.20$, however, this result was not statistically different from zero. Results for the change in maturity indicated, those with an increase in maturity were 4% more likely to report therapy as helpful,

OR = 0.96, 95% CI(0.35, 2.58), $p = 0.94$, however, this result was not statistically different from zero.

This question was further investigated with the following covariates: mean centered age, gender, ethnicity, location of the participant, and if the participant was court ordered to complete therapy. The results for this model are presented in Table 11. Results indicated that youths in group therapy versus those in individual therapy were 42% less likely to report that therapy was helpful, OR = 0.58, 95% CI(0.24, 1.36), $p = 0.21$, however, this result was not statistically different from zero. Results revealed that a change in maturity was not associated with ratings of helpfulness, OR = 0.84, 95% CI(0.28, 2.39), $p = 0.74$, however, this result was not statistically different from zero.

Table 12: Aim 3B Logistic Regression with the effect of Maturity with co-variates

Variable	OR	2.5% CI	97.5% CI	p
Therapy Type	0.58	0.24	1.36	0.21
Age	0.89	0.59	1.33	0.58
Gender: female	1.54	0.49	5.43	0.47
White	ref	ref	ref	ref
Black	1.28	0.38	4.31	0.69
Hispanic	2.34	0.89	6.41	0.09
Other	--	--	--	--
Site Location	1.36	0.48	3.77	0.56
Not Court Ordered	0.46	0.13	1.37	0.18
Change in Maturity	0.84	0.28	2.39	0.74

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy. The dashes in this table represent that the model could not calculate values for due to the small sub-sample size in the "other" categorization. The decision to keep the "other" category was because this aim is to not investigate the difference between ethnicities.

A logistic regression was performed to assess the association of therapy type (individual or group), the change in maturity from baseline to time 2, and the interaction of these two variables on the likelihood of therapy being helpful. Results indicated that youths in group therapy versus those in individual therapy were 40% less likely to report that therapy was helpful, OR = 0.60, 95% CI(0.26, 1.32), $p = 0.22$, however, this result was not statistically different from zero. Results for the change in maturity indicated, although not statistically significant, those with an increase in maturity were no more likely to report therapy as helpful, OR = 1.00, 95% CI(0.28, 3.40), $p = 0.99$. Furthermore, the interactive effect of therapy type by change in maturity was not statistically significant, OR = 0.92, 95% CI(0.11, 7.26), $p = 0.93$.

This question was further investigated with the following covariates: mean centered age, gender, ethnicity, location of the participant, and if the participant was court ordered to complete therapy. The results for this model are presented in Table 12. Results indicated that youths in group therapy versus those in individual therapy were 42% less likely to report that therapy was helpful, OR = 0.58, 95% CI(0.24, 1.39), $p = 0.22$, however, this result was not statistically different from zero. Results for the change in maturity indicated, those with an increase in maturity were 15% more likely to report therapy as helpful, OR = 0.85, 95% CI(0.23, 3.03), $p = 0.80$, however, this result was not statistically different from zero. Lastly, the interactive effect of

therapy type by change in maturity was not statistically significant, OR = 0.94, 95% CI(0.09, 9.43), $p = 0.96$.

Table 13: *Aim 3B Logistic Regression with the interaction of Maturity with co-variates*

Variable	OR	2.5% CI	97.5% CI	p
Therapy Type	0.58	0.24	1.39	0.22
Age	0.90	0.59	1.33	0.59
Gender: female	1.54	0.49	5.42	0.48
White	ref	ref	ref	ref
Black	1.28	0.38	4.31	0.69
Hispanic	2.35	0.89	6.47	0.09
Other	--	--	--	--
Site Location	1.35	0.47	3.77	0.57
Not Court Ordered	0.46	0.13	1.38	0.18
Change in Maturity	0.85	0.23	3.03	0.80
Therapy Type*Change Maturity	0.94	0.09	9.43	0.96

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy. The dashes in this table represent that the model could not calculate values for due to the small sub-sample size in the “other” categorization. The decision to keep the “other” category was because this aim is to not investigate the difference between ethnicities.

