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# Process Evaluations of Positive Youth Development Programmes for Disadvantaged Young People: A Systematic Review

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## Abstract

*This systematic review identified 10 process evaluation studies of positive youth development (PYD) programmes for disadvantaged young people, and aimed to assess the quality of reporting, methods used, and barriers and enablers to delivering programmes as intended. Four databases were searched: Web of Science, Psych INFO, Scopus, and Embase. Results indicated the methods used and quality of the process evaluations were highly varied. Numerous barriers (sessions feeling too much like school, lack of behaviour management skills, lack of funding, and logistical challenges) and enablers (collaboration with the local community, meeting young people's needs, and communication) to delivering programmes as intended were identified. There is a clear need for improvement in design and reporting of process evaluations (e.g., more mixed method design of process evaluations, information on staff training, authors' philosophical standpoint) in studies of PYD programmes for disadvantaged young people alongside a greater awareness of barriers and enablers to programme delivery. Doing so will enable programme outcomes to be appropriately attributed to what is actually delivered and generate more holistic understanding of the extent and reasons that programmes are delivered as intended. This will support more effective programme design, implementation, and sustainability of future PYD programmes for disadvantaged young people.*

Key words: adherence, at-risk youth, community, complex settings



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## Introduction

Over the past 10 years there has been an increase in the number of disadvantaged young people, coinciding with a growing gap in income and opportunity between the least and most disadvantaged. In 2015, it was estimated that 2.7 million young people (aged 14 to 24 years) were living in poverty in the United Kingdom (UK) (Born & Aldridge, 2015). Furthermore, those aged 18 to 24 are twice as likely to be out of education and employment compared to their more advantaged peers (Gadsby, 2019). Positive youth development (PYD) programmes are strengths-based and support young people to achieve positive development through life skills (Lerner et al., 2009). Although not the main focus, PYD programmes have the potential to foster positive outcomes for disadvantaged youth where risks and negative outcomes were a likely alternative (Bonell et al., 2016; Gavin et al., 2010). Examples of negative outcomes and risks include low educational attainment, homelessness, increased involvement in violence, drugs, and alcohol, poor physical and mental health, and a lack of key life skills. Ensuring such programmes are well designed, implemented, and evaluated is essential to meeting the needs of disadvantaged young people. Although conducting outcome evaluations is common, the use of process evaluations is still insufficient in number and quality (Iachini et al., 2014). These evaluations are vital to facilitate best quality provision of PYD programmes to support disadvantaged young people.

PYD does not happen automatically; it is an intentional process that promotes development of essential life skills and protective factors (Pierce, 2017; Shek et al., 2019). Life skills can be behavioural (e.g., being assertive), cognitive (e.g., effective decision making), interpersonal (e.g., communication with others), and intrapersonal (e.g., setting personal goals) (Danish et al., 2004; Gould & Carson, 2008; Parry et al., 2021). Development of such skills can result in a healthier and more productive adolescence and adulthood. PYD acknowledges that young people are active agents in their development and that all young people have the capacity for growth. Such opportunities are crucial for disadvantaged young people, many of whom experience a lack of agency and positive relationships with peers and adults, are exposed to engaging in high-risk activities (drugs, alcohol), and are negatively stereotyped within the community (Cronley & Evans, 2017; Mihalic et al., 2008).

Process evaluations determine whether programmes have been delivered as intended and provide important insight into why an intervention fails or has unexpected consequences, or why it is successful and how it can be optimised (Craig et al., 2008; Moore et al., 2015; Skivington et al., 2021). Process evaluations can incorporate adherence to programme content,

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adherence to delivery style, participant engagement, recruitment, and staff training. Even where PYD programs are based on more pragmatic principles that are not necessarily concerned with adherence or fidelity, ignoring these aspects of programme implementation may be problematic. For example, understanding the processes of programme implementation is still needed even in programmes that don't mirror the dominant evidence-based notions of programme design, implementation, and evaluation. Understanding how programmes are implemented can prevent the uptake of unsuccessful programmes and contribute to closing the research-to-practice gap. Developing a deeper understanding of these aspects of PYD programmes is imperative to enable progression in policy development, programme design and provision, as well as research to better meet the practical, emotional, and developmental needs of disadvantaged young people. Process evaluations can take form through overarching models such as the Kirkpatrick model (Kirkpatrick, 2006) or a theoretical framework such as realist evaluation (Kazi, 2003). Different models will suit different types of programmes depending on the aim, theories, and context of the programme being evaluated. Moreover, variety of data collection methods can also be used either in isolation or combined, including questionnaires; self-report tools; observation (face-to-face, audio and videorecording); interviews (face-to-face, phone, videocall); and focus groups (Borrelli, 2011; Moore et al., 2015).

Despite the valuable and necessary contribution of process evaluations, their use within PYD programmes for disadvantaged young people is rare. As these programmes are often complex to implement, the added workload alongside conducting a rigorous process evaluation may be unmanageable. Process evaluations can be seen as costly and time-consuming. However, foregoing process evaluations may prove more costly in the long term due to risk of the programme being classified as effective, when what is actually delivered in the real world differs from reported programme design (Borrelli, 2011; Moore et al., 2015; Tidmarsh et al., in press). This could lead to services using programmes which are not effective at improving outcomes. Furthermore, foregoing process evaluations means that essential information around barriers and enablers to implementation from a variety of perspectives remains unknown, causing the research-to-practice gap to further increase.

***Study Aims***

This systematic review is the first to examine process evaluations of complex PYD programmes delivered to disadvantaged young people. It is vital to understand the processes underlying the results of these programmes to enable best practice within programme design and implementation. In particular, the barriers and enablers to delivering programmes as designed

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are important to understand what works and what does not in the real world. Furthermore, understanding how current process evaluations have been conducted will help improve design, uptake, and quality of future process evaluations. High-quality reporting creates greater understanding around methods used within programme evaluations and enables more informed decisions around programme effectiveness and policy development surrounding provision for disadvantaged young people. This study therefore set out to systematically review process evaluations of PYD programmes for disadvantaged young people with three main aims:

1. To explore barriers and facilitators to delivering PYD programmes as designed in complex community settings.
2. To evaluate process evaluation methods used.
3. To critically evaluate the quality of reporting within the process evaluations.

### **Methods**

This systematic review was carried out following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). A PICO-D (population, intervention, comparison, outcome, design) statement was defined at the outset. Design was included as part of the PICO statement to identify the variety of studies published in this emerging field of process evaluations of PYD programmes for disadvantaged young people. This approach has been used successfully in other fields such as public health (Chegini et al., 2019; Cuthbert et al., 2019; Scott et al., 2014).

