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The impact of a preschool communication program and comprehensive family support on serious youth offending: New findings from the Pathways to Prevention Project

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Acronyms and abbreviations

ANZSOC	Australian and New Zealand Standard Offence Classification
AVT	Advisory Visiting Teacher
EBP	evidence-based program
EBPS	evidence-based parenting support
FIP	Family Independence Program
IRSD	Index of Relative Socio-Economic Disadvantage
IYCTP	Incredible Years Child Training Program
PEEM	Parent Empowerment and Efficacy Measure
PIP	Preschool Intervention Program
PLAI	Preschool Language Assessment Instrument
RBRI	Rowe Behavioural Rating Inventory
SA2	Statistical Area 2
SEIFA	Socio-Economic Indexes for Areas
SLA	Statistical Local Area



Abstract

In this report, we investigate the effects of the Pathways to Prevention Project on the onset of youth offending. We find persuasive evidence for the impact of an enriched preschool program, the communication program, in reducing by more than 50 percent the number of young people becoming involved in court-adjudicated youth crime by age 17. We find equally strong evidence that comprehensive family support increased the efficacy and sense of empowerment of parents receiving family support. No children offended in the communication program if their parents also received family support, but family support on its own did not reduce youth crime. The rate of youth offending between 2008 and 2016 in the Pathways region was at least 20 percent lower than in other Queensland regions at the same low socio-economic level, consistent with (but not proving) the hypothesis that the Pathways Project reduced youth crime at the aggregate community level.



Executive summary

The Pathways Project was designed in response to a major recommendation in the 1999 report, *Pathways to prevention: Developmental and early intervention approaches to crime in Australia* (Developmental Crime Prevention Consortium 1999). The recommendation was for a community-based, developmentally informed early crime prevention initiative. The Pathways Project was implemented in a disadvantaged region of Brisbane by a partnership among Mission Australia, Education Queensland, a Griffith University research team and seven local preschools and primary schools. The project combined two preschool enrichment programs for four-year-old children in 2002 and 2003 with comprehensive family support, which extended from 2002 until 2011, involving in all more than 1,000 families and nearly 1,500 children aged four to 11.

In this report, we focus on the effects on youth offending of one of the two enriched preschool programs, the communication program, as well as the effects of family support. The sample is 616 children, the 2002 and 2003 preschool cohort, which represented about 85 percent of the four-year-old children resident in the area. Of these children, 214, from two preschools, participated in the communication program, with the other five preschools serving as controls in a quasi-experimental design. Extensive data were collected on the children as they progressed through primary school. With strict ethical and privacy protocols, we were able to link this data with Youth Justice records. Thirty-seven of the 616 children (6%) had a record for court-adjudicated offending up to age 17, which was then the age of adult criminal responsibility in Queensland.

Pathways family support, which was open to all families with children enrolled in one of the seven preschools or schools, incorporated a wide range of service types, including: counselling and mediation, education and skills development, crisis care and material relief, home-visiting and practical in-home assistance, advocacy, referral to facilitate access to specialised professional services, parent groups, playgroups, and a variety of school-based programs.

The communication program was designed to improve children’s oral language and communication skills. Children with higher level oral language skills are typically better able to handle social situations and so are more likely to engage in positive interpersonal relationships and less likely to engage in disruptive behaviour in the classroom. In the preliminary phase, all children in the participating preschools were assessed using the Preschool Language Assessment Instrument (PLAI), to measure the child’s ability to cope with the language demands of the classroom. Children were then placed in small groups with others who were at similar stages of development. The program was delivered for 30 weeks across three school terms by specialist communication teachers with postgraduate qualifications. These specialists worked extensively with the classroom teachers and with parents to ensure the sustainability and reach of the intervention.

The communication program was associated with improved language scores and teacher-rated classroom behaviour at the end of preschool. These behaviour improvements were sustained throughout primary school, and the rate of youth offending in this group was 56 percent less than in the comparison preschools, corresponding to an effect size of 0.52 after statistical controls. This substantial effect was mediated through improved classroom behaviour. None of the children in the communication program whose families received support offended, reinforcing an earlier finding that, at the end of preschool, classroom behaviour improved most for children in the enriched preschool program whose families also received support.

Preliminary research (reported in a Working Paper) showed that family support over the primary school years had a substantial impact, improving parent efficacy in connecting effectively with schools and other institutions and advocating with confidence on behalf of their children. However, the effects of family support on youth crime appeared to be limited to children in the communication program. After removing from the sample 73 children who did not attend one of the seven project primary schools after preschool, we used latent class analysis with the reduced sample of 543 to identify groups of children whose families received different patterns of family support over time, from preschool to the end of primary school. This resulted in three groups: an ‘Early’ group who mainly called on family support in the preschool years, a ‘Later’ group who mostly sought help in the later years of their child’s time at primary school, and a ‘High’ group who made extensive use of family support services throughout preschool and primary school. The High and Later groups had a higher likelihood of children’s youth offending. This does not suggest that family support causes young people to offend. Rather, families who needed very frequent support were experiencing multiple adversities and needed more specialised services than the Pathways family support program could provide. Family support is clearly related to improvements in parents’ sense of efficacy and empowerment about their role as parents, as well as providing a wide range of practical benefits. Support had many positive benefits in families’ lives which we were not able to capture with the measures available in the Pathways database.

Pathways family support was implemented widely in the community over a 10-year period, with over 1,000 families and 2,400 children, ranging in age from infants to teenagers, receiving support. In a community with about 4,000 families with children (Australian Bureau of Statistics 2001, 2006 and 2011 Censuses), this represents significant reach into the community. The potential impact at the community level of this support over many years was examined, using crime data. The Pathways region was compared with other regions in Queensland at the same socio-economic level (decile 1 on the Socio-Economic Indexes for Areas, or SEIFA, scale) over the period 2008 to 2021. The rate of offences with alleged offenders between the ages of 10 and 17 in the Pathways region between 2008 and 2016 was consistently lower than in comparable regions, with a rate no higher than 0.8 of the comparison areas, in line with statistical projections made in 2006 based on the observed reductions of 33 percent at the end of preschool in 'at risk' classroom behaviour. It is possible to cautiously conclude, subject to the results of further analyses, that the Pathways Project may have had an impact on youth offending at the community level.

Policy implications

The long-term impact of the communication program on youth offending suggests that it could be a model for similar early prevention programs across Australia, where there is a chronic underinvestment in community-based developmental crime prevention. Apart from its core content, designed to improve preschool children's oral language skills, the key features that should be replicated in as many disadvantaged communities as possible, within a broad public health framework, include:

- delivery early in children's developmental pathways that may lead to crime involvement, especially—but not only—in the preschool years;
- delivery by professionals who are expert in addressing key risk factors for youth crime (eg impulsivity, at risk classroom behaviours, lack of prosocial attitudes), supported by community workers trusted by the community;
- delivery through existing organisations and systems, such as early childhood, schools and community agencies who are trusted;
- multisystemic/ecological focus and operations;
- a universal primary prevention focus, not tertiary or remedial in focus (although early intervention initiatives may be included for some children within universal strategies);
- sustained impact, achieved by building the capacity of frontline professionals to base their work on good science; and
- delivery over a sufficiently long time period, and with sufficient intensity, to effect change.

The findings on what comprehensive, well implemented family support can and cannot accomplish suggest that family support teams working in disadvantaged community settings need to be able to draw on the expertise of many professions, particularly specialist teachers, psychologists and psychiatrists expert in working with children at behavioural risk. Ideally, such expertise should be permanently available in every community team. Community agencies working with families and children also need to have strong partnerships with schools. The success of the communication program and its multisystemic model of delivery, based on expert knowledge and skills, demonstrates the power of such partnerships.

Underpinning such partnerships must be a commitment to work within a public health framework that aims to improve the lives of all children in each locality. This universal, preventive orientation requires data-guided decision-making, the use of evidence-based strategies that fit local circumstances and a commitment to continuous quality improvement through a range of professional and community-based learning circles.



The Pathways to Prevention Project: History, structure and early impact

This report presents new findings from the Pathways to Prevention Project, focused on the project's impact on serious (court-adjudicated) youth crime. It builds on many earlier analyses of the short-term and medium-term effects of the Pathways Project on child and parent wellbeing, key aspects of which are summarised at the end of this section.

The Pathways to Prevention Project operated for 10 years between 2002 and 2011 in a socially disadvantaged region of Brisbane, working with seven preschools and primary schools, 1,077 distinct families and 1,467 distinct children, aged four to 11, from these families. In its first phase from 2001 until 2003–04, the project focused on children aged four to six. It combined two key forms of intervention:

- The Preschool Intervention Program (PIP) for four-year-old children, with two core components:
 - the communications skills program—implemented in two preschools over the preschool year by specialist teachers in partnership with the regular preschool teachers and with parents; and
 - the social skills program—implemented in two other preschools over 14 weeks by a PhD student and other postgraduate psychology students supervised by the Griffith University research team; and
- The Family Independence Program, run by Mission Australia, providing support as needed to all families with children in the free preschools located in the grounds of the seven local primary schools or families with children who had recently transitioned to Year 1.

The two project components, enriched preschool and family support, were designed to work together to reinforce each other's activities. For example, the communication teachers worked with the Mission Australia Pathways team to run workshops that aimed to encourage parents to interact with their children in ways that promoted their language and literacy development (such as the SKILLS program described in Table 1 below).

The Pathways Project aimed to instantiate the principles of community-based developmental crime prevention set out in a seminal national report, *Pathways to prevention: Developmental and early intervention approaches to crime in Australia* (Developmental Crime Prevention Consortium 1999). Homel and Thomsen (2017: 57) explain:

Developmental prevention involves the use of scientific research to guide the provision of resources for individuals, families, schools or communities to address the conditions that give rise to antisocial behaviour and crime before these problems arise, or before they become entrenched. The emphasis is on enlightened support, not so much on social control and certainly not on punishment.

The emphasis of the 1999 report and of the Pathways to Prevention Project that followed was on the primary prevention of youth crime delivered through initiatives directed at a whole population or at all members of a specified collectivity, like a local community or a cluster of schools. However, both the report and the project did also encompass ‘early intervention’ approaches, which are referred to in contemporary prevention science terminology as ‘selected interventions.’ In this approach, services are delivered to children deemed—because of their behaviour or family situation—to be at risk of such outcomes as dropping out of school, abusing drugs, committing crimes or being maltreated by their families.

It is now 25 years since the publication of the 1999 report, and it is sobering to observe that very few community-based initiatives in Australia that have aimed to stop youth crime before it starts (that is, are designed to achieve primary prevention) have published scientifically persuasive evidence for their effectiveness (Homel, Branch & Freiberg 2024). Indeed, except for the present study, community-based primary prevention based on developmental principles has only successfully been implemented through Communities That Care Australia, a not-for-profit organisation affiliated with Deakin University (<https://www.communitiesthatcare.org.au>). Consistent with strong evidence from the United States (Fagan et al. 2019), the Communities That Care community coalition approach has been shown to reduce youth crime and a wide range of other youth problems, like substance abuse and injuries, across whole local government areas over a 10-year period (Rowland et al. 2022).

Many community initiatives in Australia are currently working towards crime prevention and early intervention goals. Preliminary impact assessment of one promising initiative, the highly regarded Maranguka Justice Reinvestment Project, suggested a significant drop in youth crime in the Bourke region in 2017, compared with the previous year (KPMG 2018). However, such ‘pre-experimental’ research designs, without control groups or meaningful comparisons with business-as-usual conditions, do not permit inferences to be made about the causes of the crime reduction. There is an urgent need in Australia for the growing number of ‘place-based’ initiatives, documented in a recent Paul Ramsay Foundation report (Geatches et al. 2023) and elsewhere, to be subjected to rigorous evaluation using mixed methods that include experimental and quasi-experimental designs as well as detailed qualitative research on implementation and change processes.

The conspicuous absence of investment in research-informed, community-based primary prevention initiatives in Australia since the 1999 *Pathways to prevention* report and the growing prominence of vociferous campaigns for ‘youth crime crackdowns’, with a vastly increased reliance on incarceration in some states and territories, including Queensland (Justice Reform Initiative 2022), have helped motivate us to undertake the research summarised in this report. The vast literature on developmental crime prevention shows that resources such as family support and enriched preschool curricula—key planks in the Pathways to Prevention platform—when carefully implemented by researchers and specially trained personnel should foster positive child development. They should also help strengthen child, family and school factors that protect against a drift into antisocial and disruptive behaviours, even in the face of poverty and adversity (eg Fagan & Benedini 2016; Homel & Thomsen 2017; Schweinhart 2013; Toumbourou et al. 2017).

However, the key question is whether family support services and enriched preschool programs in disadvantaged communities can help prevent youth crime when they are designed and implemented not by outside researchers, but by community workers and preschool teachers working in the community or in schools. Because the road to scale (and sustainability) runs through public systems (McCarthy & Kerman 2010), sustained, system-wide improvements in child wellbeing (with consequent reductions in crime involvement) can only be achieved when effective early prevention strategies are incorporated into the routine capabilities of government departments, non-government services and communities (Homel et al. 2017).

Like Communities That Care, the Pathways Project was developed outside government, established with the support of Griffith University, the John Barnes Foundation Trust (see <https://fconline.foundationcenter.org/fdo-grantmaker-profile/?collection=grantmakers&key=4017452>), Mission Australia and the Australian Research Council (Homel et al. 2006a, b). We are, however, grateful for the strong support the project attracted from the Queensland Government, particularly the Department of Education. As we noted above, the Pathways Project was designed to address the challenge of designing and evaluating a comprehensive early prevention initiative delivered not by researchers but by established education and service system providers.

From the project’s beginnings in 2000 and 2001, the prevention of youth crime was a central goal. It was a key objective of the Barnes Foundation, which provided much of the funding (and eventually a new building) for the Mission Australia family support team. The Barnes Foundation also stipulated that the project should be conducted in Queensland and involve schools. This established the basic architecture of the project, described in more detail in the next subsection.

This report builds on a 2015 report (Homel et al. 2015a), in which we described the effects on primary school-aged children’s behaviour and wellbeing of the comprehensive family support offered to all families in the Pathways Project region who had one or more children enrolled at one of the seven local schools. In that 2015 report, we focused on risk and protective factors known to be related to the onset of offending (Farrington 2007; Homel & Thomsen 2017), with a view to assessing the potential effectiveness for primary prevention of a well implemented, long-term, culturally sensitive family support program offered freely over a 10-year period in a socially disadvantaged area of Brisbane.

Data collection for the Pathways Project began in 2002, when many primary schools in Queensland, including all seven schools in the Pathways region, had a preschool on site staffed by trained early childhood teachers. In 2007, the Preparatory (Prep) Year was introduced statewide as a play-based transition from home or kindergarten to school. In 2015, Year 7, the final year of primary school, was moved to high school.

In this report, we move from a focus on the effects of family support over the primary school years (then Years 1–7) to a focus on its effects when combined with the enriched preschool programs offered to 616 four year olds in the first phase of the project (2002 and 2003). We also revisit the data on the specific impact of the preschool programs on youth crime—separate from, and combined with, the effects of family support—with a primary focus on the communication program that was constructed by specialist Advisory Visiting Teachers (AVTs) and implemented over a 30-week period by the AVTs in partnership with the preschool teachers and parents. The communication program was implemented in eight half-week preschool classes, four in two schools in 2002 and four in the same two schools in 2003. Currently, in the Queensland Department of Education, AVTs focus on supporting schools in teaching children with disabilities (see <https://alt-qed.qed.qld.gov.au/workingwithus/Documents/teach-s1-advisory-visiting-teacher-rd.pdf>). In the early 2000s, the role of AVTs was similar but covered a slightly wider range of needs, such as the verbal and non-verbal communication skills required by children.

The Pathways to Prevention Project

The Pathways Project is described in many papers and reports, including a 2006 report on the first five years of the project (Homel et al. 2006a). The overview in Box 1 is reproduced, with some minor adaptations, from our 2015 Criminology Research Grant report (Homel et al. 2015a: 14–15).

Box 1: The Pathways to Prevention Project—Rationale and description

The Pathways to Prevention Project operated in a highly disadvantaged area of Brisbane between 2002 and 2011 as a research–practice partnership involving families, seven local primary schools and national community agency Mission Australia. The Pathways area had a youth crime rate in the late 1990s more than eight times higher than the Brisbane average (Homel et al. 2006a, 2006b). The Pathways Project was designed to address the gap in knowledge about how to make commonly used family support and child services more effective in the short and long term and, more generally, how to make the developmental system more responsive to the needs of disadvantaged children (Freiberg, Homel & Branch 2010; Freiberg et al. 2005). Influential in its early design was evidence emerging from longitudinal research pointing particularly to low achievement, poor parental child-rearing behaviour, child impulsivity and poverty as critical risk factors that should be addressed through multimodal approaches involving children, schools, families and the community (Farrington 2007).

Box 1: The Pathways to Prevention Project—Rationale and description (cont.)

In developmental system terms, these risk factors highlight the frequently fractured relations between schools and families in socially disadvantaged areas and the corrosive effects of poverty and social exclusion on the capacity of parents and carers to parent effectively (Freiberg et al. 2007). Bluntly put, families are stressed, and children are damaged, because the developmental system is broken.

The Mission Australia team invested heavily in the building of trust through community relationships, constructing and evaluating a holistic suite of program activities that were available to all families on a completely voluntary basis. These activities, often situated in schools and involving teachers, were based on community-generated data on needs and maximised engagement with the families hardest to reach. They employed a mixture of professional staff and community workers without formal qualifications but with a high degree of credibility among their ethnic communities (Aboriginal and Torres Strait Islander, Pacific Islands or Vietnamese). They were tailored to the needs of each child or family by being strengths-based and highly flexible in terms of type of service, duration and intensity. Except for programs delivered by specialist staff directly to children attending preschool in Phase 1 of the project (2002–03), decisions about what programs to implement and the manner of implementation were not made by researchers but by the Mission Australia Service Manager and by school principals—usually after extended discussion with researchers about goals and the research evidence.