Since the variable “helpfulness” was bifurcated, two more logistic regression were used to examine the same question but with a different cutoff point for helpfulness to assess whether my original cutoff point biased the estimates above. Results of the model that included the same co-variates and the change in maturity from baseline to time 2 (see Table 13), indicated that youths in group therapy versus those in individual therapy were 36% less likely to report that therapy was helpful, OR = 0.64, 95% CI(0.24, 1.66), $p = 0.36$, however, this result was not statistically different from zero. In addition, results for the change in maturity indicated, those with an increase in maturity were 64% more likely to report therapy as helpful, OR = 0.36, 95% CI(0.09, 1.18), $p = 0.10$, however, this result was not statistically different from zero.

Table 14: *Aim 3B Logistic Regression with Maturity and co-variates sensitivity analysis*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.64	0.24	1.66	0.36
Age	0.95	0.60	1.50	0.84
Gender: female	3.53	0.84	24.94	0.13
White	ref	ref	ref	ref
Black	1.17	0.31	4.50	0.81
Hispanic	1.21	0.40	3.65	0.73
Other	0.30	0.01	9.00	0.43
Site Location	2.46	0.83	7.39	0.10
Not Court Ordered	0.65	0.15	2.21	0.51
Change in Maturity	0.36	0.09	1.18	0.10

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

Results of the model that included the same co-variates and the change in maturity from baseline to Time 2, and the interaction term (see Table 14), indicated that youths in group therapy versus those in individual therapy were 33% less likely to report that therapy was helpful, OR = 0.67, 95% CI(0.24, 1.89), $p = 0.44$, however, this result was not statistically different from zero. In addition, results for the change in maturity indicated, those with an increase in maturity were 60% more likely to report therapy as helpful, OR = 0.40, 95% CI(0.08, 1.62), $p = 0.78$, however, this result was not statistically different from zero. Lastly, the interactive effect of therapy type by change in maturity was not statistically significant, OR = 0.67, 95% CI(0.03, 9.88), $p = 0.21$.

Table 15: *Aim 3B Logistic Regression with the interaction of Maturity with co-variates sensitivity analysis*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.67	0.24	1.89	0.44
Age	0.96	0.60	1.51	0.86
Gender: female	3.63	0.84	26.62	0.13
White	ref	ref	ref	ref
Black	1.18	.31	4.58	0.81
Hispanic	1.22	0.40	3.72	0.72
Other	0.32	.01	9.58	0.46
Site Location	2.41	0.80	7.31	0.11
Not Court Ordered	0.63	0.14	2.18	0.49
Change in Maturity	0.40	0.08	1.62	0.78
Therapy Type *Change Maturity	0.67	0.03	9.88	0.21

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

Aim 3C Summary: In Aim 3C, again results indicated change in maturity did not predict helpfulness of probation. In addition, the interaction between change in maturity and probation type did not predict helpfulness of probation. However, in the sensitivity model ran, change in

maturity did statistically significantly predict helpfulness of probation. This indicated a biased bifurcation of helpfulness.

A logistic regression was performed to assess the association of probation type (typical or intensive) and the change in maturity from baseline to time 2 on the likelihood of probation being helpful. Results indicated that youths in intensive probation versus those in typical therapy were 2% more likely to report that probation was helpful, $OR = .98$, 95% $CI(.66, 1.43)$, $p = 0.90$, however, this result was not statistically different from zero. Results for the change in maturity indicated, those with an increase in maturity were 4% more likely to report intensive probation as helpful, $OR = 1.04$, 95% $CI(0.77, 1.40)$, $p = 0.79$, however, this result was not statistically different from zero.

This question was further investigated with the following covariates: mean centered age, gender, ethnicity, location of the participant, and if the participant was court ordered to complete therapy. The results for this model are presented in Table 15. Results indicated that the model was not statistically different from zero, meaning that there is no association between probation type and perceived helpfulness, $OR = 1.00$, 95% $CI(.34, 2.90)$, $p = 1.00$. Results for the change in maturity indicated, those with an increase in maturity were 29% more likely to report intensive probation as helpful, $OR = 0.71$, 95% $CI(0.25, 1.89)$, $p = 0.50$, however, this result was not statistically different from zero.