### **Eligibility Criteria**

For inclusion in this review, studies fulfilled the following PICO-D statement:

#### *Population*

Disadvantaged/at risk young people aged 10 to 24 years. In this paper disadvantaged young people included those who experience substance/alcohol misuse, homelessness, emotional health concerns, teenage parenthood, low educational attainment (less than 5) General Certificate of Secondary Education (GCSEs) grade A-C/9-4 students sitting GCSE level exams, which would be aged 15 to 16 years and comparable to those in high school in the United States); those who are not in education, employment, or training (NEET); those involved in crime and those from low socio-economic backgrounds; care leavers; and young carers (Atfield & Green, 2019; Barnes et al., 2011).

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### *Intervention*

Process evaluations of PYD interventions for disadvantaged young people. Process evaluations were described as a study which aims to understand the functioning of an intervention, by examining implementation, mechanisms of impact, and contextual factors (Moore et al., 2015). Studies being evaluated were complex interventions which, in this case, are interventions that comprise multiple interacting components where additional dimensions of complexity could include the difficulty of their implementation and the number of organisational levels they target (Moore et al., 2015). PYD interventions were those that engage young people within their communities, schools, organisations, peer groups, and families in a productive and constructive way; recognise, use, and enhance young people's strengths; and promote positive outcomes for young people by providing opportunities, fostering positive relationships, improving leadership skills, and encouraging less engagement in risky behaviours (Damon, 2004; IWGY, 2016; Lerner et al., 2005; Lerner et al., 2016).

### *Comparison*

Based on other systematic reviews of process evaluations, this aspect is not applicable to the current review as no comparison or control groups are being compared (e.g., of a type of exercise, activity, or treatment; Liu et al., 2016).

### *Outcome*

1. Barriers and enablers to implementation
2. Process evaluation methods used, and the process evaluation areas targeted
3. Strengths and limitations of process evaluation methodology

### *Design*

Process evaluations of interest included quantitative, qualitative, or mixed methods approaches. Study designs included were randomised control trials (RCTs), non-randomised interventions, cross-sectional studies, longitudinal/cohort designs, and case studies.

Exclusion criteria included

- Article types: non-peer reviewed articles and grey literature sources. Articles published in non-English languages.
- Study type: Any study that did not describe or include findings from a process evaluation of a PYD programme.

### ***Search Strategy and Article Screening***

Web of Science, Psych INFO, Scopus, and Embase databases were searched in January 2022. A total of 68 records were identified (after eliminating duplicates), without a date range restriction. From that total, 42 abstracts and 16 full text articles were excluded based on the exclusion criteria (see Figure 1). Based on the PICO-D, the following search criteria were developed with the assistance of a research librarian: ("Process evaluation") AND "positive youth development" AND disadvantaged OR homeless\* OR vulnerable OR "low socio-economic" OR "at-risk" AND "youth" OR "young people" OR "emerging adults" AND intervention\* OR program\*.

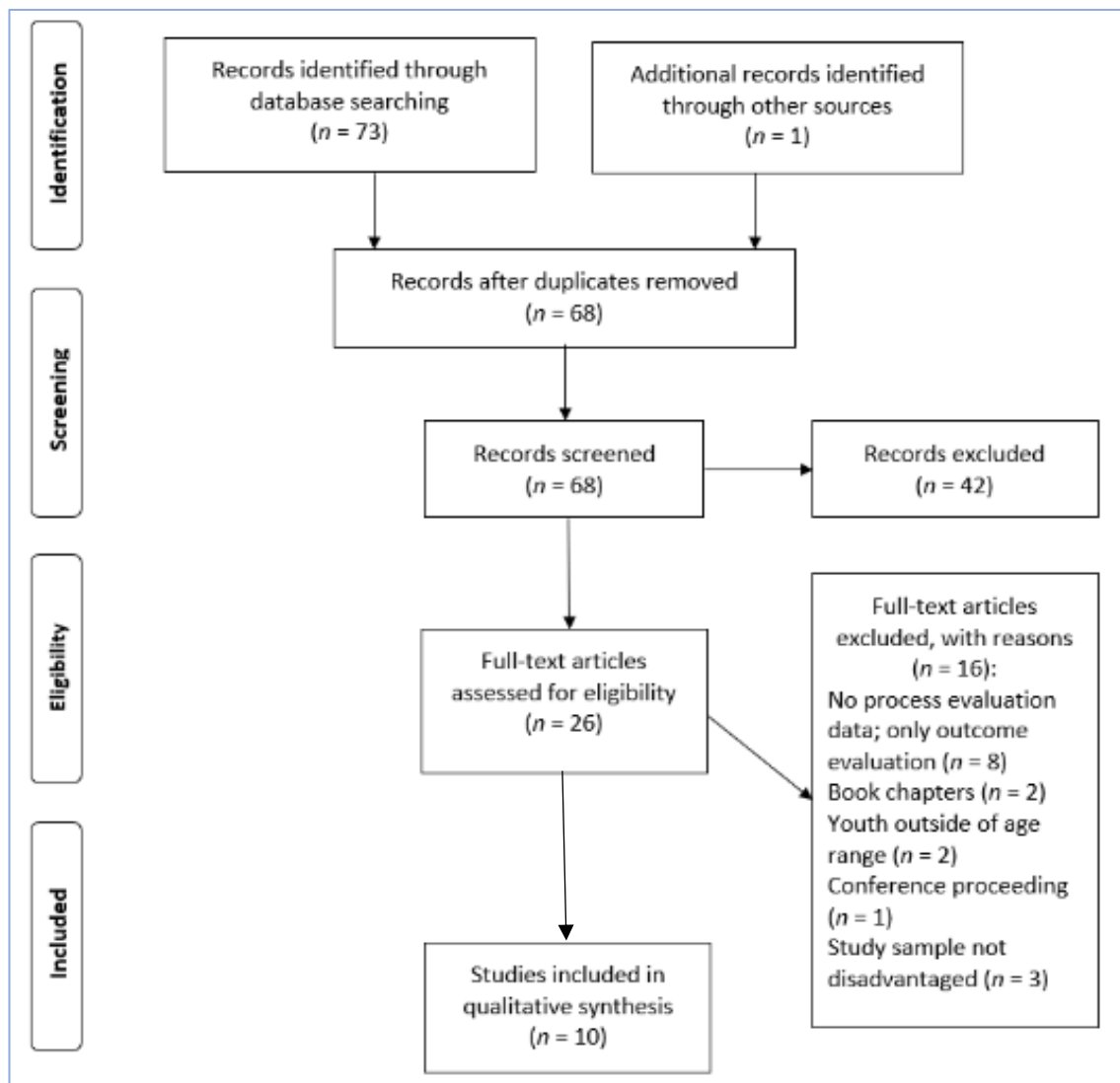
A two-step process was used for study screening. Titles and abstracts were screened by the first and second authors against the PICO-D statement (Scott et al., 2014) and exclusion criteria. Each article was classified as "include," "exclude," or "unclear." Any disagreements between the two authors were discussed to reach a consensus.