The project thus incorporated a range of program activities, from facilitated playgroups to intensive family support, representing a broad cross-section of services typically found in socially disadvantaged communities in Australia. The programs were, however, perhaps more than usually ‘research influenced’. The Pathways Project (or Service, as it was termed by the Mission Australia team) was very successful in reaching out to families, especially those with a high level of need. Between 25 percent and 30 percent of all families with children enrolled at one of the seven primary schools participated in the service in any given year. A total of 1,077 distinct families participated between January 2002 and 30 June 2011, and 1,467 children from these families (30% of all enrolled children) participated over the 10 years (nearly always with a parent): 16 percent Aboriginal and Torres Strait Islander, 26 percent Vietnamese, 15 percent Pacific Islander, 27 percent ‘Anglo-Celtic’ Australian and 16 percent other ethnicities. The mean number of contacts per family was 61; the mean period of total involvement was 76 weeks. On average, 3.5 service types were accessed, most commonly carer individual support, advocacy and playgroups (see Table 1 for more details). These high levels of involvement, often over many months or years, underline both the extent of need in the area and the success of the Pathways team in building trust and offering resources that families really valued.

The Family Independence Program: Family support

We stated in our previous Criminology Research Grants report (Homel et al. 2015a: 11–12):

Family support services are amongst the most common ways that local caring institutions attempt to reinforce the primary care activities of families under pressure. These services are designed to strengthen family relationships and healthy child development through the provision of information and emotional and instrumental support. Family support incorporates a wide range of service categories that can include counselling and mediation; education and skills development; crisis care and material relief; home-visiting and practical in-home assistance; advocacy; referral to facilitate access to specialised professional services; parent groups; playgroups; and in some cases school-based programs like after-school care or breakfast clubs. The work of family support agencies, therefore, can encompass intensive programs tailored to individual family needs, as well as more generic forms. These services are, of course, additional to universal health, social security, preschool and school services. Nearly all aim in one way or another to compensate for deficiencies in these services and to ‘open doors’: to advocate on behalf of children and parents and to improve aspects of local conditions that teachers and community workers know from direct experience are inimical to positive child development.

The Pathways Project employed most of these strategies in Phase 1, with expansion into universal services beyond the four to six years age range (the focus in Phase 1) from 2005 onwards. By ‘universal’, we mean that, from 2005, all referrals from partner schools to work with children over six years were accepted. In the 2002–05 period, services for older children were only accepted when the Mission Australia team had the capacity to take on these referrals. The services for primary-aged children generally focused on behavioural issues, social skills development and problem solving. They were included in the evaluation of the effects of family support over the primary school years in our 2015 report (Homel et al. 2015a). The main services for families included support groups, education groups for child behaviour management, life skills, supporting children’s learning, individual support and counselling and advocacy, referral and school liaison. Details of services most relevant to this report are in Table 1.

Table 1: Family support activities with example programs, 2002–2011

Support for parents and carers	
Program or activity	Description
Individual support and counselling	Provision of intensive support to families and individuals, both adults and children, dealing with a variety of issues such as grief and loss, parenting, domestic violence, child abuse, financial management and many other issues.
Advocacy, referral and school liaison	Includes advocacy with government departments, banks and other institutions; referral to specialist agencies (eg legal aid); and helping sort out problems with schools.
Parenting education: children's behaviour	Support for parents and caregivers who face the challenges of raising young children through the provision of targeted group and individual activities.
Positive Parenting Programs (Triple-P)—group & individual	Major goals of this evidence-based program are to: increase parental satisfaction and confidence, decrease children's behavioural problems, increase parental use of assertive discipline strategies, decrease coercive and punitive parental strategies, and build a positive relationship between parent and child (Sanders 2012).
Parenting for Survivors of Abuse	A series of 10 weekly sessions addressing issues such as healing from child abuse and the impact of abuse on parenting. Designed 'in-house'.
Management of Young Children Program (MYCP)	A Queensland Education Department program based on the premise that oppositional behaviour is maintained by parental reinforcement and that changing these reinforcement patterns will lead to a decrease in oppositional behaviour. In MYCP, parents were trained in multiple skills, including: praise and encouragement, problem solving, instruction giving, prompting, shaping, and time out. Accredited Pathways team members worked with high need families.
Parent support groups	Groups used art, craft or English as a non-stigmatising focus to provide wide-ranging support.
Murri Family Support Groups	Well-attended parent and caregiver support groups for the Aboriginal community. Each session began with a topic delivered by a professional from either the health or education fields and finished with a corresponding art/craft activity which provided a good opportunity for discussion of the topics as well as a creative outlet.
English Classes for Vietnamese Parents	For carers of children aged four to six. A major aim was to improve carers' confidence to participate in more formal English classes within the TAFE system or other formal learning environment. Run each term by volunteers and TAFE teachers.
Parent education in life skills	Supplementary workshops to meet specific parental needs at a given point in time: budgeting, first aid, racism and bullying, support a reader/writer, drug and alcohol awareness, etc.
Nutrition Workshops for Aboriginal Parents	Series of workshops focused on the preparation of healthy, versatile, tasty meals to meet the needs of families on a low budget.
Basic IT Enabling Course (BITES)	Mission Australia course to assist mature aged people learn computer skills.

Table 1: Family support activities with example programs, 2002–2011 (cont.)	
Support for parents and carers	
Program or activity	Description
Parenting education supporting children’s learning	
SKILLS—Supporting Kids in Language and Literacy Skills	Run by the school Communications teacher and a Pathways worker. Aimed to increase the frequency and quality of parent–child language interactions, to help parents turn everyday situations into opportunities for language learning and to enhance parents’ understanding of how language develops. Facilitators encouraged parents to teach their children first language skills through music, storytelling, book reading and a variety of craft activities. Usually, two SKILLS programs were run each term in various schools.
STEP (Supporting the Transition & Entry to Prep) ^a	Through playgroups and parent sessions, this program aimed to build school readiness, to help schools support children and families in the transition, to provide activities that supported family–school connection, and to build opportunities for social connectedness and parental participation in the wider school community.
Circles of Care ^a	Designed to strengthen connections between schools, families and community services and harmonise activities in these settings by surrounding children with identified needs with a supportive group of adults. A Circle, which includes at least the child, parent(s), teacher and agency staff, sets goals, mobilises resources for the child, family and school and monitors progress. The client is conceptualised not as the child but as a dysfunctional developmental system, with better outcomes for children the ultimate goal (Branch, Homel & Freiberg 2012).
Child-specific programs and activities	
Program or activity	Description
Personal development programs	<p>Kindergym, a gymnastic program for preschoolers that aimed to develop gross motor skills and assist children to follow instructions and have fun.</p> <p>Anger Management through Drama. Creative program helping young people to manage aggression and inappropriate behaviour through drama. Partnership with Metaxis Theatre.</p> <p>Peer Leadership Programs for Older Primary Children. Aimed to support young people at risk of suspension to develop self-awareness, self-esteem, networks and the social skills necessary to take on a leadership role among their peers.</p>
Individual support	<p>Seasons of Growth. Grief and loss program to assist children aged five to nine deal with death and separation. Based on the Centacare program model.</p> <p>Play Therapy, a structured form of therapy which offers a way for children to work through difficult emotions and experiences and change the way they think and feel about things in a positive way.</p>

a: STEP and Circles of Care were focused on children as well as parents and other children’s supporters, so both could be listed as Child Programs as well as Parent Programs.

The effects of family support on children and families

The scientific literature on developmental crime prevention, reviewed briefly below, does not throw much light on the effectiveness of Pathways-type family support on child development or family wellbeing. It does, however, point strongly to the value of incorporating as many evidence-based programs (EBPs) as possible into the suite of services provided by community-based agencies and partnerships. Evidence-based parenting support programs (EBPSs) such as Triple-P and the Incredible Years (eg Leijten et al. 2017; Sanders 2023, 2012) should be high on the menu of EBPs considered by community agencies. In a recent article, Doyle and colleagues (2023) argue persuasively for policy reforms to achieve population-level impact of EBPSs (including reductions in antisocial behaviours and criminal offending) that blend universal and targeted approaches to achieve ‘proportionate universalism’, wherein resources directed to parents are matched to their levels of need (Marmot & Bell 2012).

However, it is important to recognise that parent support programs are not coterminous with the range of Pathways family support activities in Table 1. In describing these activities, we have taken care to emphasise their highly practical, diverse and often relatively unstructured nature and their responsiveness to the changing needs of individual families, with an emphasis on family participation and building on strengths (Dunst & Trivette 2009). As trust between community workers and parents developed, often through varied forms of practical assistance or participation in facilitated playgroups or the preschool communication program, parents and children could be offered structured, evidence-based programs such as Triple-P. However, for most families, such programs constituted only a small minority of their contacts with Pathways, especially in the first phase of the project.

The ‘comprehensive, generic or holistic’ approach to family support exemplified by the Pathways to Prevention Project stands firmly in a long interdisciplinary tradition that social work scholars in recent decades have sought to conceptualise and systematise, recognising the need for ‘description, clarification and definition’ (Dolan, Pinkerton & Canavan 2006: 11). Evaluation methods in this developing literature are as varied as the theoretical assumptions, program components and implementation practices of the various interventions, but results point generally to a range of mostly short-term benefits for children and families (Brady, Holt & Whelen 2018; Dunst & Trivette 2009; Fernandez 2007; McConnell, Breikreuz & Savage 2012). Unfortunately, the 260 community-based family support programs reviewed by Layzer and colleagues (2001), in the largest and most rigorous study which we have been able to locate, were mostly different in architecture or content to Pathways, in that they made much greater use of professional staff, most operated for less than a year at a lower level of ‘intensity’ than Pathways, and only half offered social support. Nevertheless, findings relevant to Pathways included the value of specialised professional staff working in partnership with paraprofessional staff, the benefits for children of parental peer support, and the value of group settings for parents. The study also found evidence for both short and long-term effects on children, based on quasi-experimental and randomised evaluations.

The limited literature on community-based family support should be distinguished from the much larger literature on evidence-based early prevention programs, to which we have already referred. For research-based, manualised and scalable early prevention programs, such as structured preschool, centre-based developmental day care and parent education, there is strong evidence for both short and long-term effects on parent and child outcomes. Child outcomes include improved academic achievement, school engagement, social skills, language development and social-emotional wellbeing, and reduced maltreatment by parents, antisocial behaviour, substance abuse and crime (Deković et al. 2011; Doyle et al. 2023; Farrington, Ttofi & Lösel 2016; Homel 2021; Manning, Homel & Smith 2010). When ‘family support’ features in systematic reviews and meta-analyses, it is usually in a very specific and ‘programmed’ form, such as parent training or family skills development, rather than the varied forms that typify the Pathways Project (eg Kumpfer & Alvarado 2003). The evidence for the effect on criminal offending of these approaches is generally positive (Piquero et al. 2016). In a meta-analysis of the effects of a range of early prevention programs on adult criminality, Deković and colleagues (2011) found that programs that primarily targeted child academic skills or family support produced lower (but still positive) effect sizes than programs that explicitly promoted norms against illegal behaviour.

In summary, the effects of Pathways-style family support on child and parent outcomes, including participation in youth offending, are not well understood. Nevertheless, there are some encouraging signs in the research literature that at least some elements of the comprehensive family support services offered by community agencies can have short or long-term benefits for children, especially if evidence-based parent support programs or other types of EBPs are included (eg Whittaker et al. 2014).

The Preschool Intervention Program

The Brisbane region in which the Pathways to Prevention Project operated included seven primary schools in the early 2000s, which reduced to five by 2011, the last full year of the project (by which time two schools had been merged with others). Until the introduction of the Prep year in 2007, all seven schools had separate government-run preschools located in their grounds, each of which offered two half-week preschool programs delivered by trained early childhood Education Department teachers.

Homel and colleagues (2006a: 17) estimated from enrolment and Census data that, in 2002 and 2003, when the Preschool Intervention Program (PIP) was delivered, about 85 percent of four-year-old children in the area attended one of the state preschools. Of these children, 616 participated in PIP, and parents consented to the collection of data. As would be expected, given the diversity of ethnic groups in the region, the preschool sample was culturally diverse, consisting of 32 percent Vietnamese, 16 percent Pasifika, four percent Aboriginal and Torres Strait Islander and 50 percent other cultural backgrounds, most of whom were children from Anglo-Celtic family backgrounds. English was not the first language in about 54 percent of homes (Elias et al. 2006). This diversity roughly matched the demographic profile of the region, although Indigenous Australian children were significantly under-represented (4% vs approximately 7% in the local population). This under-representation could, however, be partly explained by healthy enrolments in a high-quality local Aboriginal and Torres Strait Islander community kindergarten which was not part of PIP.

As we explained earlier, PIP comprised two programs, each implemented in two preschools in both 2002 and 2003: a communication program and a social skills program. These two programs are described in more detail in the next two subsections. In previous publications (eg Homel et al. 2006a), the effects of both these programs have generally been combined, showing positive impacts at the end of preschool and in Year 1 for language skills, social skills, teacher-rated classroom behaviour and overall academic achievement. This is in line with a large international literature demonstrating the multiple benefits of early childhood programs enriched by the use of evidence-based practices for children living in socially disadvantaged areas (eg Bierman et al. 2017; Kagitcibasi et al. 2009; Schweinhart 2013). The famous Perry Preschool Project, evaluated for 40 or more years by Schweinhart and colleagues (Homel & Thomsen 2017), has inspired a multitude of early prevention initiatives in many countries and has drawn international attention to the power of an enriched kindergarten/preschool curriculum, rigorously implemented by skilled professionals, for the long-term prevention of crime.

In the present analyses, we report the impact of just the communication program on behaviour throughout the primary school years and on involvement in serious youth crime. We do this for two reasons:

- We would expect a priori that, because the communication program was actively embedded and strategically integrated into everyday class routine and much more intensively implemented for a much longer period (30+ weeks compared with 14 weeks) by trained teachers working within the school system, its measurable long-term effects would be greater.
- Analyses of trends in behavioural data throughout primary school suggest that the communication program had sustained effects, in contrast to the social skills intervention, for which the positive effects measured at the end of preschool were not maintained.

We have therefore included data from the two preschools that received the social skills program with the other three preschools that simply taught the standard curriculum. This actually increases the rigour of the test of the long-term impact of the communication program, because we know that the social skills program did have valuable short-term benefits for behaviour, particularly for boys (see below and Homel et al. 2006a: 84–85). These positive effects might also have been sustained for some years in forms that we do not have sufficient data to measure—for example, effects on the kinds of social skills measured by Clowning Around from 2008 (Freiberg et al. 2023).

The social skills program

The social skills program was designed to promote children’s prosocial behaviour, positive peer relationships and problem-solving skills. In doing so, it also aimed to reduce the incidence and severity of difficult behaviours that can disrupt the classroom environment and affect learning outcomes for children. The content of the structured program focused on developing skills that children need to get along well with others, including the ability to accurately interpret social information, overcome unproductive emotions (eg anger), control impulsive behaviours (eg hitting), consider the consequences of one’s actions, and develop a repertoire of strategies for solving social problems (Homel et al. 2006a).

The program included material from both Preschool PALS (Cooper et al. 2001) and the Incredible Years Child Training Program (IYCTP; Webster-Stratton 1996). Preschool PALS was an Australian program designed for children between three and six years, for which training and support is no longer offered. It used a range of non-verbal tuition tools, such as games and puppets, and limited English language requirements where possible. It had a focus on teaching children to manage their behaviour and negative emotions. IYCTP has been widely implemented internationally and has high levels of empirical support (Pidano & Allen 2015). It extended the material covered by Preschool PALS and has a particular emphasis on generating multiple solutions to problem situations and evaluating likely consequences of social situations.

The program was run by a psychologist supervised by the Griffith research team over 14 sessions of 20–30 minutes each across two school terms during preschool hours. It was delivered to small groups of children (typically groups of five) who were withdrawn from the preschool classroom. Based on language and behavioural assessments, groups were constructed so that behaviourally challenged children were mixed with more prosocial children. To help maintain skills learned, parents and teachers were provided with weekly tip sheets containing brief information about what each child had learned that week and making concrete suggestions for reinforcing the skills at school or at home.

Evaluation at the end of preschool showed that, while girls were always better behaved and engaged in more prosocial behaviours than boys, the social skills program markedly narrowed the gap between the genders, with girls only scoring marginally better than boys in the intervention group (Homel et al. 2006a: 84). In other words, the social skills intervention improved the behaviour of boys, but not girls, by the end of the preschool year.

The communication program

This overview of the communication program is drawn from brief descriptions in the 2006 report on the first five years of the Pathways to Prevention Project (Homel et al. 2006a) and from a more detailed unpublished document (Freiberg 2004).

Homel, Freiberg and colleagues (2006a: 34) make a clear case for the crucial role of communication skills in successfully negotiating the transition to school:

To communicate effectively children need to have a basic understanding of the way thoughts and concepts can be represented in spoken language, and as they enter school they also need to have a beginning understanding of the way words can be represented visually in symbols like drawings and printed writing. When children start school they need to be proficient enough in their language to be able to understand the concepts commonly used in instructional discourse (e.g., how to express the properties of time, location, or object qualities like relative size: tomorrow, under, bigger etc); they also need to be able to follow directions, get along with others, and control impulsive, aggressive and disruptive behaviour. These characteristics are sometimes referred to collectively as “teachability”, and they depend on the child’s possession of a certain degree of language and social competence.

There is a strong link between conduct problems and skills in language and social competence that researchers have long understood (Beitchman et al. 1996). To understand the needs of local children, the Griffith research team conducted preliminary research in 2001 (before the formal preschool programs were initiated) that involved listening to community members and professionals who delivered services in the area (Homel et al. 2006a; and see section *Data and key measures*). It became clear in this research that the link between communication skills and conduct problems was also well understood by teachers in the Pathways schools, who reported that disruptive and oppositional behaviour and poor language skills were the most common obstacles to school success for children in their classes. Children with higher level oral language skills are typically better able to handle social situations and are therefore more likely to engage in positive interpersonal relationships and less likely to engage in disruptive behaviour in the classroom (Beitchman et al. 2001; Goodyer 2000; Sylva & Colman 1998).