Table 16: Aim 3C Logistic Regression with the effect of Maturity with co-variates

Variable	OR	2.5% CI	97.5% CI	p
Probation Type	1.00	0.34	2.90	1.00
Age	0.88	0.58	1.29	0.51
Gender: female	1.24	0.41	4.05	0.71
White	ref	ref	ref	ref
Black	1.36	0.42	4.45	0.61
Hispanic	2.24	0.89	5.78	0.09
Other	--	--	--	--
Site Location	1.23	0.42	3.56	0.71
Change in Maturity	0.71	0.25	1.89	0.50

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia. The dashes in this table represent that the model could not calculate values for due to the small sub-sample size in the "other" categorization. The decision to keep the "other" category was because this aim is to not investigate the difference between ethnicities.

A logistic regression was performed to assess the association of probation type (typical or intensive), the change in maturity from baseline to time 2, and the interaction of these two variables on the likelihood of probation being helpful. Results indicated that youths in intensive probation versus those in typical probation were 6% less likely to report that intensive probation was helpful, $OR = 1.06$, 95% $CI(0.70, 1.59)$, $p = 0.78$, however, this result was not statistically different from zero. Results for the change in maturity indicated, although not statistically significant, those with an increase in maturity were 14% more likely to report intensive probation as helpful, $OR = 1.14$, 95% $CI(0.82, 1.57)$, $p = 0.43$. Furthermore, the interactive effect of therapy type by change in maturity was not statistically significant, $OR = 0.56$, 95% $CI(0.23, 1.27)$, $p = 0.17$.

This question was further investigated with the following covariates: mean centered age, gender, ethnicity, and the location of the participant. The results for this model are presented in Table 16. Results indicated that youths on intensive probation versus those on typical probation were 54% more likely to report that probation was helpful, $OR = 0.46$, 95% $CI(0.16, 1.19)$, $p = 0.11$, however, this result was not statistically different from zero. Results for the change in maturity indicated, those with an increase in maturity were 33% more likely to report intensive probation as helpful, $OR = 0.67$, 95% $CI(0.18, 2.27)$, $p = 0.52$, however, this result was not statistically different from zero. Lastly, the interactive effect of therapy type by change in maturity was not statistically significant, $OR = 1.29$, 95% $CI(0.14, 11.12)$, $p = 0.82$.

Table 17: Aim 3C Logistic Regression with the interaction of Maturity with co-variates

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Probation Type	0.46	0.16	1.19	0.11
Age	0.81	0.53	1.21	0.32
Gender: female	1.23	0.38	4.24	0.73
White	ref	ref	ref	ref
Black	1.38	0.42	4.64	0.60
Hispanic	2.35	0.92	6.17	0.08
Other	--	--	--	--
Site Location	1.55	0.53	4.52	0.41
Change in Maturity	0.67	0.18	2.27	0.52
Probation Type*Change Maturity	1.29	0.14	11.12	0.82

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia. The dashes in this table represent that the model could not calculate values for due to the small sub-sample size in the “other” categorization. The decision to keep the “other” category was because this aim is to not investigate the difference between ethnicities.

Since the variable “helpfulness” was bifurcated, two more logistic regression were used as sensitivity analyses to examine the same question but with a different cutoff point for helpfulness to assess whether my original cutoff point biased the estimates above. Results of the model that included the same co-variates and the change in maturity from baseline to time 2 (see Table 17), indicated that youths in intensive probation versus those in typical probation were 31% more likely to report that probation was helpful, $OR = 1.31$, 95% $CI(0.38, 4.69)$, $p = 0.67$, however, this result was not statistically different from zero. In addition, results for the change in maturity indicated, those with an increase in maturity were 67% more likely to report probation as helpful, $OR = 0.33$, 95% $CI(0.09, 1.02)$, $p = 0.06$, however, this result was not statistically different from zero.