### ***Data Extraction and Quality Assessment***

The first author extracted data from all included studies. The fourth author independently extracted data from 50% of the included studies. Any discrepancies were discussed with the second author. All included studies were quality assessed by the lead author. Due to the range of study designs employed in the included studies, four quality assessment tools were used: JBI quality assessment for qualitative studies (Lockwood et al., 2015), JBI quality assessment for analytical cross-sectional studies (Moola et al., 2020), JBI quality assessment for randomised control trials (Tufanaru et al., 2020), and the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018).

## **Results**

In total, 74 papers were identified from searching and reference checking of included papers (see Figure 1). Following abstract screening, 42 papers were excluded. Full texts were assessed for the remaining 26 papers. Following exclusion of those that did not meet inclusion criteria, 10 studies were included (see Appendix A).

**Figure 1. Process for Identifying, Screening, and Selecting Articles for Inclusion in This Study****Overview of Included Studies**

Detailed information on each included study is reported in Appendix A. Designs employed were quantitative ( $n = 5$ ); qualitative ( $n = 4$ ); mixed methods ( $n = 1$ ). Participant details were provided in full for six out of the 10 process evaluations. Participants included young people receiving the programme, programme delivery staff, and administrative support staff. Studies represent a range of geographical locations from Ireland, Canada, and the United States, and participants encompass a range of nationalities and ethnicities including American, African American, White, Irish, and Native American. All but one study (Kuosmanen et al., 2017) assessed PYD programmes delivered in face-to-face settings.

Evaluations varied in their number and scope of aims. All studies reported barriers and enablers to programme delivery, and seven stated this as an aim of the evaluation. Two studies explicitly stated evaluating fidelity (or adherence) of delivery style and content. Three studies reported results on dose, five on engagement of participants, and two on gaps in service provision for disadvantaged young people.

Evaluation data were collected using a variety of methods across studies including registers ( $n = 1$ ), field notes ( $n = 2$ ), meeting notes ( $n = 2$ ), face-to-face interviews ( $n = 4$ ), focus groups ( $n = 3$ ), observations ( $n = 2$ ), questionnaires ( $n = 4$ ), self-reflective session logs ( $n = 1$ ) and feedback forms ( $n = 1$ ). Of the evaluations that used questionnaires as a data collection method, two reported administering them online, one used paper versions, and one was not specified. Of the studies that used questionnaires, feedback forms, observations, and self-reflection forms, four used tools developed by the research team, one adapted standardised tools, one used a standardised tool, and one did not report sufficient details about the tool used.

### ***Quality Assessment of Included Studies***

The full list of quality assessment questions is provided in Appendix B. Results of the quality assessments are reported in Table B1. Overall, most qualitative papers did not include a description of underlying philosophy (Q6), or how the researcher is located within the research (Q7). Furthermore, no descriptions of methods used to analyse qualitative data were provided, making it difficult to determine which results were driven by data (Q8-Q10). Quantitative studies utilised rating tools or scales to monitor processes within delivery. However, no further description of scale style or measures were provided, and as such were scored as “no” or “unclear” (Q5-Q7). There were no studies which had “yes” outcomes for all measures.

### ***Enablers and Barriers to Delivering Programmes With Fidelity***

Upon completion of the narrative analysis of results and discussion sections of included studies, themes were developed regarding barriers and enablers to delivering programmes as intended for disadvantaged young people (see Table 1). Barriers included sessions feeling too much like school, difficulties related to meeting high-level support needs and behaviour management, lack of funding, logistical challenges, variance in quality of staff, and lack of clarity and communication. Enablers included continuous communication and collaboration in the community, meeting young people’s needs, and communication within the programme delivery team.

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**Table 1. Themes Across Barriers and Enablers to Delivering PYD Programmes in Complex Community Settings**

Barriers		
Theme	Description	Examples
No more school please!	Across most studies a common barrier discussed was that there was lack of appeal to engage when sessions felt like a school lesson and were not interactive, hands-on, or perceived as fun.	<ul style="list-style-type: none"> <li>• Not enough hands-on activities and activities needed to be more fun and interactive.</li> <li>• Lesson content was not interactive enough and felt too much like school.</li> <li>• Lack of appeal for completing post-ride-written reflections.</li> </ul>
Challenges of meeting high-level support needs and behaviour management.	Working to deliver engaging and beneficial PYD programmes was challenging due to the complex nature, variety of, and high level of need support required in each programme for participants. These included mental, physical, social, and educational needs. This was a challenge not only in terms of the programme delivery itself but in terms of working alongside youth to evaluate the programmes. In addition, several papers mentioned disruptive and hyperactive behaviour from participants as influencing programme implementation.	<ul style="list-style-type: none"> <li>• Poor literacy skills prevented completion of many self-report questionnaires used to evaluate programme outcomes</li> <li>• Demands of youth core researchers' personal life were challenging for senior researchers to meet (e.g., childhood trauma, mental/physical health issues, parenting responsibilities and unhealthy relationships).</li> <li>• "Heavy focus on crises management and less attention on the higher order aspects of the YPQA model."</li> </ul>
Lack of funding	A lack of funding was challenging in terms of starting up community programmes and their sustainability once academic institutions handed over full responsibility to the community or delivery partner. Furthermore, having insufficient funding to support the more complex needs of the young people meant that the budgets of programmes were affected as well as the ability to deliver all aspects of a programme or development opportunities.	<ul style="list-style-type: none"> <li>• Programme start-up costs and costs per rider were expensive.</li> <li>• Addressing youth needs reduced the fidelity in sticking to programme content but increased participant engagement.</li> </ul>
Logistical challenges	A small number of papers noted challenges around transport needs and multi-site delivery as well as space available in community settings to deliver in-person sessions.	<ul style="list-style-type: none"> <li>• Extensive transport needs and logistical challenges meant that lessons often started late resulting in a lack of time to cover content and build relationships.</li> </ul>
Fluctuation in quality level of staff delivering programmes.	Challenges around staff competence in terms of experience and knowledge of programme content as well as ability of community settings to retain staff who are involved in the programmes or support services. This affected fidelity of delivery of programmes.	<ul style="list-style-type: none"> <li>• Poor timekeeping from staff affected fidelity (e.g., inaccurate estimates of how long activities would take).</li> <li>• Experience level of facilitator (e.g., lack of content knowledge).</li> </ul>
Lack of clarity and communication	Several studies reported that poor communication (verbal and written) resulted in challenges in delivering programmes as intended due to lack clarity around individual roles and articulating organisational practices.	<ul style="list-style-type: none"> <li>• Lack of clarity in the roles, led to inconsistent approaches and lack of holistic responsibility.</li> <li>• Lack of clear communication between program and partner agencies meant it was unclear who staff were targeting to receive help and what other staff were doing.</li> </ul>