The overriding notion of levels of language learning underpinned the communication program. This concept is derived from two influential theorists and practitioners in children’s language development: Lev Vygotsky and Marion Blank. Vygotsky distinguished between two developmental levels. The level of actual development is the level that the learner has already reached to solve problems or perform tasks independently. The level of potential development is the level that the learner can reach under the guidance of teachers or in collaboration with expert peers (Vygotsky 1978). Scaffolding is the process by which the child achieves a new level of learning or masters a more difficult skill with the careful guidance and support of a teacher, parent or peer who has already mastered the skill. In the communication program, the person providing the scaffolding to increase the language skills of the child could have been a parent, class teacher, teacher aide or specialist teacher.

Marion Blank and her colleagues (Blank, Rose & Berlin 1978) developed a model of language learning that outlined four levels of discourse, based on levels of abstraction. The four levels, in order of increasing ‘perceptual-language distance’ are described as:

- Level 1—matching perception;
- Level 2—selective analysis of perception;
- Level 3—reordering perception; and
- Level 4—reasoning about perception.

Broadly speaking, it is expected that mastery of more complex language skills will occur once foundational language learning is in place.

Blank, Rose and Berlin (1978) developed the Preschool Language Assessment Instrument (PLAI) as a method to assess a child’s mastery of each of the four levels of discourse proposed in their model. (Blank and her colleagues revised the PLAI to form PLAI-2 in 2003, unfortunately too late for its use in the Pathways to Prevention Project; Blank, Rose & Berlin 2003). The test is designed for children aged three to six and involves showing the child pictures and asking questions that vary along the four levels of abstraction. The PLAI results in a score for each of the discourse levels, providing a profile of the child’s language skills that can inform the teacher and enable interaction with the child to be aimed at the appropriate level. To provide additional detail of a child’s strengths and weaknesses, directions for a qualitative assessment of responses are also provided.

In the preliminary phase of the communication program, all children in the participating preschools were assessed using the PLAI to measure the child’s ability to cope with the language demands of the classroom. Children were then placed in small groups with others who were at similar stages of development. Program staff also took care to balance each group, as far as possible, in terms of gender and cultural background. In a small group of children working at a similar level, the guidance, or scaffolding, could be aimed at the level just above that at which the children were currently operating, to gradually move them towards mastery of the next level of skill.

Group activities such as games and book reading provided children with the opportunity to extend and practise oral language skills under the guidance of a trained teacher or teacher aide. Specialist communication teachers designed lesson plans for each session for each level of discourse, in collaboration with class teachers. Within each lesson plan, a variety of activities focused on several specific language skills, using the current preschool theme (such as animals or transport). The language skills targeted were based on Blank’s Levels of Language. Central to this strategy was the provision of a safe and supportive environment in which the children could practise their new skills.

The communication program was conducted over three school terms and lasted approximately 30 weeks, not including the preliminary weeks in the first school term, when specialist teachers and children were involved in baseline assessment and development of individual language profiles for each child. The program also incorporated teacher-focused input through the dedicated attempts that visiting specialist staff made to involve classroom teachers.

Visiting staff offered advice and information to classroom teachers on how to facilitate the development of children's language and social skills. Resources were also provided to many classroom teachers; some examples of the support include:

- a Social Skills Resource Kit containing reference books and materials such as games and activities for practising identified social skills (like turn-taking or cooperating), designed to help classroom teachers develop their own social skills curricula; and
- the specialist communication teachers designed cue-card prompts for teachers, reminding them how to ask questions that would stimulate children's use of certain levels of abstraction in the language they were using during classroom interactions and conversation. They also regularly prepared topical materials in support of particular themes that preschool teachers happened to be using in their classroom program.

Critically, the professional development and advisory role undertaken by specialist program staff was designed to ensure that program input might have an ongoing effect that would be sustained in the longer term, rather than limited to the period when specialist staff were present.

Parent-focused activity

As part of the communication program, specialist teachers facilitated the implementation of a range of activities for parents and carers, designed to engage families more actively in their children's learning and to support the development of children's language and social skills. The communication specialists made every effort to build into their programs information, activities and workshops that would provide families with opportunities to become more involved with their children's learning, both at home and at preschool. Examples of these efforts included the following.

- SKILLS workshops aimed to help families Support Kids in Language and Literacy Skills and encourage parents to explore the ways normal family interactions (such as games, bedtime stories and dinner-time conversations) could foster children's language development (see Table 1 for details, in the section headed 'Parenting education supporting children's learning'). Family support workers facilitated the work with parents, alongside the specialist communication teachers. While there was a major focus on these activities in the preschool communication program, they were also extended into three Grade 1 classes in one Pathways school, using the PLAI to assess children's language performance (Hay et al. 2007), with positive results on reading proficiency, compared with Grade 1 students from the same school in the previous year.

- Interactive picture book making activities happened at preschool, where parents and children worked together to write and illustrate their own stories to make writing a more personal, social experience and encourage shared reading (Elias et al. 2006, 2002). The reading material that was developed through the interactive bookmaking activities was designed to stimulate children’s use of language and to encourage parents’ involvement in the early literacy development of their children, including in their first language (Elias et al. 2002). These kinds of initiatives to enhance parent–child book reading were not only incorporated into the routine delivery of the communication program for all children in the two intervention preschools in 2002 and 2003, but they were also extended by the specialist teachers to some children in two of the five preschools in the comparison group. After six months, this parent–child dialogic intervention was evaluated by interviewing 62 of the preschool children’s caregivers. The survey showed that the program appeared to have achieved its aim of increasing the amount of parent–child book reading, from 38 minutes per week to 89 minutes (Elias et al. 2006). Because it is possible that this increase in parent–child reading time translated into improved behaviour at the end of the preschool year, including for the two preschools in the comparison group, the magnitude of the impact of the communication program on children’s behaviour, compared with comparison preschools, might be somewhat understated.

Overview of key effects of the Pathways Project to the end of primary school

The Preschool Intervention Program

We noted earlier that, in previous evaluations of PIP, we tended to combine the communication program with the social skills program. This approach was reasonable when investigating the immediate effects on generic outcomes like classroom behaviour, because both programs appeared to have similar effects, and combining them increased statistical power. In this summary, we report both combined and separate effects.

The model of communication skills training used by specialist teachers in implementing the Pathways communication program was more effective in promoting children’s language proficiency (measured by the PLAI) than normal non-communication program preschool programs, where only children with identified language problems received assistance from the specialist communication teachers. The effect size was about 0.20, which is comparable with the difference between native English speakers and children for whom English is a second language. This demonstrates that a universal program can have a beneficial impact, compared with the usual approach in which children identified with special communication needs are withdrawn for intensive work (Homel et al. 2006a).

Participation in PIP (either the social skills or communication program) reduced the level of difficult behaviour at the end of preschool for boys but not for girls. Girls' behaviour was always better than boys', but not significantly different by the end of preschool. In other words, PIP had the effect of bringing boys' behaviour into close alignment with girls' behaviour by the end of the preschool year. The PIP effect size was 0.40 for the Rowe Behavioural Rating Inventory (RBRI) described in the section *Data and key measures*, suggesting a substantial impact (Homel et al. 2006a). Similar effects were found for prosocial behaviour, as rated by the Strengths and Difficulties Questionnaire (Goodman 1997; Homel et al. 2006a).

The social skills program, when analysed separately, reduced difficult behaviour for boys at the end of preschool, with the pattern mirroring the effects described above for PIP as a whole (Homel et al. 2006a). However, in a path model where the dependent variable was mean classroom behaviour across Grades 1–7, there were clear effects of the communication program for boys but not girls. The social skills program, although related to end of preschool RBRI, did not continue to influence primary school RBRI beyond Grade 1 (unpublished analyses).

The combined effects of the Preschool Intervention Program and the Family Independence Program

Participation in either PIP or the Family Independence Program (FIP; ie family support) improved Grade 1 teacher ratings of children's readiness for school (using a 10-point scale based on academic performance, language proficiency, social skills and behaviour), with much larger effects for boys than for girls. The effect size for boys was 0.46, a substantial effect. This is the same pattern as for PIP: Pathways participation, either through parent empowerment through FIP or through an enriched preschool program, removed the 'handicap' of being a boy at the transition to school (Homel et al. 2006a).

Involvement in FIP by a child's parents, in addition to the child's direct involvement in PIP, corresponded to the most marked improvements in behaviour, regardless of the gender of the child. Moreover, children whose parents were involved in FIP but who were not themselves part of the preschool intervention improved as much as children directly involved in PIP (but with no parental involvement in FIP). These results suggest that indirect effects via the parents can be as powerful as the effects of programs directed specifically at children. The impact of FIP on children's behaviour is the more impressive because ratings were made by teachers in the preschool context, not at home, and the teacher almost certainly did not know that the child's parents were involved in FIP (Homel et al. 2006a).

Family support throughout primary school and children's behaviour

After the preschool intervention concluded at the end of 2003, family support through FIP remained available for all families with children enrolled in one of the seven Pathways schools. Because involvement by carers in the Pathways service was voluntary and motivated by need, Pathways children naturally tended to score worse on most measures compared with non-Pathways children from the same school, grade and class. Evaluation of the effects of the service on children thus necessitates the careful selection of matched control groups from the database records of non-Pathways children (Homel et al. 2015b). The analyses summarised below employed such matching.

To explore how children were feeling about their lives in the last year of primary school, Transition to High School Surveys for the members of the 2002 and 2003 preschool cohort of 616 children were conducted in 2009 and 2010, when the cohort was in Grade 7. An overview of the survey is presented in the section *Data and key measures*, and details of the risk and protective factors that were measured can be found in Homel and colleagues (2015a).

Two hundred and eighty children were identified who had attended one of the seven participating schools since preschool, had participated in the Grade 7 child survey and had fairly complete RBRI scores between preschool and Grade 7. From this sample, 123 'family support children' were matched one on one with 123 'non-family support children' on their RBRI score at the beginning of preschool and a range of other variables (Homel et al. 2015b). The level of family participation in Pathways family support was assessed from project records and classified as: no contact, 1–5 contacts, 6–22 contacts, or 23+ contacts. The focus of analysis was changes between Grades 1 and 7 in teacher-rated classroom behaviour and between Grades 5 and 7 for wellbeing scores from Clowning Around, a game-based measure of child social and emotional wellbeing that was the precursor of Rumble's Quest (Freiberg et al. 2023). Compared with the no-contact control group, Pathways family support (for those with five or fewer contacts) was associated with subsequent improvements in both classroom behaviour (effect size 0.58; $p=0.003$) and in Clowning Around Self-Regulation and Social Wellbeing scores (effect sizes of 0.71 and 0.59). No significant changes were found for families who had six or more contacts.

Using the same 246 children described above, the effects of family support between Grade 1 and Grade 7 on 13 child risk and protective factors were modelled using a range of covariates (Homel et al. 2015a). There were more similarities than differences between the Pathways and control children; despite this, Pathways children tended to exhibit more signs of problematic relationships, attitudes and behaviours. At the point of transition to high school, many children whose families were (or had been) receiving support were at a crossroad with respect to their connectedness to school and family and engagement with antisocial and criminal behaviour.

However, the statistical models generally revealed no differences between Pathways children and control children, meaning that, although Pathways children were self-selected via their family's involvement in the project to generally exhibit poorer outcomes, the family support activities had positive effects. Overall, Pathways participation mostly appeared to narrow the gap between the Pathways group and the control group to the point of statistical non-significance. The few differences that remained between the two groups after the statistical controls suggested that high support (more than 14 contacts) could help lift these children to the level of the control group or (in one or two cases) even better.

Family support throughout primary school and parent efficacy

Finally, a series of analyses have shown that parent efficacy was markedly improved by participation in Pathways family support activities (eg Freiberg, Homel & Branch 2014; Freiberg, Homel & Lamb 2007). These analyses used the Parent Empowerment and Efficacy Measure (PEEM), developed specifically for the Pathways Project. Parenting efficacy is often a target of interventions with children and families, particularly families experiencing poverty and adversity (eg the Nurse–Family Partnership; Massi et al. 2023; Olds et al. 2019). This is because self-efficacy, parenting efficacy and empowerment can buffer negative effects of adversity and stress on parenting practices, as well as parent mental health. Therefore, improving parenting efficacy can empower parents to take proactive steps to benefit themselves and their children.

Consistent with patterns of service usage is Freiberg and colleagues' (2014) finding that parents with a low sense of efficacy tended to benefit most from family support. A series of more recent analyses further showed that family support at any time when a child was in primary school was associated with large improvements in parenting efficacy up to two years later (Allen et al. 2023b). It is very encouraging to see positive results of Pathways family support for parenting efficacy and empowerment, because such empowerment was one of the main objectives of the FIP. However, improvements in parenting efficacy were not significantly associated with changes in children's behaviour, as measured by the RBRI. Nonetheless, it is likely that the improvement in parenting efficacy had many positive benefits in families' lives which were not captured by available Pathways data.

Overview of risk and protective factors for serious youth offending at the transition to high school

In analyses reported in Working Paper 1 (Allen et al. 2023c), we examined a wide range of risk and protective factors for youth offending using data from Year 7 students (who were in their last year of primary school) using the Transition to High School Survey. These factors included individual factors (eg antisocial values, impulsivity), peer factors (eg peer antisocial behaviour), family factors (eg parental rules) and school factors (eg school attachment). We aimed to identify the relative importance of different factors in predicting offending and how these may have varied according to variables such as gender and early childhood behavioural risk.

Results showed that, overall, the factors that were the strongest Year 7 predictors of later offending were impulsivity, early childhood behavioural risk, having been suspended from school during primary school and having prosocial values (which was associated with less offending). For children who had not experienced early childhood behavioural risk, and were therefore at lower risk of offending, prosocial activities and positive feelings about the transition to high school were important protective factors.

Research questions and the structure of this report

The analyses conducted for this project were designed to address the following four general research questions:

1. Did the Pathways communication program and family support services delivered in 2002 and 2003, and the family support services offered after 2003 to families of primary-aged children, reduce the likelihood of the children's subsequent involvement in serious (court-adjudicated) youth offending?
2. Which program features were most effective in reducing the likelihood of serious youth offending, and for which participants?
3. What mediating and moderating processes explain the influence of the Pathways Program on the risk factors for serious youth offending?
4. Compared with other similar Queensland communities, was there a trend for less offending and offences in the Pathways community, over the period that Pathways was operating and after this period?

The section *Data and key measures* provides an overview of the key measures used in this report, including the processes necessary to acquire the data on serious youth offending.

The four research questions are explicitly addressed in later sections. Research questions 1, 2 and 3 are examined in sections *The preschool communication program and serious youth offending* and *Family support and serious youth offending*. The *preschool communication program and serious youth offending* section uses logistic regression and a mediation model to explore whether the preschool communication program reduced the likelihood of serious youth offending and whether this effect was mediated by improved classroom behaviour. The section *Family support and serious youth offending* uses latent class analysis to identify different patterns of usage of family support that was available to all families in the preschool cohort during the preschool year and from Grade 1 if they attended one of the seven Pathways schools. The section then explores, using classification tree analysis, whether different forms of family support reduced the risk of serious youth offending.

The section *Pathways and offending at the community level* shifts the focus from individuals and families to aggregate crime statistics for the suburbs comprising the Pathways region and investigates how they compare over time with suburbs in south-east Queensland that are comparable in socio-economic status. This section thus addresses research question 4: can the Pathways Project be shown to have reduced crime at the community level?

In the *Conclusion*, we summarise our findings and discuss both the limitations and strengths of our work and some implications for social policy.

Four working papers provide further results and methodological details that could not be included in this report for space reasons; they include the strong evidence for the positive effects of family support on parent empowerment and efficacy (Allen et al. 2023a–d).

Data and key measures

The Pathways database

The Pathways database includes data from 6,053 children and 3,740 families. Of these, 4,858 children (in 3,290 families) attended one of the seven Pathways state primary schools between the years 2002 and 2011. The remaining 1,195 children (in 724 families) are not known to have attended a Pathways state primary school, but the children and families had some contact with Pathways over the period 2002 to 2011. The preschool cohort of 616 children is included in the overall database.

The database includes information about both families and children. Some data were collected through surveys of parents at various times; through direct tests of children, conducted in classrooms, at various times; through records of child and parent participation in Pathways activities; and from linked data from the Queensland Department of Education for NAPLAN, attendance, suspensions and exclusions.

Table 2 summarises the different sources of data in the Pathways database, with bold text indicating the datasets used in this report. Although rich data were provided by surveys of parents over the years, response rates were often low. We focus on datasets that provided the most complete data over time, especially for the preschool cohort.

Measures used in this report

Indigenous status

Our starting point in analysing and reporting data about Aboriginal and Torres Strait Islander families and children is the recognition that Indigenous over-representation in the youth justice system, which is regularly documented in government publications (AIHW 2023), is a product of a history of forced removals, bureaucratic control, entrenched social disadvantage and institutionalised racism apparent in levels of under- and over-policing of private and public spaces respectively (Homel, Lincoln & Herd 1999).

The Pathways research team and colleagues from Mission Australia and Education Queensland recognised this history from the earliest days of project planning nearly 25 years ago. Through respectful conversations and partnerships with Aboriginal and Torres Strait Islander organisations, residents and elders, we put local Indigenous culture, knowledge and priorities for action at the centre of project activities. The employment of several Indigenous community workers was fundamental to the project's success over many years in maintaining credibility and relevance for a high proportion of Indigenous families in the area (Homel et al. 2006a, 2006b; Homel, Lamb & Freiberg 2006).