Table 18: *Aim 3C Logistic Regression with the effect of Maturity and co-variates sensitivity analysis*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Probation Type	1.31	0.38	4.69	0.67
Age	1.00	0.63	1.56	0.99
Gender: female	2.18	0.59	10.75	0.28
White	ref	ref	ref	ref
Black	1.33	0.36	4.99	0.67
Hispanic	1.40	0.48	4.10	0.53
Other	0.31	0.01	9.17	0.45
Site Location	2.00	0.63	6.48	0.24
Change in Maturity	0.33	0.09	1.02	0.06

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

Results of the model included the same co-variates and the change in maturity from baseline to time 2, and the interaction term (see Table 18). Results indicated that youths on intensive probation versus those on typical probation were 20% more likely to report that probation was helpful, OR = 0.80, 95% CI(0.22, 2.99), $p = 0.73$, however, this result was not statistically different from zero. In addition, results for the change in maturity indicated, those with an increase in maturity were 82% more likely to report probation as helpful, OR = 0.18, 95% CI(0.04, 0.67), $p = 0.02$. Lastly, the interactive effect of therapy type by change in maturity was not statistically significant, OR = 21.94, 95% CI(1.07, 712.23), $p = 0.06$.

Table 19: *Aim 3C Logistic Regression with the interaction of Maturity with co-variates sensitivity analysis*

Variable	OR	2.5% CI	97.5% CI	<i>p</i>
Probation Type	0.80	0.22	2.99	0.73
Age	1.02	0.65	1.60	0.92
Gender: female	2.27	0.59	11.78	0.27
White	ref	ref	ref	ref
Black	1.48	0.40	5.73	0.56
Hispanic	1.40	0.47	4.14	0.54
Other	0.51	0.01	14.78	0.66
Site Location	2.24	0.69	7.54	0.18
Change in Maturity	0.18	0.04	0.67	0.02*
Probation Type *Change Maturity	21.94	1.07	712.23	0.06

Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia.

Additional Exploratory Analyses

After the dissertation defense additional exploratory analyses were completed by request of the committee. Maturity at Baseline, Time 1 and Time 2 were added to the above models to see if there was an association with engagement in therapy, helpfulness of therapy, and

helpfulness of probation. Descriptions of the models findings are below. In addition, a correlation matrix of the PSMI and age at baseline, Time 1, and Time 2 was completed.

Models including Baseline PSMI

Results indicated no association between Baseline PSMI and engagement in therapy, $b = 1.38$, 95% CI(0.76, 2.52), $p = 0.28$. There was no association between Baseline PSMI and helpfulness of therapy, OR = 0.67, 95% CI(0.23, 1.87), $p = 0.45$. Lastly, there was no association between Baseline PSMI and helpfulness of probation, OR = 0.99, 95% CI(0.98, 0.35), $p = 0.35$.

Models including Time 1 PSMI

Time 1 PSMI was associated with engagement in therapy. A multiple, ordinary least squares regression was used to investigate if therapy type and maturity at Time 1 was associated with engagement in therapy. Results indicated Time 1 PSMI was associated with engagement in therapy, $b = 1.01$, $se = 1.00$, 95% CI(1.00, 1.01), $p = 0.03$, indicating that youths with higher maturity were more likely to engage in therapy than those with lower maturity.

This question was further examined by modeling the following covariates: mean centered age, gender, ethnicity, location of the participant, and whether the participant was court ordered to complete therapy. See Table 19 for model estimates. Results from the multiple ordinary least squares regression indicated that therapeutic environment was not associated with engagement in therapy, $b = .89$, $se = 1.27$, 95% CI(0.55, 1.42), $p = 0.62$. However, Time 1 PSMI was associated with engagement in therapy, $b = 1.01$, $se = 1.00$, 95% CI(1.00, 1.01), $p = 0.02$, indicating that youths with higher maturity were more likely to engage in therapy than those lower maturity. Site location was also significantly associated with engagement in therapy, $b = 0.55$, $se = 1.32$, 95% CI(.32, .96), $p = 0.04$, indicating that youths in Philadelphia County were more likely to engage in therapy than those in Maricopa County.