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**Table 1. (continued)**

Enablers		
Theme	Description	Examples
At the heart of the community.	Ensuring continuous collaboration and engagement with the variety of individuals and groups that make up the local community where programmes are delivered was essential to enable programmes to be culturally relevant in terms of their content, delivery style, and location and that programmes had beneficial outcomes for the community. Where there was a lack of parental support or links to the community's culture, this created challenges for delivery.	<ul style="list-style-type: none"> <li>• Youth engaged because they liked working to improve their community.</li> <li>• Working with the Apache community to co-create the programme helped to understand community culture and youth needs.</li> <li>• Community support helped through volunteers, donations of equipment, and access to community club space for the programme to take place.</li> <li>• Flexible response to local realities in terms of program modification.</li> </ul>
Understanding and meeting youth needs.	Having a positive, youth-centred approach created, culturally relevant, supportive, rewarding programmes that faced fewer barriers in terms of youth engagement than those perceived as "school like." Furthermore, being able to recruit younger participants enabled earlier intervention and continued support for a longer duration in community-based programmes and increased youth engagement.	<ul style="list-style-type: none"> <li>• Provision of youth counsellor for youth core researchers.</li> <li>• Participants preferred sessions that were fun, active, and provided time for discussion.</li> <li>• Computer-based gaming helped overcome literacy difficulties.</li> <li>• Holding a free personalised awards party for participants with a free meal helped with engagement and provided recognition for their engagement in the programme.</li> </ul>
Communication within program delivery team	The experience, knowledge, support and communication among university researchers, programme facilitators, and participants was a key ingredient in supporting programme delivery and youth engagement.	<ul style="list-style-type: none"> <li>• Team-building activities, regular meetings, and a supportive and caring environment between youth core researchers and academics.</li> <li>• The youth-centred philosophy was understood by staff and clients.</li> </ul>

## Discussion

This systematic review aimed to synthesise process evaluations of PYD programmes for disadvantaged young people by analysing barriers and facilitators to delivering PYD programmes as designed in complex community settings, evaluating process evaluation methods used, and critically evaluating the quality of reporting. Results show that there is a scarcity of published process evaluations of PYD programmes for disadvantaged young people (12 to 24 years), and those conducted varied in quality. The 10 studies included in the review used a variety of methods to assess numerous aspects of programme delivery, including barriers and enablers to delivering PYD programmes as intended in complex community settings.

### *Methods Used to Assess Programme Implementation*

The variety of methods used (including observations, questionnaires, and interviews) demonstrated that it is possible to capture implementation data in numerous ways regarding the extent to which programmes are delivered as intended (e.g., reporting staff training, staff demographic information, observation scores, delivery team reflections). Despite this potential, and some studies using a combination of tools within their quantitative or qualitative design, only one study (Zimmerman et al., 2011) used a mixed methods approach. Employing a mixed methodology research design can increase the scope or breadth of a process evaluation and can counter the limitations of qualitative or quantitative work done in isolation (Creswell et al., 2006; Rossman & Wilson, 1985). The very nature of a process evaluation is to understand the reality of mechanisms of programme implementation as compared to how it was designed. It is important to collect a variety of data using methods most suitable for the setting to ensure holistic, in-depth understanding of the extent to which such programmes are delivered with fidelity to design. This understanding can support applied researchers to develop programmes or interventions that are culturally relevant, meet the needs of participants, and feasible for delivery in complex settings, as well as services to develop their own programmes to provide relevant and effective support (Brunton et al., 2017; Krabbenborg et al., 2013).

Of the five studies using questionnaires and self-reflection forms, all these tools were developed or adapted by the programme researchers (Kenyon et al., 2019; Tingey et al., 2016). This meant that studies scored “no” on the quality assessment tools for using verified tools, suggesting an aspect of low quality in these studies. Using validated tools (e.g., questionnaires, observation, or self-reflection forms) is recognised as the gold standard. Using tools that have not been validated in the population of interest may be subject to measurement error, and any

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conclusions drawn cannot be made with confidence (Dowrick et al., 2015). Many tools do not offer sufficient flexibility within their assessment criteria, which is a key ingredient of many programmes delivered for disadvantaged young people in complex community settings (Rangiwhetu et al., 2020). Flexibility and rigour are, however, not incompatible. In many PYD programmes for disadvantaged young people, flexibility and rigour are synonymous with enabling programmes to support young people to achieve positive outcomes (Tidmarsh et al., in press; Wiltshire, 2018). It is vital that tools and methods used are reflective of the complex and dynamic environments in which these programmes are delivered and that quality assessment tools incorporate this moving forward. It is also recommended that researchers seek to provide validity and reliability evidence of the tools developed within these settings to increase the number of validated tools that are available for use across complex community settings supporting the field to move forward in producing and conducting high quality, and high impact research.

***Barriers and Enablers to Delivering Programmes as Intended***

Barriers to delivering PYD programmes for disadvantaged young people included programmes being too much like school, challenges of meeting the high level of support needed, behaviour management, lack of funding, logistical challenges, fluctuation in experience/quality of staff delivering training, and lack of clear communication. Across these barriers there was a common theme regarding staff experience and skill level, where staff struggled to manage challenging and disruptive participant behaviour (Kenyon et al., 2019), had poor time keeping, or a lack of knowledge surrounding programme content (Kenyon et al., 2019; Tingey et al., 2016). These types of barriers were common across all studies which evaluated programmes delivered in person ( $n = 9$ ).

Within educational settings, the effects of disruptive behaviour are well documented and include limiting time for activity instruction, fostering an environment not conducive to learning, and contributing to negative interactions between peers and facilitators (Pas et al., 2015). Being able to minimise disruptive behaviour from participants within programme delivery settings through behaviour management techniques is essential to support programmes to be delivered with adherence to design. Managing behaviour effectively can reduce the negative impacts of disruptive behaviour by still allowing sufficient time to explain activities and development of positive relationships between participants and programme delivery staff. Development of positive relationships is an important part of creating a sense of connection (one of the components of the Five Cs model of PYD) which in turn promotes thriving in young people

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(Bowers et al., 2014; Li & Julian, 2012). Ensuring staff receive adequate and effective training on behaviour management techniques as well as programme content is vital and can improve the ability of programme delivery staff to meet the complex needs of participants. In a study of learning support assistants (LSAs) ( $n = 154$ ) in Northern Ireland, 84% of participants reported that behaviour management was a major challenge in the classroom that negatively impacted students learning and was highlighted as a key area for continued professional development to enable LSAs to meet students' complex needs (McConkey & Abbott, 2011). Understanding staff training in more detail (e.g., content covered, duration of training, type of training delivered, method of testing understanding) through reporting of participant information as well as evaluating staff training itself is essential to addressing barriers around behaviour management, knowledge of programme content, and the ability of delivery staff to meet the complex needs of individuals.