Indigenous Australians in the Pathways community strongly supported the project and actively participated in both researching the needs of local children and in the design and delivery of family support services to their own community. Perhaps the main reason was their recognition of the project's potential to promote the wellbeing of Indigenous children and reduce their offending rates. Delivering on this promise remains a core ethical imperative for the research team and project colleagues, consistent with Target 11 of the Closing the Gap National Agreement: 'By 2031, reduce the rate of Aboriginal and Torres Strait Islander young people (10–17 years) in detention by at least 30 per cent' (see <https://www.closingthegap.gov.au/national-agreement/targets>).

In this report, a child's status as Indigenous or non-Indigenous is not the focus of any analyses. Rather, Indigenous status is incorporated in some statistical models as a covariate, thus taking account of Indigenous over-representation and making the estimation of the impact of the project on youth offending more accurate. We have deliberately avoided using Indigenous status as a key explanatory, mediating or moderating variable, partly to protect the privacy of the community (especially where such analyses would involve reporting on small, potentially identifiable subgroups of children) and to avoid publishing comparisons of Indigenous and non-Indigenous children which could be interpreted as implying that Indigeneity causes offending, rather than being a product of Australia's history of systemic racism and the consequent grossly disadvantaged circumstances of many Indigenous people (Thurber et al. 2020). Such analyses will be undertaken in partnership with Indigenous research colleagues and, if they lead to useful insights about priorities for community-based action, shared privately with local Indigenous people.

Youth Justice linked data: Serious youth offending

In 2014, the Pathways team received permission from the Queensland Department of Justice and Attorney-General to link the 616 youth who were in the original Pathways preschool intervention with Youth Justice records. The process for linking the data had full ethics approval from the Griffith University Human Research Ethics Committee (GU Ref No: CCJ/03/14/HREC) and the Queensland Government Statistician's Office, because the identity of the young people involved was heavily safeguarded, and the project was deemed to be in the public interest. The actual linking was delayed until mid-2016, because all the children in the preschool cohort had turned 17 by late December 2015. At that time, 17 was the age of adult criminal responsibility in Queensland. Data linkage was performed by Youth Justice Services within the Department of Justice and Attorney-General at the request of the Queensland Government Statistician's Office.

The child’s name, date of birth and gender were used to carry out the matching, but the children’s names were separated and removed from the file received from the justice department.

The Youth Justice data include records where a young person aged 10–16 had an offence finalised in court. These data thus represent the serious end of youth offending, because most young offenders are diverted from the court process. Young people may appear in court because of the seriousness of the offence or because of an extensive existing record of offending.

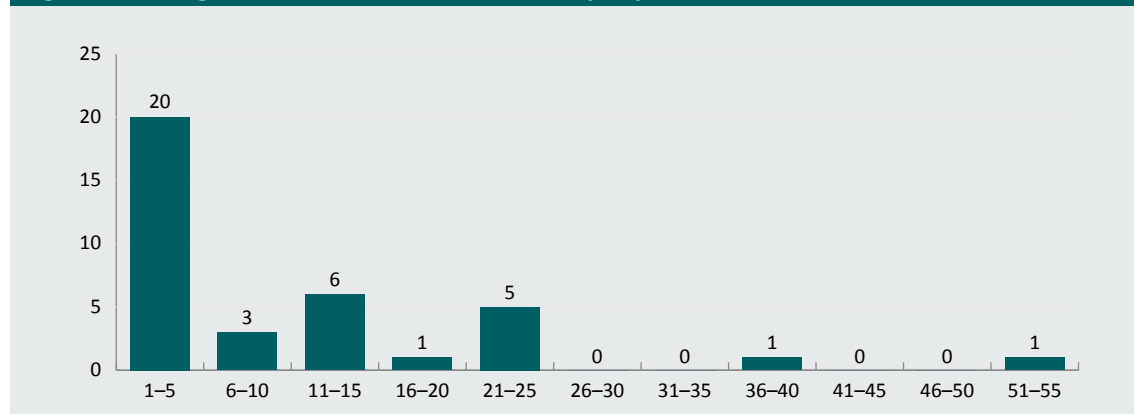
Figure 1 shows the distribution of the total number of offences per person, ranging from 1 to 55. There were 372 finalised offences in the group, including 39 violent offences. Twelve offenders (32%) accounted for 75 percent of all offences.

The youth justice data for the Pathways preschool cohort show:

- About 40 percent of the young people with a youth justice record had at least one violent offence.
- On average, 10 offences per young person were finalised (see Figure 1).
- The average age of first youth justice involvement was 14, although several were aged 12 at first involvement.

Offences were categorised according to ANZSOC 2011 (Australian Bureau of Statistics 2011). The Australian and New Zealand Standard Offence Classification (ANZSOC) divisions were then aggregated to eight categories for ease of interpretation. These included violent offences (eg acts intended to cause injury, sexual assault), driving offences (eg driving unlicensed), property offences (eg theft, unlawful entry), fraud, illicit drug offences (eg possession), public order offences (eg trespass, offensive behaviour), justice procedures (eg hinder police officer) and other.

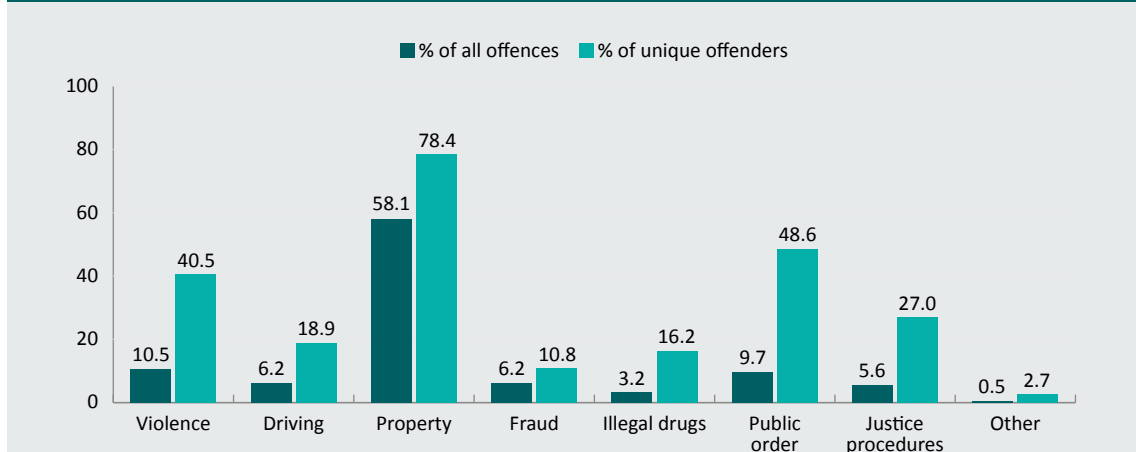
Figure 1: Histogram of the number of offences per person



Note: $n=37$, mean=10.05, standard deviation=11.776

Figure 2 shows the percentage of all 37 offenders who had an offence recorded in each category, as well as the percentage of all offences in the sample falling into each category. Property offences constituted the majority of offences, about half of which were theft, one-third break and enter, and a little over 10 percent car theft.

Figure 2: Offence categories (%)



Rowe Behavioural Rating Inventory

The Rowe Behavioural Rating Inventory (RBRI) is a validated teacher checklist used to assess the level of children’s difficult and disruptive behaviour (Rowe & Rowe 1997). The present study used the 12-item teacher version. The RBRI presents teachers with a series of paired behavioural statements, and teachers are asked to indicate, on a scale of 1 to 5, which statement best describes the typical behaviour of the child at school. For example, one pair of statements reads: ‘Cannot concentrate on any particular task, easily distracted’ and ‘Can concentrate on any task, not easily distracted.’ Responses closer to 1 indicate more agreement with the first statement, and responses closer to 5 indicate more agreement with the second statement. The list of all 12 items is given in Working Paper 3 (Allen et al. 2023d).

Three subscales include inattentiveness, restlessness and antisocial behaviour. In the present study, we use the total score, which was recoded to range from 0 to 48. Higher scores represent poorer adjustment. A cut-off score indicating potential ‘at risk’ disruptive behaviour is given with reference to normative age and gender cohort data. For example, for boys aged five to six, this cut-off falls at the 80th population percentile of the total score; for girls, it falls at the 85th percentile.

The RBRI was completed in the Pathways study each year by children’s classroom teachers. It was also used for the preschool cohort as part of the pre and post-intervention assessment. Of the 4,858 children in the database who ever attended a Pathways state primary school, 4,082 had at least one completed RBRI (84%).

Table 2: Sources of data in the Pathways database					
Dataset	Brief description	Respondent	Focal person/s	Focal cohort	Relevant years
Cloning Around	Computer game that measures children’s wellbeing (precursor to Rumble’s Quest; Freiberg et al. 2023)	Child	Child	Children in Pathways primary schools	2008–2011
Grade 1 survey	Regarding child behaviour, academic performance and engagement with school	Teacher	Child	Grade 1 children in Pathways schools	2004
NAPLAN	Academic development	Linked from Qld Dept of Education and Training	Child	Children in Pathways primary schools	2003–2012
Parent Empowerment and Efficacy Measure (PEEM)	Assesses parenting efficacy	Parent	Parent	All parents of children in Pathways schools	2005–2011
Pathways contacts	Family and/or child contacts with Pathways activities and services	Mission Australia Pathways team records	Child, family	All parents and children in community	2002–2011
Preschool Language Assessment Instrument	Language assessment for preschool children	Researcher; specialist teacher	Child	The preschool cohort	2002, 2003
Preschool surveys	Regarding child development, parenting and engagement with preschool	Parent	Child, parent	The preschool cohort	2002, 2003
Progressive Achievement Test	Academic development	Primary school teacher	Child	Children in Pathways primary schools	2006–2010
Rowe Behavioural Rating Inventory (RBRI)	Assesses children’s behaviour in class	Preschool or primary school teacher	Child	Children in Pathways primary schools	2002–2011
School records	Attendance, suspensions and exclusions	Linked from Qld Dept of Education and Training	Child	Children in Pathways primary schools	2003–2012
Transition to High School Survey	Wellbeing and development in the last year of primary school or the first year of high school	Child	Child	The preschool cohort	2009, 2010
Transition to High School Survey	Parenting, child wellbeing and development in the last year of primary school or the first year of high school	Parent	Child, parent	The preschool cohort	2009–2011
Youth Justice Records	Offences with court appearances; outcomes	Linked from Qld Youth Justice	Child	The preschool cohort	2010–2016

Note: Datasets are listed alphabetically. Datasets shown in bold text are used in this report

Pathways contacts

The Pathways team at Mission Australia recorded contacts that families and children had with the wide range of Pathways activities, including playgroups, barbecues and other recreational activities as well as different types of family support. As described earlier, all family support was provided on an as needed basis and was aimed towards the developmental wellbeing of children. This included individual support and counselling for parents, a range of parent education programs and help liaising with schools and other agencies. Individualised support was also provided to children, although in smaller numbers. See section *The Pathways to Prevention Project: History, structure and early impact* for full details.

In this report, we consider Pathways contact to include any kind of family or child support, but we exclude playgroups in which a database child's siblings, rather than the 'target' child, were the focus. We also exclude general recreational activities or school events involving many children and parents.

Pathways contacts are recorded in the database as the number of contacts by school term (four terms per year) from 2002 to 2011. The numbers of different kinds of contacts each term are specified.

Of the 3,740 families in the dataset, 1,060 (28%) had at least one contact with Pathways child and family support. Of the 6,053 children in the dataset, 2,423 (40%) had at least one contact with Pathways child and family support.

The Transition to High School Survey (Child)

These surveys were conducted in 2009 and 2010, when the 2002 and 2003 preschool cohort was in Grade 7, which was then the last year of primary school. In a small number of cases, children could only be surveyed in Grade 8 at high school. The school the children were attending in 2009 and 2010 was identified by using their unique Education Department ID number. Children attending a non-state school in Queensland were tracked through the Queensland Studies Authority, who held records of where children were when they completed the Grade 7 NAPLAN.

The purpose of this survey was to build on the dimensions of child wellbeing captured by the Cloning Around tool (Freiberg et al. 2023) by collecting data on measures of a child's positive development: Competence; Connection; Character; Confidence; Caring; Contribution; and Contexts that promote young people's development. The measures and their analysis are described in detail in Homel and colleagues (2015a). In Working Paper 2 (Allen et al. 2023c), we report analyses of the correlations between some of the transition to high school risk and protective factors and the child's involvement in serious youth crime.

Demographic covariates

This report makes use of three demographic covariates in several analyses: the child's gender, the number of children in each family in the Pathways database, and whether the child was recorded as being Aboriginal or Torres Strait Islander. Male gender is a recognised risk factor for offending, as is large family size, which may indicate adversity and disadvantage (Crosnoe, Mistry & Elder 2002) and a reduced capacity by parents and carers to supervise their children and steer them away from risky relationships or places (Farrington 2007). (Note that the number of children recorded may or may not be the actual number of children in the family; it is simply the number of children linked to a family in the database.) The purpose of incorporating these risk factors as covariates is not to focus on them as explanatory variables but to improve the statistical accuracy of tests of the impact of Pathways programs on youth offending and other variables such as classroom behaviour by removing 'extraneous variance' from the models.



The preschool communication program and serious youth offending

In this section, we address aspects of research questions 1 and 3. They concern, firstly, the impact on youth crime of Pathways family support services between 2002 and 2011 as well as the impact of the preschool interventions in 2002 and 2003; and, secondly, the mediating processes linking interventions with youth crime.

The specific (summarised) research questions addressed in this section are:

- research question 1: Did the communication program decrease the likelihood of serious youth offending?
- research question 3: Was any effect of the communication program on serious youth offending mediated by improved behaviour after the intervention?

The communication program was a key part of the original Pathways program. We know that enriched preschool is good for children generally, including increasing the likelihood of avoiding entanglement with the youth justice system (eg Reynolds et al. 2010; Welsh & Farrington 2007). Because prevention of delinquency and offending was a core goal of the Pathways Project, it is important to ask whether the communication program was associated with a reduction in serious youth offending among participants.

Previous analyses summarised in the section *The Pathways to Prevention Project: History, structure and early impact* and reported in Homel and colleagues (2006a) have shown that the communication program improved behaviour over the course of the preschool year. Given that disruptive behaviour is a key risk factor for youth offending (Homel & Thomsen 2017), any lasting effects of the communication program might be observed as flow-on effects to less disruptive behaviour during primary school. This does appear to be the case, as we noted in the section *The Pathways to Prevention Project: History, structure and early impact*. By asking whether improved behaviour after the intervention mediates the effect of the intervention on serious youth offending, we are testing the mechanisms by which the communication program was effective (or not). An understanding of mechanisms is important because such understanding facilitates the development and implementation of early interventions that, by targeting key risk factors, have the potential to disrupt the processes leading to youth offending.

Method

Participants

Participants were the 616 children (49% female) in the preschool cohort. These children were enrolled at one of the seven Pathways preschools in either 2002 or 2003. There were 214 children in the communication program and 402 in the comparison preschool groups.

Design of the communication program

As the section *The Pathways to Prevention Project: History, structure and early impact* explained, all children in the two preschools involved in the communication program ($n=214$) were tested using the PLAI and divided into small groups of five or fewer children to maximise the diversity of children in each group in terms of gender, cultural background and language development. Over the program's 30 weeks, group activities such as games and book reading provided children with the opportunity to extend and practise oral language skills under the guidance of a trained teacher or teacher aide. Specialist communication teachers designed lesson plans for each session for each level of discourse, in collaboration with class teachers, and also planned and helped implement parent-focused activities. The program was designed from the outset for sustained impact.

Children in the other five preschools ($n=404$) comprised the control or comparison group. Assignment to intervention or control was not at random but was based on a negotiation between the specialist communication teachers, school principals and preschool teachers. The design was therefore quasi-experimental, necessitating the introduction of statistical controls to minimise the risk of biased estimates of the effects of the program on involvement in youth crime. It is important, in this type of design, to ensure that the two groups are equivalent at baseline on key risk factors, especially teacher-rated classroom behaviour (see Table 3).

It is also important to recall that two of the five preschools in the control group received the social skills intervention, and another two received a parent–child dialogic intervention to increase parent–child reading time at home. To the extent that these interventions had ongoing positive benefits for children (something that is not clear from the available data), the size of any communication program effects will need to be correspondingly higher. In other words, these program interventions in the control group make the test of the communication program effects more conservative.

Measures

Dependent variable: Serious youth offending

The dependent variable was a binary measure of whether a participant had at least one offence leading to a court appearance as a juvenile (between the ages of 10 and 16). Linked Youth Justice data were used to derive this variable. The data linkage procedures are described in *Data and key measures*.

Rowe Behavioural Rating Inventory

The 12-item teacher version of the RBRI assesses disruptive child classroom behaviour and was completed by classroom teachers. The RBRI is described in *Data and key measures*.

In this section, we use three RBRI scores. The first is the baseline RBRI score completed by the child's preschool teacher in April of their preschool year, prior to the communication program intervention. The second is the RBRI score completed by the preschool teacher in December of their preschool year, at the conclusion of the communication program.

The third is the average RBRI score across children's years of primary school. While children were in primary school, teachers completed the RBRI at various times, which varied across schools and classrooms. Therefore, while most children were assessed with the RBRI at least once across primary school, the frequency and spacing of these assessments was not consistent across the sample. We therefore averaged all available RBRI scores taken during primary school for each child, to represent the average level of disruptive classroom behaviour during primary school.

Covariates

Covariates included male gender, family size and whether the child was Aboriginal or Torres Strait Islander. The rationale for these covariates was set out in *Data and key measures*.

Missing data

There was 'missingness' for RBRI at all assessment periods. In total, 60 participants (10%) were missing data for baseline RBRI, 76 participants (12%) were missing data for the RBRI at the end of preschool, and 99 participants (16%) did not have a primary school RBRI. The likelihood of missingness at any period was not significantly related to participation in the communication program, male gender or whether the child was Aboriginal or Torres Strait Islander. Models addressing the research questions were estimated using full-information maximum likelihood to retain all cases in the analysis. This does not impute or replace missing values but uses all available data to produce the estimates (Enders 2023). All analyses were carried out using MPlus v8 (Muthén & Muthén 2017).