Table 20: OLS Regression for Time 1 PSMI with co-variates

Variable	<i>b</i>	<i>SE</i>	2.5% CI	97.5% CI	<i>p</i>
Therapy Type	0.89	1.27	0.55	1.43	0.62
Time 1 PSMI	1.01	1.00	1.00	1.01	0.02*
Age	0.92	1.12	0.74	1.15	0.47
Gender: female	0.83	1.36	0.45	1.53	0.55
White	ref	ref	ref	ref	ref
Black	0.66	1.42	0.33	1.32	0.24
Hispanic	1.00	1.30	0.59	1.68	0.99
Other	3.86	2.33	0.72	20.76	0.11
Site Location	0.55	1.32	0.32	0.96	0.04*
Not Court Ordered	0.91	1.34	0.51	1.63	0.74

Note. ref = reference; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

Results indicated Time 1 PSMI was not associated with helpfulness of therapy (OR = 0.99, 95% CI(0.99, 1.01), $p = 0.98$), or probation (OR = 1.00, 95% CI(0.99, 1.00), $p = 0.62$). In addition, the sensitivity analysis indicated no bias in the bifurcation of helpfulness in either model.

Models including Time 2 PSMI

Results indicated no association between Time 2 PSMI and engagement in therapy ($b = 0.98, se = 1.31, 95\% CI(0.57, 1.69), p = 0.93$) or helpfulness of therapy ($OR = 0.70, 95\% CI(0.27, 1.77), p = 0.46$) or helpfulness of probation ($OR = 1.00, 95\% CI(0.75, 1.34), p = 0.97$). However, the sensitivity analysis indicated bias in the bifurcation of helpfulness for models examining the association of Time 2 PSMI and helpfulness for therapy and probation.

The sensitivity analysis was completed using a logistic regression to examine the association between Time 2 PSMI and helpfulness of therapy and the following covariates: mean centered age, gender, ethnicity, location of the participant, and whether the participant was court ordered to complete therapy. Results indicated that more mature youths were 75% more likely to report that therapy was helpful, $OR = 0.25, 95\% CI(0.07, 0.08), p = 0.02$, this result was statistically different from zero (see Table 20).

Table 21: *Logistic Regression with co-variables and different bifurcation of helpfulness for Time 2 PSMI*

Variable	OR	2.5% CI	97.5% CI	p
Therapy Type	0.61	0.23	1.64	0.33
Time 2 PSMI	0.25	0.07	0.08	0.02*
Age	0.93	0.58	1.49	0.78
Gender: Female	3.66	0.86	25.74	0.12
White	ref	ref	ref	ref
Black	0.94	0.24	3.70	0.92
Hispanic	0.97	0.31	2.96	0.95
Other	0.40	0.01	11.57	0.55
Site Location	2.09	0.69	6.37	0.19
Not Court Ordered	0.59	0.14	2.08	0.44

Note. ref = reference; OR = Odds Ratio; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

As indicated above, the sensitivity analysis examining the association between Time 2 PSMI and helpfulness of probation indicated bias in the bifurcation of helpfulness. The model estimates can be found in Table 21. Results indicated that more mature youths were 73% more likely to report that therapy was helpful, $OR = 0.27, 95\% CI(0.09, 0.77), p = 0.02$, this result was statistically different from zero.

Table 22: *Logistic Regression with co-variables, sensitivity analysis for Time 2 PSMI*

Variable	OR	2.5% CI	97.5% CI	p
Probation Type	0.56	0.19	1.60	0.27
Time 2 PSMI	0.27	0.09	0.77	0.02*
Age	0.92	0.57	1.46	0.73
Gender: female	2.27	0.61	11.28	0.26
White	ref	ref	ref	ref
Black	1.12	0.30	4.38	0.87
Hispanic	1.22	0.42	3.64	0.71
Other	0.40	0.14	11.18	0.54

Site Location	2.18	0.70	6.84	0.18
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Note. ref = reference; OR = Odds Ratio; SE = standard error; CI = confidence interval; the reference category for all regression estimates is a non-Hispanic/Latinx, white male in Philadelphia, who was not court ordered to therapy.