Several studies (Collins et al., 2013; Kenyon et al., 2019; Tingey et al., 2016; Zimmerman et al., 2011) reported that good communication, relationships, and respect for local communities supported the delivery of programmes as intended, as well as increasing engagement from participants and sustainability of the programmes. Community engagement in research has been established as essential to offer a platform for expression and autonomy to disempowered groups through addressing socially situated problems and to develop, enhance and maintain relationships between researchers, communities, and key stakeholders (Brunton et al., 2017; Johnston & Lane, 2019). Additionally, cultivating these relationships within the local community and engaging in co-design of such programmes has the potential to ensure programmes are more culturally relevant and better suited to participant needs (Bonevski et al., 2014; Cyril et al., 2015). This tailoring is important, as sessions that are perceived as meaningful by young people can improve engagement and decrease disruptive behaviour, resulting in higher adherence to programme design. Studies including Goldberg (1979), highlight the importance of the community supporting delivery of such programmes, especially in complex settings, such as where political, social, and economic challenges require navigation by delivery staff and at the higher levels of organisation. Several included studies reported that where effective community engagement/support did not occur, there was a high turnover of staff, and lack of understanding of cultural nuances of these complex settings and delivering the programme as intended was not possible.

***Implications for Applied Research***

It is evident that there are numerous challenges to understand and overcome when delivering PYD programmes to disadvantaged young people in complex community settings. It is not always essential that programmes are delivered with high fidelity, but it is vital to know when this is (or is not) the case so that we can enhance our understanding of effective programme delivery in these settings and correctly attribute outcomes achieved. This notion is crucial in complex community settings to inform decision making about discontinuing unsuccessful programmes and allocating services' funds to the more successful programmes. Given the large body of PYD work that exists it is surprising that so few process evaluations of programmes have so far been undertaken. More process evaluations are required to increase knowledge and understanding of delivering PYD programmes for disadvantaged young people in complex community settings. Therefore, we recommend the following key considerations based on this systematic review for process evaluations in applied research settings:

1. Conducting more research is important, but it is vital that this research is rigorous in quality. To improve the quality of process evaluations, demographic information (e.g., age, ethnicity, qualification type and subject, sex, gender) of programme and evaluation participants should be provided. This is essential to provide further context for the study results, especially for complex and diverse settings. For example, Quinton et al. (2021) examined baseline characteristics of youth experiencing homelessness who participated in a mental skills training programme. Results show that benefits of the programme were achieved regardless of the demographic diversity of participants involved. Despite differences at baseline, benefits from the programme were similar across participants, enabling some young people to catch up in terms of well-being benefits. Further context can enable greater understanding of the results within the complex communities in which they are situated, developing much needed knowledge of what works for whom.
2. Evaluators should state their ontological and epistemological positioning with regards to the research and how this influences design, data collection, analysis, results, and discussion. This information is important, as there are a variety of philosophical standpoints with different assumptions on reality and the creation of knowledge. These assumptions underpin a researcher's approach to the project through informing research design, research questions, and data analyses and interpretation. Reporting of researcher positionality also supports more contextual understanding of trustworthiness, credibility, and validity of the research (Bahari, 2010; Tuli, 2010).
3. Process evaluations must be considered from the outset of programme design to enable an evaluation reflective of the entire programme, but also a greater choice in methods.

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This is important to enable programme delivery data to be collected from the beginning as well as to document changes over time (Weiss & Westerhof, 2020; Wenz-Gross & Upshur, 2012). We recommend that future process evaluations in applied settings use a mixed methods design where appropriate, enabling a more comprehensive evaluation of programme implementation. Mixed methodology can counter the limitations of qualitative or quantitative work done in isolation (Creswell et al., 2006; Rossman & Wilson, 1985), supporting development of greater depth and breadth of understanding how to deliver effective, relevant, and sustainable PYD programmes to disadvantaged youth.

4. Based on community engagement being an enabling factor and the benefits of co-design and co-production being well documented (Bonevski et al., 2014; Brunton et al., 2017), we recommend engagement with key stakeholders, local community, and participants in designing and producing programmes and their evaluations. This will enable more suitable programmes to be developed from the outset as well as evaluations that are appropriate and viable within complex community settings.

### ***Limitations***

This systematic review is limited by publication bias, as only published, peer-reviewed journal articles were included. Typically, peer-reviewed papers have been through a rigorous process prior to publication and as such the quality of research published should be higher. However, this is not always the case (Larson & Chung, 2012). Additionally, because this systematic review aimed to evaluate the quality of published manuscripts, including only peer-reviewed articles was important to meet this research aim and help bridge the research—practice gap. There is the potential that process evaluations conducted on PYD programmes delivered to disadvantaged young people, but that have not been published in an academic journal, have therefore been excluded. Furthermore, this systematic review covers broadly the topic of disadvantaged young people and does not consider the nuances for subgroups (e.g., young people experiencing homelessness or substance misuse). This is due to the small number of process evaluations that have been conducted within the overall population of disadvantaged young people. As numbers of process evaluations increase, it would be beneficial to conduct systematic reviews of studies focusing on these specific subgroups to allow knowledge development and translation within specific contexts.

## Conclusion

This systematic review assessed process evaluations of PYD programmes delivered to disadvantaged young people in complex community settings. It highlights the essential nature of community engagement in designing and evaluating programmes, to support programmes to be delivered as intended and suitable evaluation methods to be used. Furthermore, results show that despite a variety of methods being used across the 10 included studies, only one study used a mixed methods approach. We recommend that where appropriate, more studies use a mixed methods approach to ensure comprehensive evaluations of programmes can be conducted. This systematic review also identified several areas in which the quality of reporting must be improved (e.g., including more demographic information and author positionality, both ontological and epistemological). Critically, this review also highlighted the importance of flexibility in delivering and evaluating PYD programmes in complex community settings. It is vital this is reflected in verified questionnaires and tools but also in quality assessment tools; using a verified tool does not necessarily mean it is appropriate for community settings where contexts can differ greatly. Enabling factors and implications for applied research provide guidance to services and communities supporting disadvantaged young people to take part in successful and relevant programmes that can be sustained over time.

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## Appendix A

### Details for the 10 Evaluations Included in This Review

#### 1. Collins et al. (2013). Cyclopedia: Sustaining a Positive Youth Development Program Through Community Partnership

##### United States

Program description: Cyclopaedia is an annual summer curriculum of mentored bicycle rides consisting of educational lessons, local exploration, and creative self-expression (photography and writing). It is structured on a PYD model and is supported by a core partnership between a medical institution and a community-based organization.

Total participants: 68 (41 male, 27 female); Age range: 12-17 years; Ethnicity: 98% African American

##### Evaluation aims

- Primary: Understand participant engagement.
- Secondary: Understand enablers and barriers to implementation.

##### Data collection methods and tools used

- Session registers, number of miles cycled, and number of photographs posted.
- Collected continuously over 24 week of programme delivery.