Data analysis

We first describe the equivalence of the communication program group and the comparison group at baseline (the beginning of preschool). We also provide a comparison of the overall prevalence of any offending leading to a court appearance between groups, the overall prevalence of any violent offending and the average number of offences per child between groups.

To address the first research question, we examined the relationship between the communication program and the binary offending dependent variable using a logistic regression model, controlling for baseline RBRI, male gender and Aboriginal or Torres Strait Islander status. This model was fit using full-information maximum likelihood estimation.

To address the third research question, we estimated a path model to examine whether any effect of the communication program was mediated by RBRI. The path model simultaneously tested: (a) the direct effect of the communication program on serious youth offending; (b) the indirect effect of the communication program on serious youth offending via improvements in RBRI at the end of preschool; (c) the indirect effect of the communication program on serious youth offending via improvements in RBRI across primary school; and (d) the indirect effect of the communication program on serious youth offending via improvements in RBRI, both at the end of preschool and, subsequently, across primary school.

This model was also fit using full-information maximum likelihood, using a logit link. Indirect effects were the product of coefficients and were estimated as odds ratios by exponentiating this product. The odds ratio for an indirect effect can be interpreted as the ratio of the following two conditions: (1) the odds of offending when the participant is in the communication program group, with the RBRI mediators varying as they would naturally vary in that group; and (2) the odds of offending when the participant is in the communication program group, with the RBRI mediators varying as they would in the comparison group. This means that the indirect effect arises because of differences in the distributions of RBRI in the communication group vs the comparison group (VanderWeele & Vansteelandt 2010). Confidence intervals for the indirect effects were bootstrapped with 1,000 bootstraps requested (Biesanz, Falk & Savalei 2010).

Results

Table 3 shows that the communication program group and the comparison group were comparable at baseline. The groups did not differ on gender or whether the child was Aboriginal or Torres Strait Islander. The baseline RBRI was slightly poorer (higher) in the communication program group, but this did not reach statistical significance. Overall, the groups were comparable at baseline on male gender, the percentage of Aboriginal or Torres Strait Islander children and early disruptive behaviour, all factors known to be associated with youth offending. The tendency for the communication program group to begin with slightly higher levels of disruptive behaviour again ‘raises the bar’ in terms of demonstrating its impact on post-intervention behaviour and youth crime involvement.

The prevalence of any offence leading to a court appearance was 7.5 percent in the comparison group, compared with 3.3 percent in the communication program group (Table 4). This means that the prevalence of offending was 56 percent lower in the communications program group than the comparison group. Moreover, children in the communication program group were less likely to have a violent offence leading to a court appearance and had a lower number of offences on record per child. The difference in rates of violent offending was particularly marked, with a prevalence 3.6 times higher in the comparison group than in the communication group (3.2% vs 0.9%).

Table 3: Comparison of communication program group and comparison group at baseline

Measures	Communication program (n=214)	Comparison group (n=402)	Statistical test and significance
Female % (n)	50.0 (107)	48.5 (195)	$\chi^2(1)=0.13, p=0.724$
Aboriginal or Torres Strait Islander % (n)	12 (5.61)	24 (6.0)	$\chi^2(1)=0.03, p=0.855$
Baseline RBRI total score mean (SD) ^a	16.3 (11.6)	14.4 (12.1)	$t(554)= -1.82, p=0.069$

a: n=556

Table 4: Comparison of offending leading to a court appearance before age 17 for the communication program group and comparison group

Measures	Communication program (n=214)	Comparison group (n=402)
Any offence % (n)	3.3 (7)	7.5 (30)
Any violent offence % (n)	0.9 (2)	3.2 (13)
Offences per child mean (SD) ^a	6 (8.5)	11 (12.3)

a: For those 37 participants with at least one offence

Although family support was not the focus in this section, it is interesting to note that the families of 59 of the 214 communication program children (28%) received support during the preschool year, compared with 128 in the comparison group (32%). Thus, levels of family support were comparable in the two groups; but, importantly, none of the communication group children whose families received support offended, compared with 16 (13%) in the comparison group.

Modelling the effects of the communication program on serious youth crime

Table 5 summarises results from the logistic regression model examining the direct effect of the communication program on the odds of serious youth offending (research question 1). After controlling for male gender, family size, Aboriginal or Torres Strait Islander status and baseline RBRI score, participation in the communication program was associated with lower odds of serious youth offending (0.39).

Expressing this in other ways: participants in the comparison group had 2.56 times higher odds (1/0.39) of offending than participants in the communication program group. This can also be interpreted as 62 percent lower odds of offending in the communication program or, following a method used by Farrington, Gaffney and White (2022), as an effect size of 0.52, a relatively large effect. (The effect size for the direct effect using the Farrington approach is $1/0.39=2.56$; $\ln(2.56)*.5513=0.52$.)

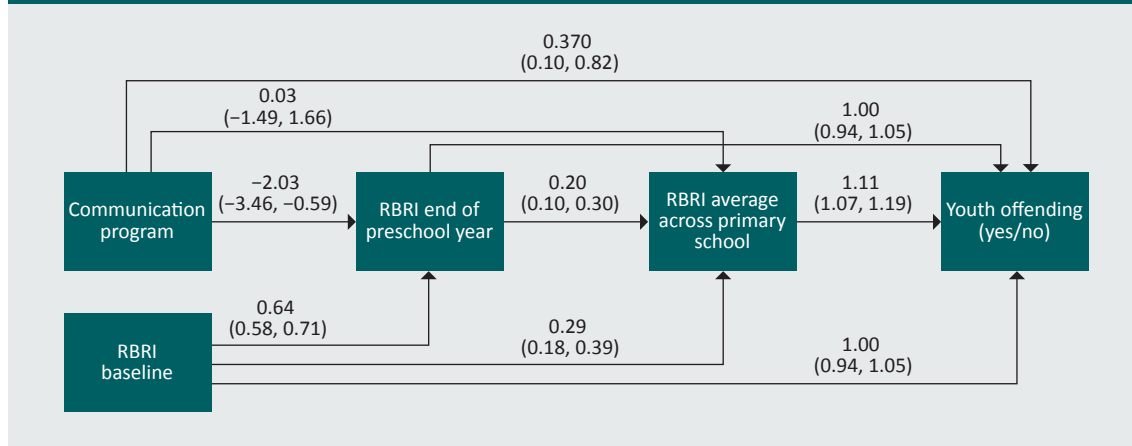
Table 5: Logistic regression of serious youth offending on communication program participation and covariates

Measures	Odds ratio	95% confidence interval
Communication program	0.39	0.16, 0.93
Male gender	2.97	1.32, 6.71
Aboriginal or Torres Strait Islander	3.61	1.29, 10.01
Baseline RBRI score	1.04	1.01, 1.07
Family size	1.22	0.93, 1.61

Note: $n=616$

We next examined RBRI following the communication program intervention, as a mediator of the effect of the program on serious youth offending. Figure 3 shows the structure of this model and the direct effects. The communication program continued to be directly associated with a lower odds of youth offending (OR=0.37, CI=0.10, 0.82). As we established in past analyses and summarised at the end of the section *The Pathways to Prevention Project: History, structure and early impact*, the communication program was associated with lower RBRI scores at the end of the preschool year ($b = -2.03$, CI= $-3.46, -0.59$). However, the communication program was not directly associated with lower RBRI scores across primary school ($b=0.03$, CI= $-1.49, 1.66$). Earlier RBRI measures were significantly associated with later RBRI measures (eg baseline RBRI was associated with RBRI across primary school), but only the more proximal primary school RBRI score was significantly associated with a higher odds of youth offending (OR=1.11, CI=1.07, 1.19).

Figure 3: Mediation model



Note: $n=616$. Paths where offending is the dependent variable are odds ratios, and the odds ratio is statistically significant if the 95 percent confidence interval does not cross 1. Paths where RBRI is the dependent variable are OLS (ordinary least squares) regression coefficients, and a coefficient is statistically significant if the 95 percent confidence interval does not cross 0. The model controls for male gender and the child's Aboriginal or Torres Strait Islander status

We estimated three indirect effects, which are summarised in Table 6. The first examined the indirect effect of the communication program via RBRI across primary school. However, given that there was not a significant direct association between the communication program and primary school RBRI, the indirect effect was not statistically significant.

The second indirect effect examined mediation of the communication program effect via the RBRI at the end of preschool. Again, given that RBRI at the end of preschool was not significantly associated with youth offending directly, this indirect effect was not statistically significant.

The third estimate examined both RBRI at the end of preschool and RBRI across primary school as mediators of the effect of the communication program on youth offending. This indirect effect was statistically significant (OR=0.96, CI=0.90, 0.99). Specifically, participation in the communication program is associated with better RBRI scores at the end of preschool, which are then associated with better RBRI scores across primary school; in turn, better primary school RBRI scores are associated with a lower likelihood of serious youth offending. Therefore, the communication program may improve classroom behaviour in a positive cascade, subsequently lowering the odds of serious youth offending.

Conclusion

The main finding reported in this section is that participation in the communication program when children were aged four was associated with a 56 percent lower rate of participation in youth crime by the time those children turned 17. The size of the effect can be expressed in a number of ways, after controlling for baseline classroom behaviour (ie teacher-rated behaviour at the beginning of preschool) and other covariates; but, whichever computational method is used, the results are comparable with the unadjusted effect.

Indirect effect	Odds ratio	95% confidence interval
1. Youth offending on ... RBRI primary school		
Communication program	1.00	0.84, 1.23
2. Youth offending on ... RBRI end of preschool year		
Communication program	1.01	0.89, 1.14
3. Youth offending on ... RBRI primary school RBRI end of preschool year		
Communication program	0.96	0.90, 0.99

In the absence of a randomised design in which the two communication program schools would have been selected totally at random from the list of seven, the attribution of causality must be made with caution. A causal attribution is strengthened by the finding reported in Table 3 that children attending the two groups of preschools (intervention and control) were comparable at the beginning of preschool in terms of gender ratio and the proportion of Aboriginal and Torres Strait Islander children as well as classroom behaviour.

The mediation model further strengthens interpretation because it confirms the statistical significance of a plausible causal pathway via improved classroom behaviour. The communication program improved behaviour at the end of preschool, and this improvement was maintained throughout primary school. Primary school behaviour was a direct predictor of youth offending, and the mediation model showed the indirect effects of both end of preschool and primary school behaviour on offending. The effect sizes are small but statistically significant.

We noted the apparent impact of family support in combination with participation in the communication program in lowering the offending rate even further—in fact, to zero. This apparent combined impact of family support and participation in the communication program on youth crime is consistent with what we observed with children’s classroom behaviour at the end of the preschool year, when the combination of FIP and PIP produced the best outcomes (Homel et al. 2006a). The role of family support in combination with the communication program will be modelled in further research. The next section, *Family support and serious youth offending*, explores the effects of family support through both preschool and primary school, including how it interacted with the participation in the communication program.



Family support and serious youth offending

This section asks whether support provided to families over the period of the Pathways Project, including the primary school years for those families whose children attended one or more of the seven state schools in the project region, reduced the risk of serious youth offending among the 616 children in the preschool cohort. As *The Pathways to Prevention Project: History, structure and early impact* outlined, Pathways support was available to all families in the cohort on an as needed basis, with 244 families out of the 616 (40%) availing themselves of the opportunity, some many times over many years (see Box 1).

A complicating factor, given that we wish to examine the effects of family support in both the preschool year and in the primary school years (Years 1–7), is that some families moved out of the area after the preschool year or sent their children to a non-state school. Using the most reliable information available in the Pathways database, we estimated that 73 children out of the full preschool sample of 616 did not go on to one of the seven Pathways schools. Of these 73 children, 20 were from the sample of 244 families who had received Pathways support in the preschool year, and 53 were from the 372 in the ‘no family support’ group. Therefore, the analyses in this section are based on the sample of 543 children who attended both a Pathways preschool and a Pathways primary school. The families of 224 of these children (41%) sought support at least once between preschool and Year 7, while 372 (59%) did not. Most of the parents and carers in this latter group probably did not feel the need to access Pathways services.

When examining the relationship between forms of family support and serious youth offending, there are several relevant dimensions of family support to consider. One is the dosage: that is, how much support was provided to families? Another is the duration: over what period was support received? Yet another is frequency: how often did families receive support? All these dimensions may be related to youth offending. However, it is not clear how these complex patterns of service usage should be combined to provide meaningful treatment groups for analysis.

In this section, we use latent class analysis (Feldman, Masyn & Conger 2009) to identify groups of children whose families received different patterns of family support over time, from preschool to the end of primary school. To our knowledge, family support service usage has not previously been examined longitudinally in terms of an empirically derived typology of latent classes, although this approach has been employed to analyse patterns of care for other types of service users, such as those with substance use disorders (Crale et al. 2022). The latent class approach has the potential to provide new insights into distinct patterns of complex family support usage and how these patterns relate to children's outcomes.

In previous analyses, we have shown that the combination of family support and child involvement in enriched preschool programs improved behaviour by the end of preschool, as rated by the preschool teachers using the RBRI (Homel et al. 2006a, 2006b; Rowe & Rowe 1997). Family support on its own, without the preschool component, also had large benefits, as did participation in the preschool program on its own. Given the beneficial effects of the preschool communication program reported in the section *The preschool communication program and serious youth offending*, might different forms of family support received through the primary school years have provided additional protection against serious youth offending, consistent with the early results using the RBRI?

It is also important to consider the effectiveness of the Pathways Project for children who were at higher risk of offending. Research in developmental prevention often tests for heterogeneity of program effectiveness across gender and level of risk, with males, and children with more early risk factors, usually at higher risk of negative outcomes. Focusing just on 'average' treatment effects across the whole sample may miss important beneficial effects for subgroups who are at higher risk and may benefit more from the intervention (Fagan 2013). In the present study, we examined whether Pathways family support, the communication program, and their combination, were associated with offending for males and for children with RBRI assessments in the clinical range at the beginning of preschool. For the reasons stated in *Data and key measures*, when ethically appropriate, we included Aboriginal and Torres Strait Islander status as an indicator of risk.

The general research questions for this report were listed in the section *The Pathways to Prevention Project: History, structure and early impact*, but it will be helpful to state here the specific research questions that guided the analyses for this section. The following three questions explore processes related to research questions 1 and 2 and, to some extent, research question 3 (mediating and moderating processes):

- research question 1: What patterns of family support are associated with different levels of risk for youth offending?
- research question 2: What are the interrelationships between different patterns of family support and the communication program for serious youth offending?
- research question 3: Do different patterns of family support, the communication program, and their combination protect against youth offending for males and for children who experienced early behavioural risk?

Method

Participants

Participants were the 543 members of the preschool cohort who moved into one of the seven state schools in the area. Because only 353 of these children (65%) completed the Transition to High School Survey, through which we measured a range of risk and protective factors (Homel et al. 2015a), we were not able to include these factors in the analyses in this section.

The communication program

In the section *The Pathways to Prevention Project: History, structure and early impact* we explained that 214 children attending two of the seven Pathways preschools received the communication program in either 2002 or 2003; 192 of these children are in the reduced sample of 543 children.

Pathways family support

Family support was available to all families at all seven preschools when needed. It was expanded from 2004 and was available to all families in the community until 2011 (see *The Pathways to Prevention Project: History, structure and early impact*).

This study considers family support received from the beginning of preschool until the year the child turned 13. This was nine years for each child, including one preschool year, seven primary school years and one additional year in which the child turned 13. In the Pathways database, family support contacts were recorded as the number of times in each school term that a family had a contact with a member of the Pathways team. For the present study, the number of contacts in each term was recoded to be 0 if no contacts were recorded, and 1 if any contacts were recorded. Therefore, each participant had 36 observations (9 years × 4 school terms) in which Pathways family support was recorded or not. A total of 224 participants (41%) received family support in at least one term.

Measures

Dependent variable

The youth offending dependent variable was a binary variable, where participants were scored 1 if they had ever appeared in court for an offence between the ages of 10 and 16. Of the 543 children in the reduced preschool sample, 31 (6%) had appeared in court for an offence. None of the six offenders whose families did not transition to one of the Pathways primary schools participated in the communication program.

Covariates

Covariates included the child's gender (male or female), the number of known children in the child's family, the child's Indigenous status, and early behavioural risk, indicated by whether the child was rated in the clinical range on the initial RBRI assessment in preschool.

Data analysis

The first step in the data analysis was a description of how many participants received family support over time. We then followed a three-stage process for examining the research questions. We firstly used longitudinal latent class analysis (Feldman, Masyn & Conger 2009) to identify distinct subgroups of individuals who showed similar patterns of family support usage from preschool until the year the child turned 13. To address the first research question, we next examined the association between membership in these latent classes and youth offending, using logistic regression. Finally, to address the second and third research questions, we used a classification tree analysis to examine interactions between the classes of family support and the preschool communication program and how these variables interacted with gender and early behavioural risk. We did not include family size in the tree analysis, because numbers in most categories were too small. Nor did we include Indigenous status, because, as we discussed in *Data and key measures*, we did not wish to compare Indigenous and non-Indigenous children. In addition, as with family size, including it would have produced very small groups of children who could potentially be identified.

Longitudinal latent class analysis of family support

The latent class analysis of family support used data from the 224 participants who had ever received family support (excluding the 20 children whose families accessed support in preschool and then moved). The binary family support variables for each school term from the start of preschool until the year the child turned 13 were used to estimate latent classes. The parameters were estimated using a full-information maximum likelihood estimator with robust standard errors. Based on the best-fitting model and using posterior probabilities, we assigned each participant to a class. The latent class models were estimated using MPlus v8.7 (Muthén & Muthén 2017).