Persons two-tailed correlation was used to examine the correlation between age and the PSMI at Baseline, Time 1 and Time 2. Results indicated several significant correlations (see Table 22). First, all the age variables were strongly positively correlated with one another. The PSMI variables were also strongly positively correlated. These findings are expected as the time between each time point is ~6 months. Interestingly, Time 1 PSMI age was strongly positively correlated with Baseline age, $r(1352) = .096, p < .001$ as was Time 1 age, $r(1263) = .096, p < .001$ and Time 2 age, $r(1260) = .095, p < .001$. All other correlations analyzed were not significant.

Table 23: Pearson Correlation of Age and PSMI

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Baseline Age	1354	16.54	1.10	1	.998**	.998**	.032	.096**	.034
2. Time 1 Age	1265	17.01	1.11	.998**	1	.997**	.030	.096**	.036
3. Time 2 Age	1262	17.54	1.11	.998*	.997**	1	.027	.095**	.032
4. Baseline PSMI	1346	3.02	.46	.032	.030	.027	1	.516**	.501**
5. Time 1 PSMI	1258	3.06	.47	.096**	.096**	.095**	.516**	1	.590**
6. Time 2 PSMI	1260	3.12	.47	.034	.036	.032	.501**	.590**	1

** Correlation is significant at the 0.01 level (2-tailed). PSMI = Psychosocial Maturity Inventory

Discussion

This study uses a high-risk juvenile justice-involved population to examine three unique aims. In Aim 1, the association between therapy type (individual or group) and engagement was assessed. In Aim 2A, the association between therapy type (individual or group) and perceived helpfulness was assessed. In Aim 2B, the association between probation type (typical and intensive) and perceived helpfulness was examined. Finally, in Aim 3, I assessed the effect maturity plays on the relationships in Aims 1, 2A and 2B. This study is the first to situate these variables in the context of the RNR Framework and highlighting maturity as a potential responsibility factor.

Association Between Therapy and Engagement

Results indicated there was no association between therapy type and engagement. While this finding was not statistically significant, youths engage more in group therapy (e.g.,

community-level groups) than individual therapy. Second, I found that youths in Philadelphia County engage more in therapy in comparison to Maricopa County. This result was statistically significant.

Understanding the association between therapy type and engagement has not been recently studied. The finding that youths engage in groups more often does not fit well with the literature. Previous scholars have found the opposite, adolescents often resist engaging in group therapy (Abraham et al., 1995; Carter et al., 2001). Contextual factors that may have contributed to more engagement in groups is access (monetary or physical access). Community-level groups such as AA or NA are free where typically, individual therapy has a monetary fee. Youths may have also lived closer to community groups and the groups may have taken place more often than individual therapy. While this finding is unique it should be interpreted with caution since it is not statistically significant.

The difference in engagement by location was unexpected. A full comparison of available mental health groups and individual therapy available for this population by state is lacking in the literature, but it could be inferred from the finding that opportunities to engage in therapy are lacking in Maricopa County compared to Philadelphia County. Other considerations could be how often parole officers were encouraging therapy to youths. It should be noted that differences by location have been found in this sample before (Pyrooz et al., 2017).

Association Between Therapy and Helpfulness

Results indicated that therapy type was not associated with perceived helpfulness. More specifically, although not statistically significant, group therapy was more helpful compared to individual therapy. This finding, despite also not being statistically significant, held true even after the sensitivity analysis was run with a different bifurcation of helpfulness.

While this question has not been previously investigated by the literature, given the previous finding from Aim 1, that youths attend group therapy more often, it is not surprising to find that youths are perceiving group therapy as more helpful. As the literature review argued, youths who engage more in a service are likely to find that service helpful. Taking these findings together, although neither was statistically significant, these results may indicate a youth is more likely to engage in, and find, group therapy more helpful than individual therapy. Previous work has found similar findings in adult populations (Smith et al., 2013).