##### Quantitative Results

- Drop in mileage per rider from Season 1 (41.3 miles) to Season 2 (17.4 miles)
- 0% females in 2010; 54% females in 2011 (compared to 32% female composition of club)
- Number of reflective writing posts (average 2.6 posts in 2010, dropped to 0.5 in 2011) •
- Many of the 50 riders only attended one or two sessions

##### Enablers

- Funding from community partners and low running costs after initial set up.
- Community support: volunteers, donations of equipment and community club, and access to existing population of at-risk youth.
- Cyclopedia Junior programme as feeder programme with 30 additional children
- Awards party (free dinner) & personalised

##### Barriers

- Programme start-up costs and costs/rider
- Lack of parental buy-in
- Older riders dislike riding with younger riders.
- Unpredictable participant attendance

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- Lack of appeal for completing post-ride written reflections; length of the rides, combined with unpredictable ratios of co-leaders to riders; little time to promote reflective writing

### **2. Coser et al. (2014). Finding a Voice: Participatory Research With Street-Involved Youth in the Youth Injection Prevention Project.**

#### **Canada (Vancouver)**

Programme description: The *Youth Injection Prevention (YIP)* project was a collaboration of university researchers, community organizations that provide services to street-involved youth, and experiential youth core researchers (YCs).

Total participants: 6 (2 male, 3 female, 1 transgender); Age range: 19-24 years; Ethnicity: European (3), South Asian (1), Aboriginal (1), African American (1)

#### Evaluation aims

- Primary: Understand how youth core researchers were personally affected in their involvement in the research team.
- Secondary: Understand barriers and enablers to implementation.

#### Data collection methods and tools used

- Face-to-face interviews with youth core researchers, field notes, minutes from meetings, and debriefing sessions.
- Data collected during programme delivery and post-delivery.

Quantitative Results: N/A

#### Enablers

- Team-building activities, regular meetings, supportive and caring environment between youth core researchers and academics.
- Provision of youth counsellor for youth core researchers.

#### Barriers

- Demands of personal life (e.g., childhood trauma, mental/physical health issues, parenting responsibilities and unhealthy relationships; additional support provided for youth core researchers affected project timeline and budget).
- Additional workload on academics to encourage and support youth core researchers.
- Difference in education of youth core researchers—one-to-one learning, slower pace (difficult to maintain engagement of all – unequal power dynamics).

### **3. Goldberg (1979), A Program for Disadvantaged Young People in an Israeli Development Town: An Evaluation**

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### Israel

Program description: A multilevel programme to support marginal youth to integrate into society at the highest possible levels. This was done both by directing youths to existing services (e.g., counsellor) and backing them while in need of these services, and by the development of special services for educational advancement and vocational training.

Total participants: 3; Nationality: Israeli (1), Moroccan (2)

1. Create flexible and multipurpose framework seeking the active participation of marginal youths and their gradual involvement with “established” youths.
2. Help marginal youths integrate into the society at the highest possible levels.
3. Achieve the above through maximization of self-rule in an informal and nonauthoritarian atmosphere.
4. Continuously attempt to contact marginalized youths to include in the Youthtown framework.
5. To achieve social integration, within Youthtown, between youths of different social backgrounds.

Data collection methods and tools used

- Field notes, face-to-face interviews, meetings (+ notes) and official documents.
- Data collected continuously

Quantitative Results: N/A

Enablers

- Researchers acting as communication channel between different areas of the admin/funding/directorate.
- Flexible response to local realities in terms of program modification
- Promotion of local autonomy

Barriers

- Small “pool” of talent to employ from in the area
- Lack of clarity in the role, especially Director of Youthtown, led to inconsistent approaches and lack of holistic responsibility.
- Involvement in local politics e.g., political rivalry
- Poor behaviour from programme participants
- Logistical challenges e.g., travel, multi-site delivery and available space.
- Lack of knowledge around programme content from delivery staff

### **4. Gwadz et al. (2019). Understanding Organizations Serving Runaway and Homeless Youth: A Multi-setting, Multi-perspective Qualitative Exploration**

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### United States

Program description: Explored 29 services and programmes for runaway and homeless youth to explore characteristics of higher quality organizations for RHY and gaps that remain from staff and RHY perspectives.

Total participants: 138 (54 staff, 84 youth); Youth:  $N = 84$  (34 male, 50 female); Age range: 16-21 ( $M_{\text{Age}} = 19.3$ ,  $SD = 1.5$ ); Ethnicities: 16.7% White, 45.2% African American, 23.8% Hispanic/Latino, 14.3% multi-racial

#### Evaluation aims

- Primary: Explore characteristics of higher quality organisations for runaway homeless youth and understand gaps/challenges that remain in service provision.
- Secondary: Factors driving variability in organisation level-characteristics of higher and lower quality settings.

#### Data collection methods and tools used

- Semi-structured interviews with staff and focus group interviews with youth.

#### Quantitative Results: N/A

#### Enablers

- Youth-centred philosophy understood by staff and clients
- Developmentally appropriate relationships between staff and youth that promote autonomy
- A focus on short- and long-term goals within anticipated setbacks and crises
- Ongoing internal quality assessments

#### Barriers

- Lack of funding
- Maintaining high-quality staff
- Articulating organizational practices
- Heavy focus on crisis management and less attention on the higher order aspects of the YPQA model.

### 5. Kenyon et al. (2019). *My Journey: Development and Practice-Based Evidence of a Culturally Attuned Teen Pregnancy Prevention Program for Native Youth*

### United States

Program description: The program is a culturally attuned curriculum for sixth through eighth graders. *My Journey* is grounded in traditional values and teachings to promote self-efficacy in sexual health decision making and engagement in prosocial behaviors.

### PYD Programmes for Disadvantaged Young People

Total participants: 45 (22 M, 23 F); Age range: 11-14 ( $M_{\text{Age}} = 13.2$ ); Ethnicity: Northern Plains Native American community members

#### Evaluation aims

- Primary: Fidelity of delivery style, adherence to programme content, engagement.
- Secondary: Dose delivered

#### Data collection methods and tools used

- Face-to-face observations and questionnaire (paper based).
- Collected during programme delivery: 79% of 82 lessons had fidelity and implementation monitoring. Fidelity across all 3 semesters and student data collected during semester 1.
- Tools developed amongst research team. Likert rating scale: 1 (*poor*) to 5 (*excellent*).

#### Quantitative Results

- Fidelity of delivery style: Ranged from  $M = 3.94$  ( $SD = 0.85$ ) to  $M = 4.33$  ( $SD = 0.63$ ).
- Dose delivered:  $M = 95\%$  of the curriculum was implemented; class length ranged from 25 to 60 minutes, with the average length being 52 minutes ( $SD = 7.4$ ).
- Engagement: Ranged from  $M = 3.73$  ( $SD = 0.74$ ) to 3.90 ( $SD = 0.68$ )
- Fidelity was lowest in the third semester (fall of 2016).

#### Enablers

- Good behaviour
- Culturally relevant/meaningful and hands-on activities
- Experience of facilitators: Of the three semesters My Journey was implemented, program fidelity was highest in the second semester (spring of 2016).