The number of classes that best fit the data was selected based on the Bayesian information criterion (BIC), the adjusted Lo–Mendell–Rubin (LMR) test, entropy (classification accuracy) and class size and interpretability (Feldman, Masyn & Conger 2009). Smaller values of the BIC compared with other models represent better fit, and a significant *p*-value for the LMR test indicates that the model with *k* classes is a better fit than the model with *k*–1 classes. Higher entropy values indicate a clearer delineation between classes. While this is not an indicator of model fit, higher entropy (above 0.8) is desirable if class membership is to be used as a variable in further analysis, as in the present study.

Logistic regression examining youth offending

The latent classes of family support were used as a predictor in models examining serious youth offending. An additional class was added, identifying those who received no family support, and this group served as the reference group in all models. We first estimated an unadjusted model, followed by a model adjusted for early behavioural risk, male gender, cultural background, number of children in the family and participation in the communication program. These models were estimated using Stata 17 (Statacorp 2021).

Classification tree examining serious youth offending

We used a classification tree (Breiman et al. 1984) to examine the interaction between classes of family support and communication program participation. Although interactions between explanatory variables are usually examined with regression models, this was infeasible in the present study because of the small number of participants who had appeared in court for an offence ($n=31$, 6%). With this rare outcome, the combination of categorical explanatory variables (latent class of family support, and communication program participation) had some empty cells for the dependent variable, in which there were no participants with an offending outcome. Classification trees provide an alternative method for examining complex interactions in the prediction of rare outcomes (Allen et al. 2023a). The present analysis used R (v4.1.2; R Core Team 2021) and the package `rpart` v4.1.19 (Therneau & Atkinson 2022).

Classification trees are models represented in a branching diagram. In the present study, we used the CART algorithm (Breiman et al. 1984). Classification trees split the data into different profiles, based on the explanatory variables, to predict the dependent variable. In the present study, the binary dependent variable in the classification tree is youth offending. The explanatory variables included the family support latent class variable, a binary variable representing participation in the communication program, child gender, and early behavioural risk.

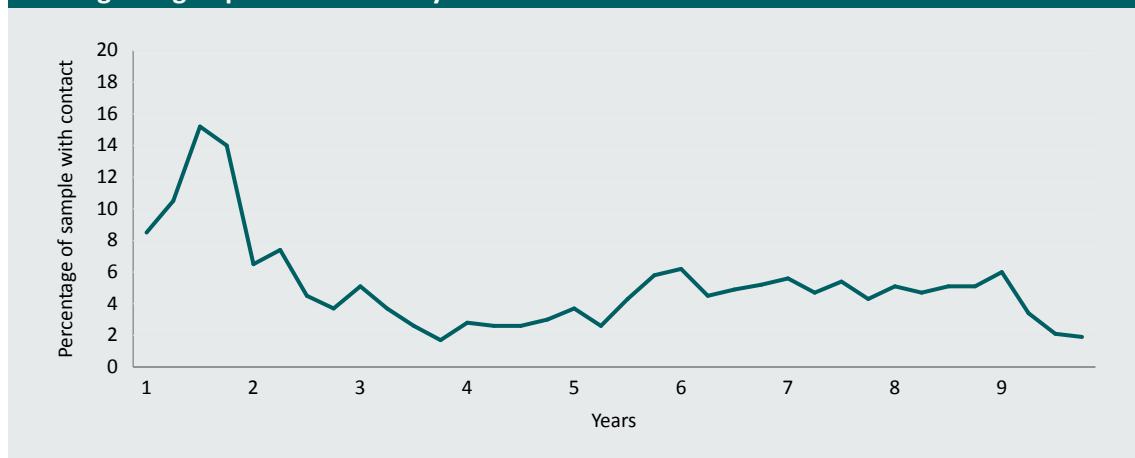
With a binary dependent variable, some participants may be classified by the model as non-offenders, when they are really offenders, and vice versa. Because participants who offended were of most interest, we weighted the classification tree such that offenders were not misclassified (refer to Working Paper 4 for further details: Allen et al. 2023a).

Results

Description of family support

Figure 4 shows the percentage of the sample ($n=543$) that received family support in each term from the start of preschool to the year the participant turned 13. The highest percentage receiving family support was in the third term of the preschool year (15%), with participation around two percent to five percent of the sample thereafter.

Figure 4: Percentage of the sample ($n=543$) that received family support in each term from the beginning of preschool to the year the child turned 13



Latent class analysis of family support

Using the sample of 224 participants who ever received family support, a series of latent class models was estimated to determine the optimal number of family support classes. The three-class model was selected as the best-fitting model. Table 7 shows that the BIC increased in the four- and five-class models (indicating poorer fit), and the LMR test was not statistically significant for the four- and five-class models (indicating that additional classes did not improve fit). Entropy was high in all models.

Table 7: Fit indices for latent class models

Number of classes	<i>df</i>	BIC	LMR <i>p</i> -value	Entropy
1	36	5748.865	–	–
2	73	5153.934	0.002	0.962
3	110	5073.589	0.035	0.946
4	147	5111.623	0.497	0.962
5	184	5165.604	0.283	0.936

Note: *df*=degrees of freedom. BIC=Bayesian information criterion. LMR=Lo–Mendell–Rubin test

Figure 5 shows the predicted percentage of participants in each latent class who received family support in each term from the start of preschool to age 13. The first latent class ($n=139$, 26%), termed 'Early', had the highest predicted probability of receiving family support when the child was at preschool and in the first year of primary school, after which it dropped to near zero. The second class ($n=58$, 11%), termed 'Later', had a relatively low predicted probability of receiving family support when children were in preschool and the early years of primary school, but the probability increased from late primary school. The third latent class ($n=27$, 5%), termed 'High', had very high predicted probabilities of receiving support at most times, except for a dip following preschool, and a decrease towards the end of primary school.

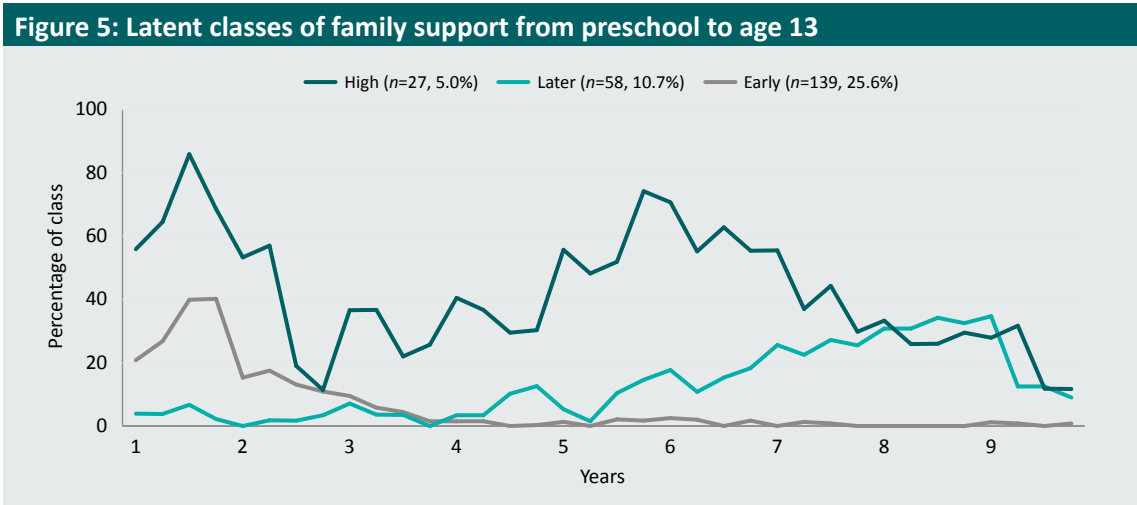
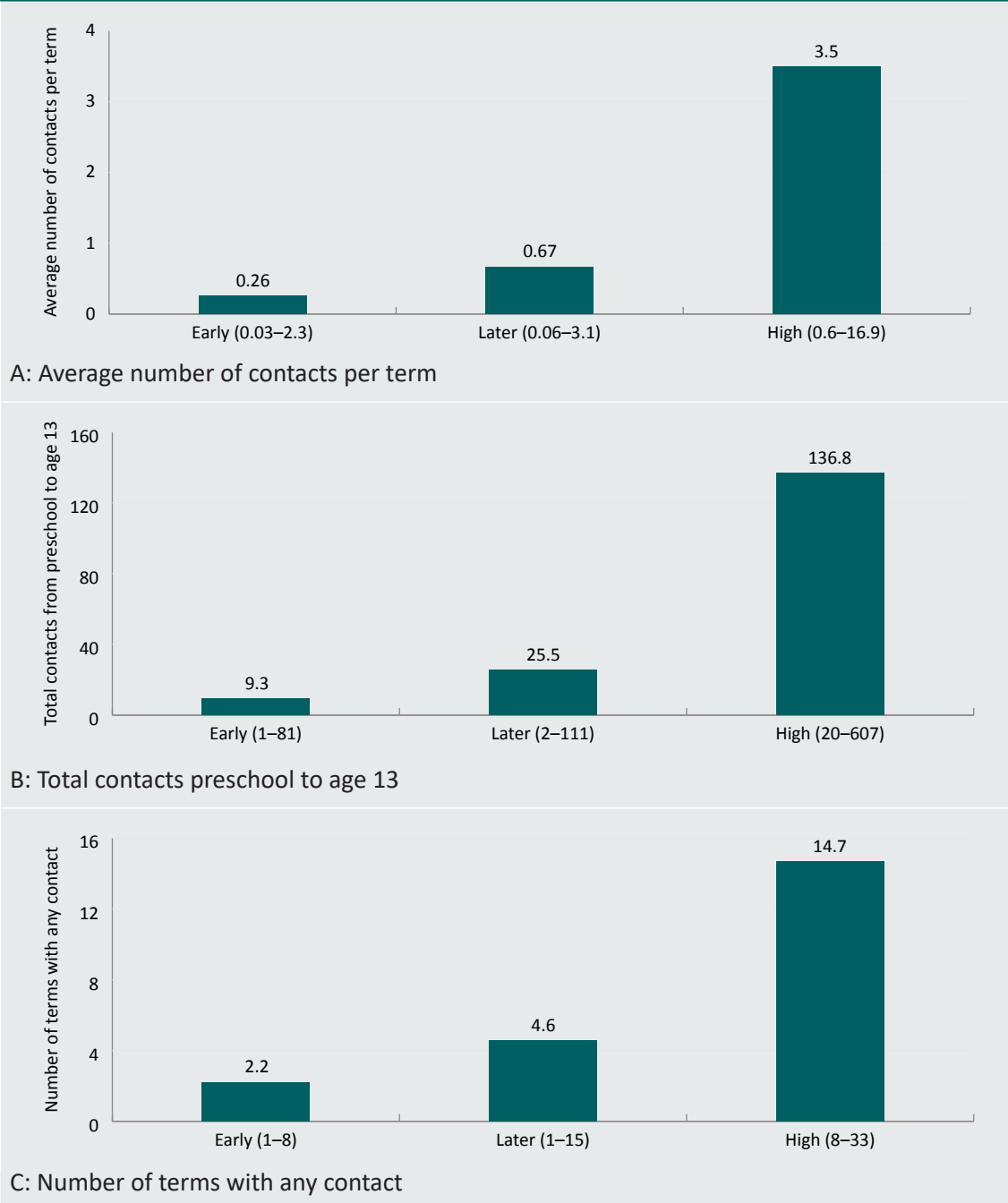


Figure 6 describes the frequency and duration of contact with Pathways family support for each latent class. Consistent with the overall pattern shown in Figure 4, the Early class had the lowest level of service usage overall: the Early class had an average of 0.26 contacts per term, an average of nine contacts for the entire period and, on average, two terms with contact. Average frequency and duration of contact for the Later class tended to be about twice as high as the Early class. The High class had very high frequency and duration of contact: an average of 3.5 contacts per term, an average of 136 contacts over the entire period and an average of 14.7 terms with any contact with family support.

Figure 6: Description of family support in each latent class



Note: The minimum and maximum for each class are shown on the x axis in each figure

Characteristics of the family support classes, as well as the group who had no contact, are further described in Table 8. The average number of children per family was lowest in the ‘no contacts’ and was highest in the High group. Differences in gender, early behavioural risk and the communication program were not statistically significant, but children in the High class were less likely to have attended a communication program preschool.

Table 8: Characteristics of the family support classes					
	No Pathways contacts (n=319)	Early contacts (n=139)	Later contacts (n=58)	High contacts (n=27)	Test
Male gender n (%)	156 (48.9)	74 (53.2)	30 (51.7)	13 (48.2)	$\chi^2(3)=0.8$, $p=0.843$
Indigenous Australian	13 (4.1)	7 (5.0)	6 (10.3)	7 (25.9)	$\chi^2(3)=23.0$, $p<0.001$
Known number of children in family mean (SD), median	1.3 (0.7), 1	1.6 (1.1), 1	2.3 (1.5), 2	2.6 (2.0), 2	$\chi^2(3)^a=54.6$, $p<0.001$
RBRI risk preschool n (%)					$\chi^2(6)=3.27$, $p=0.775$
Not at risk	236 (74.0)	103 (74.1)	42 (72.4)	17 (63.0)	
At risk	53 (16.6)	25 (18.0)	10 (17.2)	8 (29.6)	
Missing	30 (9.4)	11 (7.9)	6 (10.3)	2 (7.4)	
Communication program n (%)	128 (40.1)	40 (28.8)	19 (32.8)	5 (18.5)	$\chi^2(3)=9.3$, $p=0.025$

a: Likelihood-ratio chi-square from Poisson regression with number of children as the dependent variable

Logistic regressions examining youth offending

Table 9 summarises the results of the models examining serious youth offending based on family support, the communication program and other covariates. In the unadjusted model, members of the Early class were not significantly more likely to offend than children who never received family support. However, membership in either the Later or High classes significantly increased the likelihood of serious youth offending. These associations remained following adjustment for covariates.

In terms of covariates, youth offending was more likely for males ($p=0.001$) and Aboriginal or Torres Strait Islander children ($p=0.011$). In contrast to the logistic model in *The preschool communication program and serious youth offending*, the communication program was not statistically significant after adjusting for the effects of family support. This is probably partly because, as we noted earlier, offending rates in the comparison group reduced because six offenders in this group did not attend one of the Pathways primary schools.

Table 9: Logistic regression examining the relationship between serious youth offending and Pathways group (n=543)

	Unadjusted model			Adjusted model		
	OR (SE)	p	95% CI	OR (SE)	p	95% CI
Class (ref=none)						
Early	2.39 (1.15)	0.072	0.93, 6.14	2.13 (1.06)	0.128	0.80, 5.67
Later	5.51 (2.81)	0.001	2.03, 14.95	4.36 (2.46)	0.009	1.45, 13.15
High	7.83 (4.70)	0.001	2.42, 25.37	4.26 (2.99)	0.037	1.09, 16.82
Communication program	–	–	–	0.55 (0.26)	0.195	0.22, 1.36
Male gender	–	–	–	5.24 (2.57)	0.001	2.01, 13.71
Indigenous Australian	–	–	–	4.29 (2.44)	0.011	1.40, 13.09
Number of children	–	–	–	1.11 (0.18)	0.517	0.81, 1.53
RBRI risk preschool						
At risk	–	–	–	1.94 (0.89)	0.146	0.79, 4.76
Missing	–	–	–	1.01 (0.70)	0.988	0.26, 3.90

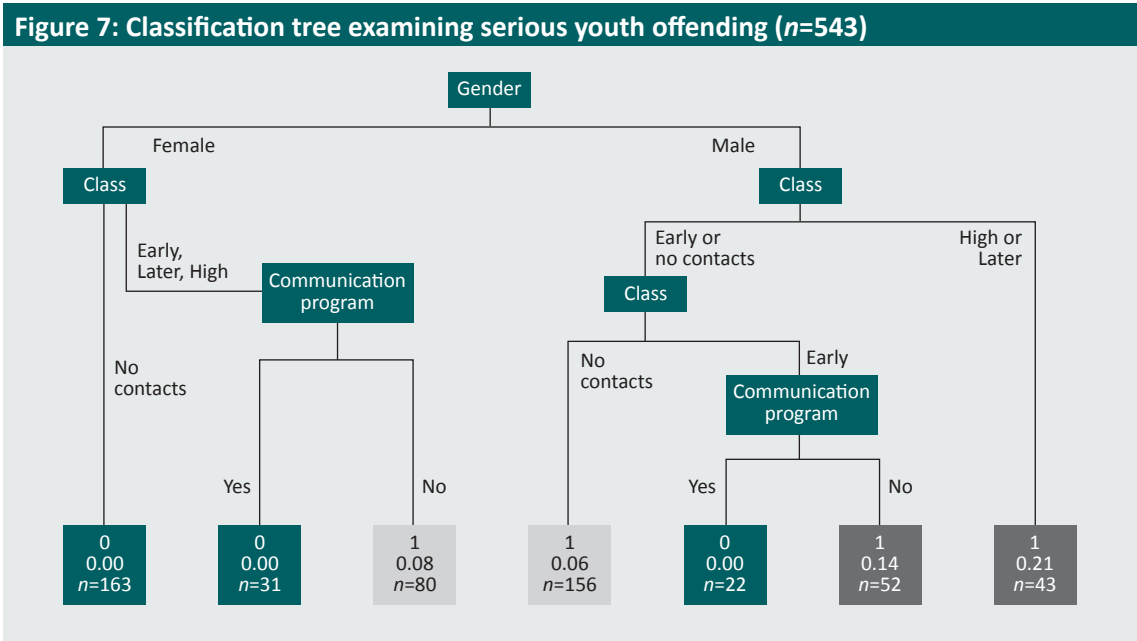
Note: Unadjusted model: Likelihood-ratio $\chi^2(3)=16.65$, $p<0.001$, pseudo $R^2=0.07$. Adjusted model: Likelihood-ratio $\chi^2(9)=41.37$, $p<0.001$, pseudo $R^2=0.17$

Classification tree analysis

Gender reduced the most variance in the dependent variable, which is why the tree splits on this variable first. Figure 7 shows that boys who were classified in the High or Later family support classes and did not participate in the communication program had the highest risk of offending of all the groups in the tree (9 out of 43 observations: proportion=0.21). Among boys not in the Later or High classes, none offended among those whose families were in the Early class and who were also in the communication program (zero of 22 observations).