Association Between Probation and Helpfulness

Results indicated there is no association between probation type and helpfulness. More specifically, results indicated that community intensive probation was perceived as more helpful than typical probation, although this difference was not statistically significant. Results indicated a statistically significant difference between engagement in probation from youths in Philadelphia County, PA and youths in Maricopa County, AZ; youths in Philadelphia County, PA are more likely to rate probation as helpful than those in Maricopa County, AZ. Furthermore, a statistically significant sex difference was observed; females were more likely than males to rate probation helpful. In trying to examine potentially bias in the bifurcation of helpfulness, a sensitivity analysis was used. This model revealed the same findings, youths in community intensive probation perceived probation more helpful than typical probation. However, this model (with a different bifurcation of helpfulness) was statistically significant. This significant finding indicates that the bifurcation of helpfulness is biased. Knowing this is important as these

results should be interpreted with caution. Lastly, the sensitivity analysis revealed with a one unit increase in age, the likelihood of probation being helpful increased.

Previous research has established that across the United States, variations of probation (community intensive and typical probation) are most commonly used for justice-involved juveniles (Hockenberry & Puzanchera, 2014). There is a rich history debating the effectiveness of probation in general (Trotter, 2013) and the various theories around why it may be effective. Scholar disagree whether community intensive probation is effective for youth who are deemed high risk to recidivate (Andrews & Dowden, 2006) or not (Smith et al., 2012). The finding from the current study indicates that intensive supervision is perceived as helpful by the youth. Previous research examining the effectiveness of probation typically examines re-offending or recidivism to the system and not perceived helpfulness. Given this, and the lack of significant findings in the current study, more research is needed to understand the complexities of perceived helpfulness for this population.

The results of this aim also highlighted differences by location and by sex. Again, more information on the differences of probation departments by jurisdictions would be useful to decipher these results. It could be that probation officers in Philadelphia County were more likely to engage with the youths, which in turn, created more contacts with the probation officer. It also may be that probation officers in Maricopa County have more youths they are monitoring creating less opportunity for a youth to engage more frequently. The sex differences observed for males and females is interesting, yet not surprising given that adolescent females are more likely to have higher mental health needs and spend less time on probation than males (Stevens et al., 2004). Outside of the juvenile justice probation literature, scholars have also noted differences in brain maturation by sex (De Bellis et al., 2001), which may contribute to perceived helpfulness as well. Additionally, previous studies have found sex differences in this population before (Monahan et al., 2014).

Maturity as a Moderator

After adding the change in maturity variable to the model in Aim 1, results indicated that change in maturity did not predict engagement in therapy. In addition, the interaction of change in maturity and therapy type, did not predict engagement in therapy. The change in maturity variable was added to the model from Aim 2A. The findings indicated change in maturity did not predict helpfulness of therapy, nor did the interaction between change in maturity and therapy type. Lastly, the model from Aim 2B was expanded to include the change of maturity as well. Again, results indicated change in maturity did not predict helpfulness of probation. In addition, the interaction between change in maturity and probation type did not predict helpfulness of probation. However, in the model with the biased bifurcation of helpfulness, change in maturity did statistically significantly predict helpfulness of probation.

In conclusion, all of the research questions in Aim 3 were not statistically significant, aside from the sensitivity analysis, which indicates bias in the measure of helpfulness. In this model, maturity did predict helpfulness of probation confirming the hypothesis that maturity matters in regard to perceived helpfulness of a service. However, due to this finding not being reliable with different bifurcation of helpfulness, more research is needed to confirm this. In addition, there are several limitations that may speak to the lack of significant findings. These limitations should be addressed before future work pursues examining maturity as a responsiveness factor.

Additional Analyses

The results from the additional analyses ran indicate baseline maturity is not associated with engagement in therapy, perceived helpfulness of therapy or probation. However, the maturity of a youth at Time 1 predicts the engagement of services recalled at Time 2. While the Time 2 maturity did not predict the perceived helpfulness of a service, the sensitivity analyses revealed a biased bifurcation of the helpfulness variable. The results of the correlation table indicated that all the age variables were correlated with one another. All the PSMI scores were correlated at all three time points as well. However, only Time 1 PSMI was correlated with baseline, Time 1 age and Time 2 age. These findings indicate that as a youth ages their maturity is not correlated with their age. This further supports scholars arguing that age is not synonymous with the maturity of a youth.