#### Barriers

- Hyperactive and disruptive participant behaviour.
- Poor timekeeping (e.g., inaccurate estimates of how long activities would take).
- Experience level of facilitator (e.g., lack of content knowledge)

## 6. Knoll et al. (2012). The Toronto Youth Outreach Worker Program for Transitional Aged Youth 12-24: Process Evaluation

### Canada (Toronto)

Program description: The Toronto Youth Outreach Worker (yow) program was initiated to raise marginalized youth's awareness of available community services, engage them in community programs, and strengthen partnerships among the organizations that served them.

Total participants: 58 (27 adults and 31 youth from 13 neighbourhoods)

#### Evaluation aims

### PYD Programmes for Disadvantaged Young People

- Primary: Explore youth engagement with the service, and barriers and enablers to implementation.
- Secondary: Identify gaps in service provision.

#### Data collection methods and tools used

- 36 interviews (nine youths, five family members, nine outreach workers, six partner agency representatives, five service systems representatives and two representatives from the Ontario Ministry of Children and Youth services).
- Three youth-led focus groups (22 participants).
- Interview guides developed by researchers.

Quantitative Results: N/A

#### Enablers

- Warm and friendly, authentic, supportive, good listeners.
- Knowledge and skills of youth outreach workers.

#### Barriers

- Involvement with youths ended after the YOW made a referral to a service: They couldn't follow up with the youths. This interfered with authentic and beneficial relationship development.
- Lack of clear communication between YOW program and partner agencies meant it was unclear who YOW were targeting for help and what other YOW were doing. Lack of clarity on relationships with partner agencies.

### **7. Kuosmanen et al. (2017). A Pilot Evaluation of the SPARX-R Gaming Intervention for Preventing Depression and Improving Well-Being Among Adolescents in Alternative Education**

#### **Ireland**

Program description: SPARX-R was a computerized cognitive behavioral therapy (cCBT) gaming intervention for young people (age 15–20 years) who had left school early and were attending *Youthreach*, an alternative education program in Ireland.

Total participants: 146 from 21 outreach centres (68 male, 78 female); Age range: 15-20 ( $M_{\text{Age}} = 17.6$ );

Ethnicity: Irish

#### Evaluation aims

- Examine the impact of SPARX-R on symptoms of depression and anxiety among a universal alternative education student population.
- Examine the impact of SPARX-R on psychological well-being, coping and emotion regulation among a universal alternative education student population.
- Explore user satisfaction and acceptability.

### PYD Programmes for Disadvantaged Young People

- Explore the relationship between program engagement and outcomes.

#### Data collection methods and tools used

- Assessments conducted at baseline and 7 weeks post intervention.
- Online questionnaires
- 13-item Short Moods and Feelings questionnaire
- Generalised Anxiety Disorder Rating Scale (GAD-7)
- The Warwick-Edinburgh Mental Wellbeing Scale
- 15-item Coping Strategy Indicator
- Emotion Regulation Questionnaire
- Acceptability measured using adapted from eHealth evaluation studies by the authors.

#### Quantitative Results

- $N = 66$  included in analysis.
- Dose: 70% did not complete the programme
- Engagement: 40% practiced few to none of the techniques taught in the program

#### Enablers

- Computer-based gaming approach helped overcome illiteracy

#### Barriers

- High level and variety of need support
- Poor literacy skills prevented completion of many self-report questionnaires used to evaluate programme outcomes

### **8. Newman et al. (2020). Process Evaluation Examining the Implementation of a Sport-Based PYD Program**

#### **United States**

Program description: A 19-day summer camp, where the program was organized into 15 days of curricula that built towards a 4-day culminating event. Each day of curricula involved four 60-minute sessions: three sport sessions designed to foster life-skill development by infusing life-and sport-skill instruction, and one classroom-based education session designed to support life-skill development through play-based activities.

Total participants: 26 (11 male, 15 female); Age range: 19-27; Ethnicities: 57.7% White, 19.2% African American, 23.1% not reported

#### Evaluation aims

- Primary: fidelity of delivery style, adherence to programme content, and dose delivered

### PYD Programmes for Disadvantaged Young People

- Secondary: Explore which program characteristics relate to implementation (i.e., additional information such as type and setting of sport) about context in which session logs were completed.

#### Data collection methods and tools used

- Session logs: 37-item self-reflexive evaluation tool, developed by research team. 5-point Likert scale from 0 (*none*) to 4 (*total*). Total score out of 100 (100% = perfect implementation).
- Collected during programme delivery: 4x daily for 15 days after each 60-minute session (5 program staff were substitutes for staff who were unable to attend an entire day of camp).

#### Quantitative Results

- 1,260 session logs completed.
- Fidelity of delivery style:
  - Perceived implementation of program climate:  $M = 90.15/100$ ,  $SD = 8.64$
  - Program instruction:  $M = 84.91/100$   $SD = 11.88$
  - Adherence to programme content and programme instruction: ( $M = 84.91/100$ ,  $SD = 11.88$ ).

#### Enablers

- Indoor setting: fewer distractions to mitigate and less subject to adverse weather such as high temperatures and rainstorms

#### Barriers

- Outdoor setting: may be more distracting in nature than indoor sports (less control & consistency).

## 9. Tingey et al. (2016). Entrepreneurship Education: A Strength-Based Approach to Substance Use and Suicide Prevention for American Indian Adolescents

### United States (Alaska)

Program description: Entrepreneurship education is a PYD program that increases motivation for under-resourced groups to complete formal education, promotes vocational and social skills, and enables youth to contribute to their community's economic development.

Ethnicity: White Mountain Apache Tribe American Indian

#### Evaluation aims

- Describe an entrepreneurship education program for American Indian youth and the study design evaluating its efficacy, currently being conducted within a tribal reservation.

#### Data collection methods and tools used

- Feedback forms completed after each lesson during pilot implementation.

### PYD Programmes for Disadvantaged Young People

- Youth completed informal feedback forms.
- Self-report measures via audio computer assisted self-interview at baseline, immediately post intervention, and 6 months, 12 months, and 24 months post intervention.
- Self-report measures adapted to reflect local language, clarity, and flow.

Quantitative Results: N/A

#### Enablers

- Younger youth were more engaged than older youth/young adults.
- Engaging with younger youth promoted school attendance prior to drop out – meant that more youth were involved than if recruited at the age where most drop-out occurs.
- Working with the Apache community to co-create the programme to understand community culture and youth needs.
- Enrolling younger youth enables longer term follow-up and support during critical transition periods.

#### Barriers

- Not interactive enough – felt too much like school
- Extensive transport needs/logistical challenges meant that lessons often started late (lack of time to cover content and build relationships).

### **10. Zimmerman et al. (2011). Youth Empowerment Solutions for Peaceful Communities: Combining Theory and Practice in a Community-Level Violence Prevention Curriculum**

#### **United States**

Program description: The Youth Empowerment Solutions for Peaceful Communities (YES) program, was guided by empowerment and ecological theories within a positive youth development context. YES was designed to enhance the capacity of adolescents and adults to work together to plan and implement community change projects.