However, among the boys in the Early class who did not participate in the communication program, seven offended (52 observations; proportion=0.14). Finally, boys who did not participate in the communication program and whose families never sought family support offended at an average rate (9 of 156 observations; proportion=0.06).

The classification tree also shows that, of the girls whose families never called on Pathways for support, none offended (zero of 163 observations). Partially paralleling the pattern for boys, none of the girls whose families did seek support at some stage and who participated in the communication program offended (zero of 31 observations), but six girls whose families sought support offended if they did not participate in the communication program (80 observations; proportion=0.08).



Conclusion

The results in this section, including the classification tree, show that higher levels of family support across primary school were associated with a higher likelihood of offending. This does not suggest that family support causes young people to offend. Rather, families who needed very frequent support were experiencing multiple adversities and needed more specialised services than the Pathways family support program could provide.

However, the results of the classification tree permit a more nuanced interpretation of the interplay between exposure to the communication program and family support. There were apparent protective effects of the communication program for boys whose families received support mainly in the preschool year (the Early class) and for girls whose families received support at any stage in their preschool and school years, broadly consistent with results in the section *The preschool communication program and serious youth offending*.



Pathways and offending at the community level

In this section, we address research question 4: was there a trend for less offending and offences in the Pathways community, over the period that Pathways was operating and after this period?

Pathways family support was implemented widely in the community over a 10-year period, as the section *The Pathways to Prevention Project: History, structure and early impact* described. Over the decade that Pathways operated, over 1,000 families and 2,400 children, ranging in age from infants to teenagers, received targeted support from Pathways. In a community with about 4,000 families with children (Australian Bureau of Statistics 2001, 2006 and 2011 Censuses), this represents significant reach into the community. The potential impact at the community level of this support over many years has never been examined. With place-based interventions widely implemented across Australia, this represents a unique opportunity to ask whether a community that received targeted family support over a decade also benefited from lower levels of crime and disorder.

Place-based initiatives that aim to reduce crime tend to focus on policing and improving the physical environment (Eck & Guerette 2012; Hohl et al. 2019). In contrast, place-based social initiatives, which have been implemented in several countries, aim to improve outcomes for children living in disadvantaged areas. Sure Start, implemented in the United Kingdom in the late 1990s, targeted all children under five and their families and aimed to improve the delivery of services to children in need. Evaluations of Sure Start show that young children living in Sure Start areas had more positive social behaviour, and their parents used less negative parenting and provided a richer home learning environment (Melhuish et al. 2008). A recent evaluation showed that Sure Start led to very large decreases in hospitalisations for children, especially for older children and adolescents (Cattan et al. 2021). A big decrease was seen in admissions for injuries among adolescent boys, suggesting that Sure Start did support children's social and behavioural development, with benefits continuing beyond the age children were eligible for the program.

Prominent examples of place-based initiatives in Australia include the highly effective Communities That Care model, discussed in the section *The Pathways to Prevention Project: History, structure and early impact*, and Communities for Children, a Commonwealth Government administered program that involves partnerships of community agencies funded through a variety of non-government organisations. An evaluation using survey data collected from parents and children in selected communities showed lower rates of child injuries, less harsh parenting and better receptive vocabulary over a two-year period (Edwards et al. 2011), although it is unclear that the Communities for Children program caused these patterns.

While place-based initiatives such as Sure Start and Communities for Children do not aim to prevent offending directly, they clearly have the potential to produce positive impacts on developmentally salient risk and protective factors on the pathway to crime, such as better language skills and parenting. The reduction in adolescent injuries associated with Sure Start further suggests impacts on risky behaviours that tend to cluster with delinquency. Further, adolescent injury is predicted by a similar set of key risk factors to adolescent offending, suggesting that they arise from similar risk trajectories (Rivara 1995; Skinner, Farrington & Shepherd 2020).

Pathways provided support directly to families with the goal of benefitting children. Pathways workers also coordinated other services to assist families and their children, through referral and liaison. In this section, we examine whether these services reduced offences and offending at the community level.

Method

Design

The unit of analysis for this section is the community, measured as the Statistical Area 2 (SA2). SA2s represent areas in which residents interact socially and economically (Australian Bureau of Statistics 2011). SA2s broadly align to suburbs in urban areas and to larger functional areas, such as towns, in regional and remote localities. The Pathways community largely comprised three SA2s. Prior to 2011, when the new Australian Statistical Geography Standard was introduced, these were Statistical Local Areas (SLAs). Of the four main SLAs in the Pathways community, one had a very small resident population and was combined with a larger neighbouring SLA to form an SA2 in 2011. The Pathways areas are compared to other SA2s across Queensland for the years 2008 to 2021.

Data

The two key data sources for this section are the Queensland Police Service recorded crime data (QPRIME data) and Australian Bureau of Statistics (ABS) Census data. QPRIME data is the administrative database the Queensland Police Service use for recording crime. Historical QPRIME data are stored in the Griffith University Social Analytics Laboratory, a custom-built secure research facility used to store, manage and analyse sensitive administrative data

for research and teaching purposes. The earliest QPRIME data available are from 2008. The present section uses all recorded offences with a known alleged offender in the period between 1 January 2008 and 31 December 2021. We limited the analysis to offences with a known alleged offender to examine offences with an alleged offender under the age of 18. Data from the 2021, 2016 and 2011 Censuses were used to obtain information about populations and relative social disadvantage.

Measures

Offences

QPRIME data were extracted from the Social Analytics Laboratory for all offences that were linked to a criminal incident with start dates between 1 January 2008 and 31 December 2021 and had information about a known alleged offender. Offences were assigned to an SA2 using the latitude and longitude of the offence location. Offences were categorised according to the ANZSOC codes. In this section, we report on the following broad categories of offences:

- all offences;
- property offences (eg theft, unlawful entry, car theft); and
- violent offences or acts intended to cause injury (eg assault, homicide, sexual assault).

Yearly offence rates in each SA2 were calculated by dividing the number of offences recorded in that area in each year by the total population of the SA2, multiplied by 1,000 to provide a rate of offending per 1,000 persons. Populations were based on the ABS yearly estimated residential population for Queensland SA2s from 2008 to 2021 (ABS 2023a, 2023b).

Offences associated with people aged between 10 and 17

Information about alleged known offenders includes date of birth, which was used to calculate age at the time of the offence. We present the rate of offences per 1,000 persons, for which the alleged offender was aged between 10 and 17 years at the time of the offence. This does not capture unique alleged offenders, simply the number of offences with an alleged offender between 10 and 17 years.

SA2-level socio-economic disadvantage

The ABS Index of Relative Socio-Economic Disadvantage (IRSD) was used to compare SA2s (ABS 2021). The IRSD is one of several area-based indices produced by the ABS based on Census data. The IRSD uses information about education, occupation, income, employment and housing to rank areas in Australia according to relative disadvantage. A lower score indicates that an area is more disadvantaged. In this section, we use the decile ranking of SA2s within Queensland. This organises SA2s into deciles relative to other SA2s in Queensland, with SA2s in decile 1 being the most disadvantaged.

To compare Pathways SA2s with other Queensland SA2s, we use the IRSD from the 2001 Census. At that time, SA2s were SLAs, with the Pathways community comprising four SLAs. All four Pathways SLAs were below the 10th percentile (bottom decile) of socio-economic disadvantage in 2001. We identified 15 other SLAs that were also in the bottom decile in 2001. These 15 SLAs became 14 SA2s in 2011 and have retained largely the same geographies since.

Data analysis

Descriptive statistics are presented in this section. For each year from 2008 to 2021, we consider all offences recorded in an SA2, all offenders associated with an SA2 across all offences, and all young people who offended (aged 10 to 17) associated with an SA2, across all offences. We then present two sets of comparisons between the Pathways SA2s and other SA2s in Queensland:

- comparing trends in the three Pathways SA2s and all other Queensland SA2s; and
- comparing trends between the three Pathways SA2s and 14 other SA2s that were in the same decile of relative socio-economic disadvantage in 2001, noting that these 14 SA2s were 15 SLAs in 2001.

In making these comparisons, we firstly show the average offence rates across the comparison SA2s (either for the whole of Queensland, or SA2s with similar levels of disadvantage in 2001) with the average offence and offending rates in the Pathways SA2s over time. Secondly, we estimate the rate ratio (Higgins et al. 2023) to compare rates in the Pathways SA2s and the comparison SA2s. The rate ratio is the average rate of offences and offending in the Pathways SA2s, divided by the average rate in the comparison SA2s. It indicates the extent to which Pathways SA2s had higher or lower offences and offending, on average, than comparison SA2s over time.

Results

Table 10 shows the resident population and decile of the IRSD by Census year for the areas in the Pathways community from 2001 to 2021. Note that SLA_2 was incorporated into SA2_1 from 2011. In 2001, all Pathways SLAs were in the bottom decile of socio-economic disadvantage; but, from 2006, SLA_3 moved to the second decile.

Census year	SLA_1/SA2_1		SLA_2		SLA_3/SA2_2		SLA_4/SA2_3	
	Res. pop.	IRSD decile	Res. pop.	IRSD decile	Res. pop.	IRSD decile	Res. pop.	IRSD decile
2001	12383	1	862	1	5643	1	3017	1
2006	13168	1	829	2	6119	2	4452	1
2011	15434	1	–	–	6559	2	4939	1
2016	18010	1	–	–	7,948	2	5,816	1
2021	19891	1	–	–	8254	2	6220	1

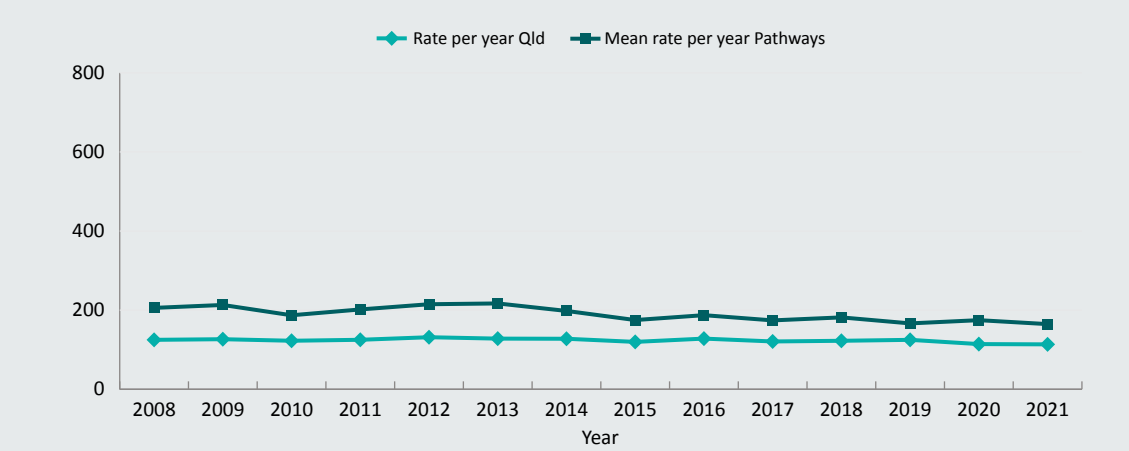
Note: Res. pop.=resident population. IRSD=Index of Relative Socio-Economic Disadvantage

Figure 8A shows the rate per 1,000 of the population of offences in Queensland, compared with the average rate per 1,000 across the Pathways SA2s. Not unexpectedly, there was a higher rate of offences in the Pathways SA2s than in the rest of Queensland across all years.

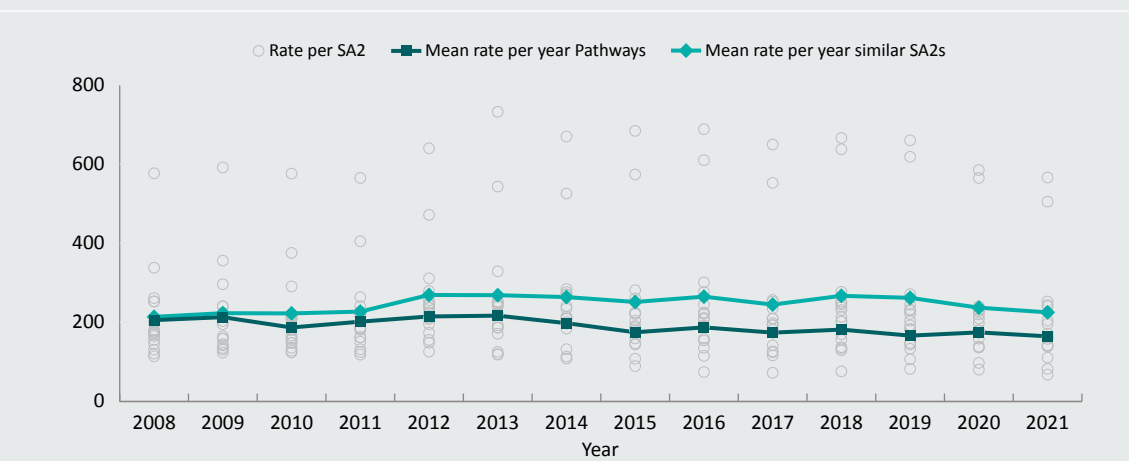
Figure 8B shows the average rate of offences in Pathways SA2s, compared with other SA2s that were in the same decile of socio-economic disadvantage in 2001. The grey circles represent the rates across this sample of SA2s and are included to illustrate the wide range of rates.

Figure 8C illustrates the ratio of the Pathways average rate of offences to the average rate of offences in other socio-economically similar SA2s. Taken together, Figures 8B and 8C show that the Pathways and comparable non-Pathways SA2s were quite similar in 2008; but, since that time, the yearly rate in the Pathways SA2s has become lower than the yearly rate in the comparison SA2s. However, there was an uptick in 2020 and 2021.

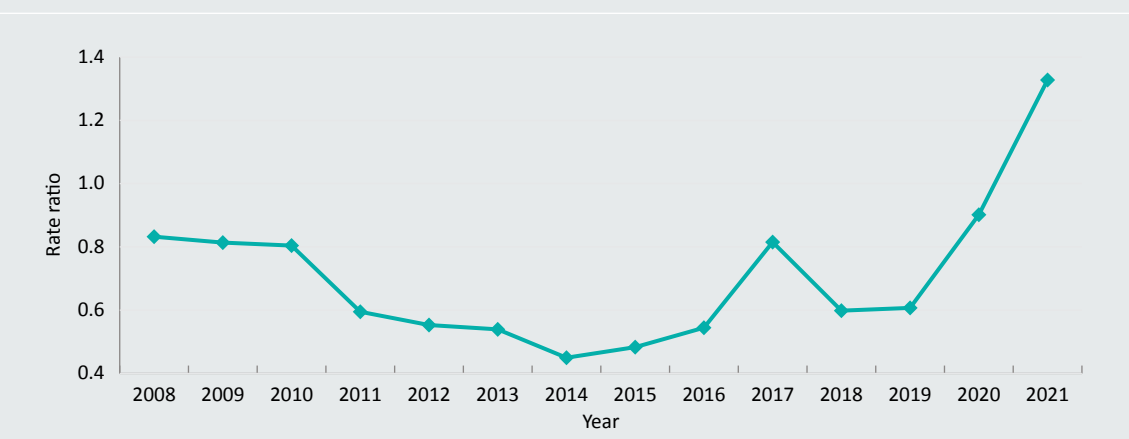
Figure 8: All offences, 2008 to 2021



A: Average rate in Pathways SA2s compared to Queensland



B: Average rates in Pathways SA2s and similar SA2s

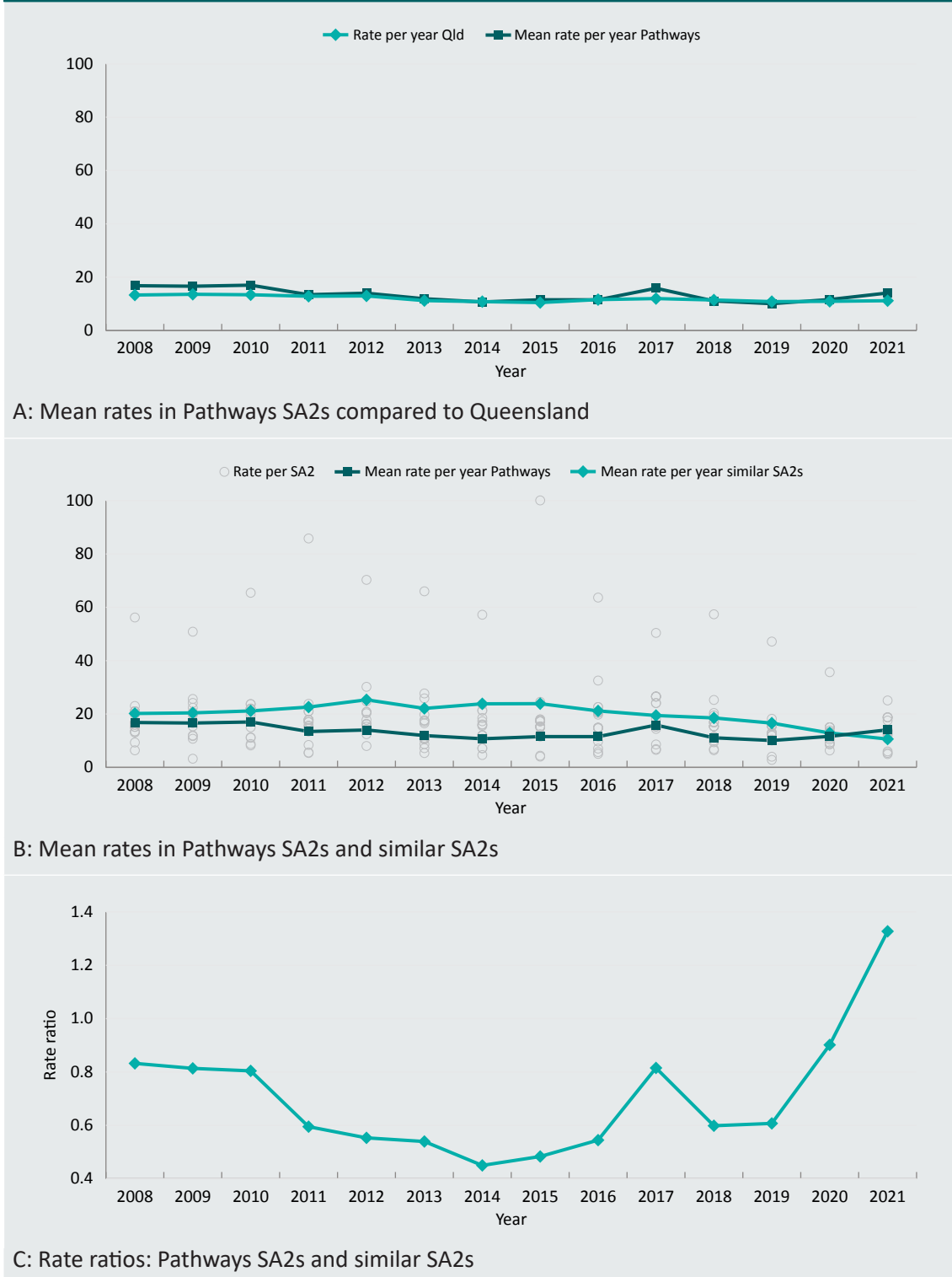


C: Rate ratio between Pathways SA2s and similar SA2s

Figure 9 illustrates trends for offences where the alleged offender was under 18. The rate of offences with alleged offenders under 18 in the Pathways SA2s is close to, or slightly above, the Queensland rate. However, the Pathways average rate of offences allegedly committed by young people is consistently lower than the rate in comparable SA2s for most years (Figure 9B).