Impact of this Project

There are currently hundreds of interventions for the juvenile justice population. Yet there continues to be juveniles who re-enter the system, indicating a lack of rehabilitation from previously sanctioned interventions. While previous works have indicated that the maturity of justice involved youths may make them less culpable of crimes, scholars have also argued waiting until an adolescent is more maturity to punish them is unacceptable. The current study conceptualizes the role of maturity as a critical responsivity factor to interventions for justice-involved youth. Without appropriately understanding the maturity level of an adolescent in the system, the sanctioned interventions may not be engaged with, leading to poor treatment adherence and the intervention being ineffective. Tailoring interventions to the maturity level of the youth may be important for overall effectiveness of an intervention.

Limitations

This work is not without limitations. As mentioned previously, the outcome variable "helpfulness" was bifurcated from a 5-point Likert scale. In bifurcating this variable, it allowed for an odds ratio analysis, but results found the bifurcation to be biased. Future work must address this in either collecting helpfulness as a binary variable or by using different statistical tests. It would also help to expand helpfulness to a more nuanced understanding of what is helpful. This may be done by asking several questions about various aspects of helpfulness (i.e., skills learned, topics covered, homework assigned in therapy etc.) or by qualitative interviews.

In addition, this study conceptualizes engagement in therapy as the total count of session attended during the recall period. While Taxman (2014) purposed this as a way to measure engagement in the RNR Framework, engaging in therapy requires more than showing up. The youth's ability to actively participate in therapeutic sessions is not captured. In addition, due to a small sample of youths participating in both group and individual therapy, the current analysis allowed for only a comparison of either group or individual therapy. It would be beneficial to include those who engage in both group and individual therapy in the future as it is possible for youths to engage in both services throughout the recall period.

This study also aimed to compare group therapy to individual therapy. In the proposal of this study, group therapy included all groups ran by a mental health professional but because of the small sample size for those who engage in group therapy, this variable was changed to include group community services (such as AA meetings). This nuanced difference is important as this study cannot generalize to mental health groups ran by a professional. Lastly, because the sample

are youths who committed felonies, the generalizability of this study to less egregious offenses is unknown.

Future Directions

Future directions of this work may entail using a larger sample of those who are in therapy. The original sample of this data set included 1,354 juveniles but only 107 of them were engaged in therapy at the second time point and subsequently used in the study. While this is a limitation to the current study, future works should use a larger sample of justice-involved youths engaged in therapy. There may be benefits to limiting the sample to a single sex and a single location as differences from the current study were observed. Furthermore, future work may attempt to better utilize the longitudinal dataset given that the Pathways to Desistance dataset includes ten time points. Using a longitudinal analysis of these variables may highlight the effect of the change in maturity throughout a greater time period.

In addition, in the current study only used the total maturity score but the Psychosocial Maturity Inventory includes 3-sub scales (self-reliance, identity, and work orientation). Using a more nuanced subscale, such as self-reliance, may be more directly related to the maturity needed to engage in services. Other scholars in the juvenile justice field have utilized a Maturity of Judgment (MOJ) variable rather than the Psychosocial Maturity Inventory because MOJ is a more dynamic measure. It includes composite scores of the Psychosocial Maturity Inventory, Future Outlook Inventory, Weinberger Adjustment Inventory and Resistance to Peer Influence scale (Steinberg, 2010). Computing MOJ from the dataset and examining the function of MOJ over time may be beneficial for the current aims.

Finally, in order for maturity to be included as a responsivity factor in the RNR Framework, maturity must directly relate to the youth's ability to learn from an intervention. While measuring engagement in therapy may be related to the youth's ability to learn from an intervention, future work may more directly study this relationship. Examples of this work may be mix-method studies examining the youth's understanding of services, what knowledge was gained from these services, and how the youth is applying (or not applying) such services into their lives.

Conclusion

Deciding how helpful services are and making the active choice to engage in services is inherently a decision-making process. While previous works have used maturity to demonstrate poor decision-making skills (i.e., engaging in drug use), this paper argues that maturity can be used to help tailor interventions. The findings from this study begins to untangle the associations between helpfulness, engagement and the role maturity plays. Understanding the ways in which maturity is measures is important for future work to contextualize maturity and ultimately use it as a way to optimize interventions. If interventions are optimized to the responsivity factor, maturity, there will be more engagement and more success of evidence-based interventions for this population.

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