Ethnicity: Most participants were African American

#### Evaluation aims

- Primary: Describe development and evaluation of the YES program.
- Secondary: Program revision

#### Data collection methods and tools used

- Continuous process of evaluation.
- Sessions formally reviewed using form developed by researchers.
- One session observation conducted weekly using form developed by researchers.

### PYD Programmes for Disadvantaged Young People

- Formal rating of activities and handouts within each session on rating scale: E (*poor*) to A (*excellent*).
- Questionnaire and focus groups with youth at the end of the summer program.
- Curriculum activities engagement questionnaire

#### Results

- Year 1 and Year 2: Youth-based ratings - results based on Likert scale: 1 (*the worst*) to 5 (*the best*)
- Community development project:  $M_{\text{Year1}} = 3.90$  ( $SD = 1.18$ ),  $M_{\text{Year2}} = 3.89$  ( $SD = 1.32$ )
- Cultural identity:  $M_{\text{Year1}} = 2.67$  ( $SD = 1.02$ ),  $M_{\text{Year2}} = 3.00$  ( $SD = 1.20$ )
- Programme planning:  $M_{\text{Year1}} = 3.62$  ( $SD = 1.32$ ),  $M_{\text{Year2}} = 3.11$  ( $SD = 1.29$ ).

#### Enablers

- Session content well connected to youth community project development
- Youth engaged because they liked working to improve their community
- Sessions that were fun, active, and provided time for discussion.
- Addressing youth needs reduced fidelity in sticking to programme content but increased participant engagement.

#### Barriers

- Student engagement
- Not enough hands-on activities “more fun and interactive”
- Not enough discussion time
- Sessions too school-like
- Not enough explicit link with cultural identity elements
- Session structure and instructions too complicated and lengthy

## **Appendix B**

### **Quality Assessment Questions of Included Studies and Results**

#### **JBI quality assessment for analytical cross-sectional papers**

1. Were the criteria for inclusion in the sample clearly defined?
2. Were the study subjects and the setting described in detail?
3. Was the exposure measured in a valid and reliable way?
4. Were objective, standard criteria used for measurement of the condition?
5. Were confounding factors identified?
6. Were strategies to deal with confounding factors stated?
7. Were the outcomes measured in a valid and reliable way?
8. Was appropriate statistical analysis used?

#### **JBI quality assessment for qualitative papers**

1. Is there congruity between the stated philosophical perspective and the research methodology?
2. Is there congruity between the research methodology and the research question or objectives?
3. Is there congruity between the research methodology and the methods used to collect data?
4. Is there congruity between the research methodology and the representation and analysis of data?
5. Is there congruity between the research methodology and the interpretation of results?
6. Is there a statement locating the researcher culturally or theoretically?
7. Is the influence of the researcher on the research, and vice-versa, addressed?
8. Are participants, and their voices, adequately represented?
9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?
10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

#### **JBI quality assessment tool for randomised control trial papers**

1. Was true randomization used for assignment of participants to treatment groups?
2. Was allocation to treatment groups concealed?
3. Were treatment groups similar at the baseline?
4. Were participants blind to treatment assignment?
5. Were those delivering treatment blind to treatment assignment?
6. Were outcomes assessors blind to treatment assignment?

PYD Programmes for Disadvantaged Young People

7. Were treatment groups treated identically other than the intervention of interest?
8. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?
9. Were participants analyzed in the groups to which they were randomized?
10. Were outcomes measured in the same way for treatment groups?
11. Were outcomes measured in a reliable way?
12. Was appropriate statistical analysis used?
13. Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?

**MMAT (Qualitative, Quantitative Descriptive, Mixed Methods)**

- S1. Are there clear research questions?
- S2. Do the collected data allow to address the research questions?
  - 1.1. Is the qualitative approach appropriate to answer the research question?
  - 1.2. Are the qualitative data collection methods adequate to address the research question?
  - 1.3. Are the findings adequately derived from the data?
  - 1.4. Is the interpretation of results sufficiently substantiated by data?
  - 1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?
- 4.1. Is the sampling strategy relevant to address the research question?
- 4.2. Is the sample representative of the target population?
- 4.3. Are the measurements appropriate? 4.4. Is the risk of nonresponse bias low?
- 4.5. Is the statistical analysis appropriate to answer the research question?
- 5.1. Is there an adequate rationale for using a mixed methods design to address the research question?
- 5.2. Are the different components of the study effectively integrated to answer the research question? 5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?
- 5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?
- 5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

**Table B1. Quality Assessment Results for Each Study**

Author, Year	Methodology	Quality Assessment Tool	Outcome (Reviewer – author GT)
Collins et al., 2013	Quantitative	JBİ quality assessment for analytical cross-sectional papers	No = Q1, Q2 Unclear = Q3, Q4, Q5, Q6, Q7, Q8
Coser et al., 2014	Qualitative	JBİ quality assessment for qualitative papers	Yes = Q2, Q3, Q4, Q5, Q8, Q10 No = Q1, Q6, Q7, Q9
Goldberg, 1979	Qualitative	JBİ quality assessment for qualitative papers	Yes = Q1, Q2, Q3, Q9 No = Q6, Q7 Unclear = Q4, Q5, Q8, Q10
Gwadz et al., 2019	Qualitative	JBİ quality assessment for qualitative papers	Yes = Q1, Q2, Q3, Q4, Q5, Q8, Q9, Q10 No = Q6, Q7
Kenyon et al., 2019	Quantitative	JBİ quality assessment for analytical cross-sectional papers	N/A = Q1 Yes = Q2, Q3, Q4, Q7, Q8 Unclear = Q5, Q6
Knoll et al., 2012	Qualitative	JBİ quality assessment for qualitative papers	Yes = Q2, Q3, Q4, Q5, Q8, Q9, Q10 No = Q1, Q6, Unclear = Q7
Kuosmanen et al., 2017	Quantitative	JBİ quality assessment for analytical cross-sectional papers	Yes = Q2, Q4, Q7, Q8 No = Q1 Unclear = Q3, Q5, Q6
Newman et al., 2020	Quantitative	JBİ quality assessment for analytical cross-sectional papers	N/A = Q1, Q3 Yes = Q2, Q4, Q5, Q8 No = Q7 Unclear = Q6
Tingey et al., 2016	Quantitative	JBİ quality assessment tool for randomised control trial papers	Yes = Q1, Q3, Q7, Q8, Q9, Q10, Q11, Q12, Q13 Unclear = Q2, Q4, Q5, Q6
Zimmerman et al., 2011	Mixed Methods	MMAT (Qualitative, Quantitative descriptive, Mixed Methods)	Yes = Q1.1, Q1.2, Q5.1 No = Q1.5, Q5.5 Unclear = QS1, QS2, Q1.3, Q1.4, Q4.1, Q4.2, Q4.3, Q4.4, Q4.5, Q5.2, Q5.3, Q5.4