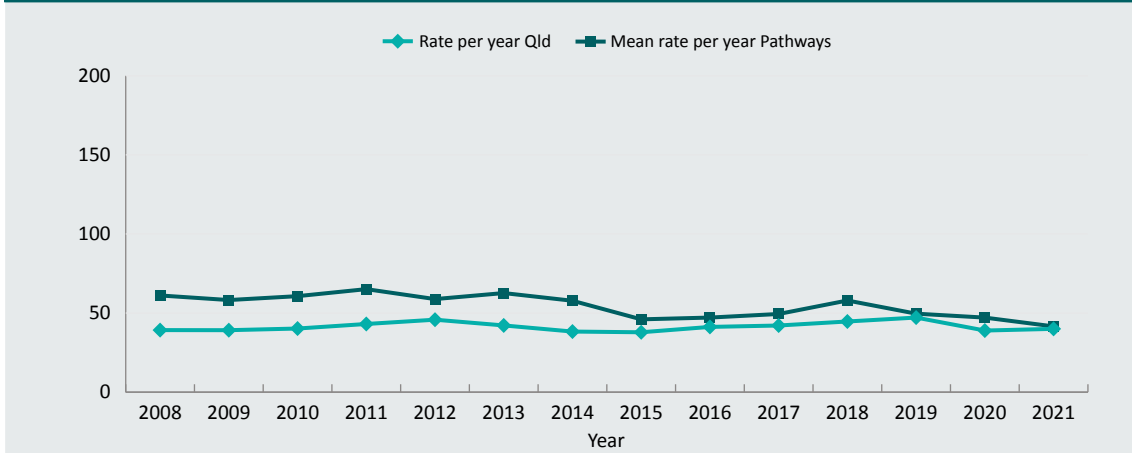
The rate ratios (Figure 9C) show that the Pathways SA2s had a rate of offences with alleged young offenders about 0.8 the rate of comparable SA2s in 2008, and this decreased further to 2014. However, from 2015, the Pathways rate begins to increase, relative to the comparison rate, overtaking the comparison SA2s rate by 2021. Nevertheless, for the period 2008 to 2016, when the Pathways preschool cohort was at risk of offending as youths, the average rate ratio was less than 0.8.

Figure 9: All offences with an alleged offender aged 10 to 17 years, 2008 to 2021

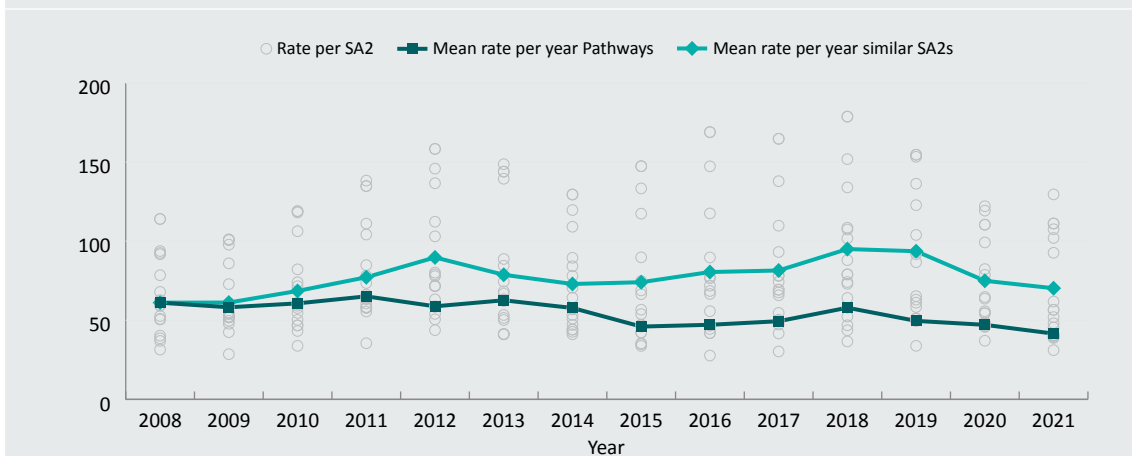


Property offences are illustrated in Figure 10. Once again, the rate of property offences in Pathways SA2s was consistently higher than the Queensland average (Figure 10A). However, Figures 10A and 10B suggest that, although the Pathways SA2s and comparable SA2s were similar in terms of property offence rates in 2008 (rate ratio=0.99), the rate in the Pathways SA2s generally declined over time relative to the comparison SA2s. The decline appeared to level out after 2015 at around 0.6 of the rate in comparison SA2s, despite some volatility.

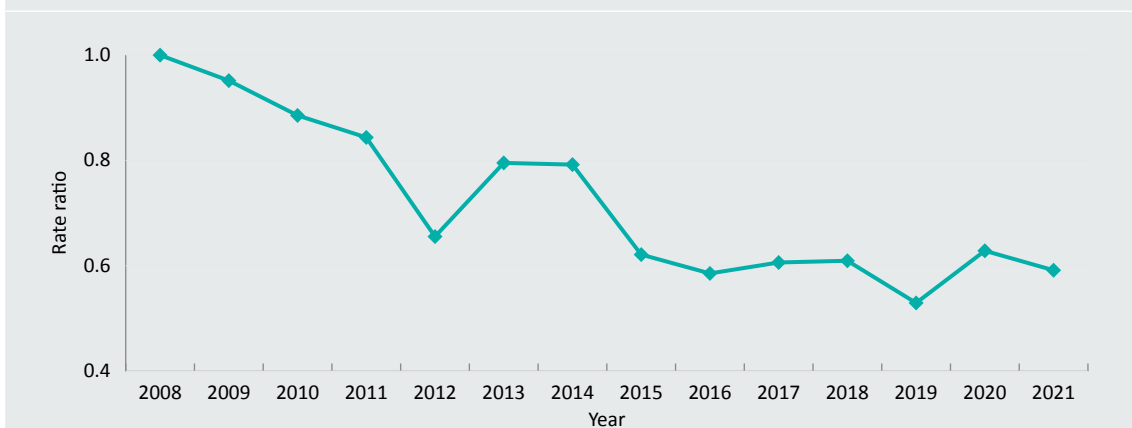
Figure 10: All property offences, 2008 to 2021



A: Mean rates in Pathways SA2s compared to Queensland



B: Mean rates in Pathways SA2s and similar SA2s



C: Rate ratios: Pathways SA2s and similar SA2s

Finally, Figure 11 shows trends for violent offences. The Pathways SA2s clearly had rates of violent offences that were above the Queensland rate over time, with the Pathways rate increasing substantially from 2016 (Figure 11A). Unlike the other offence types and offending examined, the rate of violent offences in the Pathways SA2s, compared with rates in comparable SA2s, increased substantially, from a ratio of around 1 (ie about the same) to about twice the rate of comparable SA2s by 2018. Again, the increase occurred from about 2016, just at the end of the period when the Pathways preschool children were at risk of offending as youths. It is possible that the increase in the rate of violent offences reflects increased policing of domestic and family violence following Queensland policing reforms in 2015 (Hodgkinson & Harris 2022).

Figure 11: All violent offences, 2008 to 2021

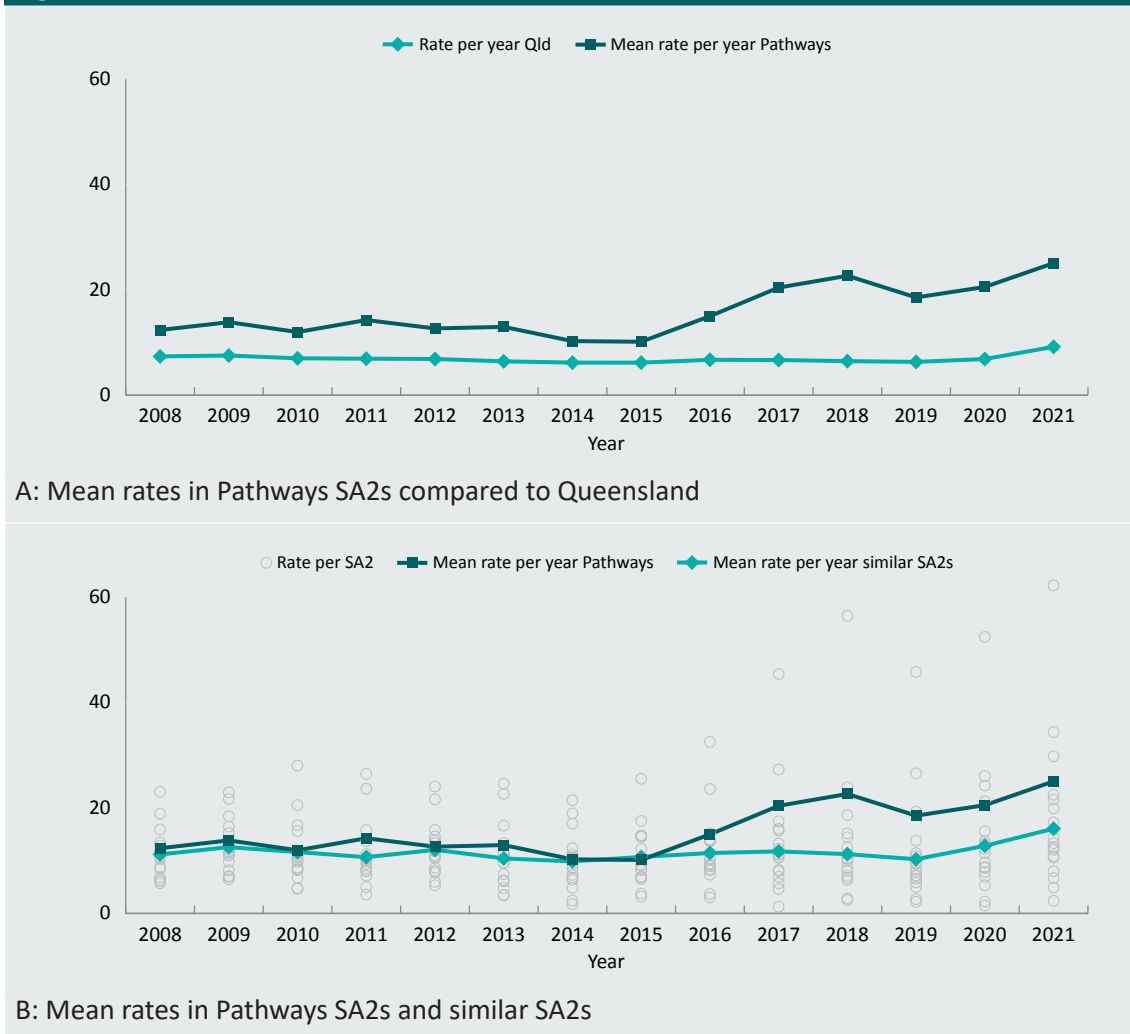
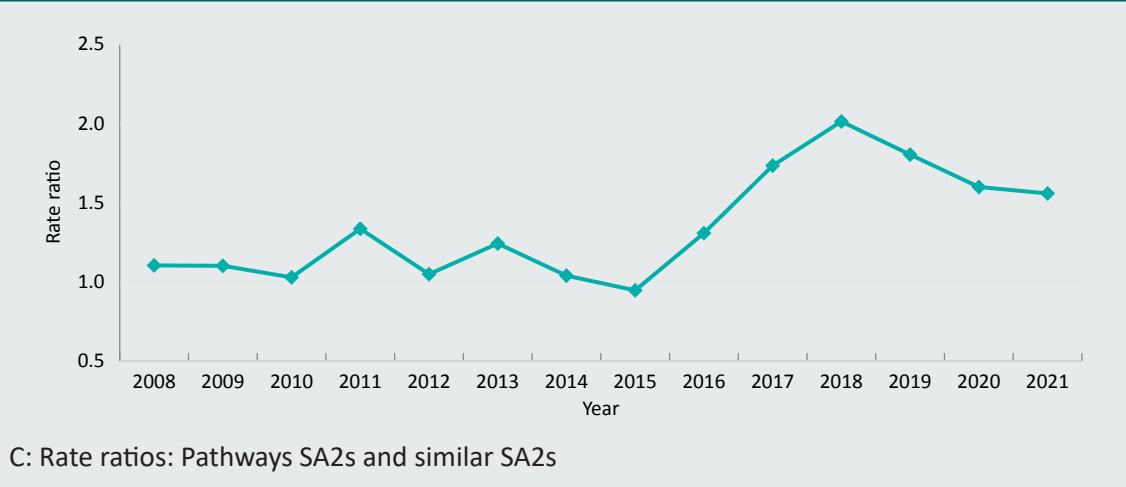


Figure 11: All violent offences, 2008 to 2021 (cont.)



Conclusion

The community-level impact on offending of place-based programs such as Pathways has not been previously examined. The data presented in this section suggest that there may have been some positive impacts of Pathways on offending in the years following the end of the project, particularly in the period 2008 to 2016, when the preschool cohort was at risk of offending as youths. This is based on lower rates of some offences in the Pathways SA2s, compared with the rates in SA2s that were similar in socio-economic disadvantage in 2001. This effect was most clearly observed for all offences, alleged young offenders aged 10 to 17 and property offences. In contrast, violent offences in the Pathways communities did not decline, relative to comparison SA2s, and have increased substantially in recent years.

The increase in offences with an alleged offender aged between 10 and 17 in the Pathways SA2s in the past few years (mostly after 2016) should be noted. This may reflect:

- an increased prevalence of young people (younger than the Pathways preschool cohort) who offend at chronic levels;
- more offending by young people who offend at chronic levels; and/or
- increased policing of young people who offend at chronic levels (McCarthy 2021).

However, these patterns are complex, because the rate of offences with younger alleged offenders declined over the same period in the comparison SA2s. We did not identify unique offenders, so we cannot further investigate the trend for Pathways communities. Future analyses will identify unique young offenders, to separate out incidence, prevalence and frequency.

While these results are intriguing, they are descriptive. Future research will examine the data using appropriate statistical models. Moreover, for the present section, data were not available earlier than 2008. Thus, we will explore the feasibility of obtaining offence data for Queensland SLAs in 2001, to identify areas that were comparable to the Pathways SA2s in offending prior to the start of Pathways.



Conclusion

It is now more than 20 years since the Pathways to Prevention Project began in a socially disadvantaged region of Brisbane. The project was designed in the light of a growing international literature showing that well implemented and evidence-based interventions at virtually any point in the life cycle, from very early childhood to late adolescence, could be effective in preventing the onset of criminal offending (Developmental Crime Prevention Consortium 1999). Even more extensive literature showed that children ‘at risk’ of offending could be diverted into more positive developmental pathways if key risk and protective factors were effectively addressed (Hemel & Thomsen 2017).

The 1999 national report *Pathways to prevention* summarised much of what was known at the time about prevention and early intervention, reviewed a range of mostly unevaluated Australian initiatives and made a series of recommendations about directions the country could take to develop our national capacity to prevent youth crime. Foremost among these recommendations was a proposal to implement a multifaceted community-based project as a demonstration of the potential of developmental crime prevention approaches in the Australian context. A successful search for philanthropic and research funding made it possible to establish an enduring partnership between national community agency Mission Australia, state schools and preschools in the selected area, the Queensland Department of Education and the research team at Griffith University. This partnership was strongly supported by the Queensland Government, and project planning began in 2000 with a Community Insights Survey that employed local people to explore the needs of children and families in the community (Hemel et al. 2006a).

The design of the Pathways to Prevention Project was strongly influenced by the Seattle Social Development Project, which combined parent training with whole-of-school programs aimed at enhancing children’s opportunities for prosocial involvement and limiting opportunities for antisocial behaviour (Catalano et al. 2021). This place-based initiative in several primary schools prevented youth offending and has now been shown to have achieved impressive second-generation effects. The *community–family–school structure* that underpinned this long-term prevention initiative impressed us as an ideal model and was very much in line with the model envisaged in the 1999 report. However, in line with the literature, our initial target was children in the year before school—slightly earlier than the Seattle project.

Outside the United States, it is unusual for early prevention projects to produce persuasive evidence of their long-term impact on youth crime or, indeed, for their effects on any dimensions of positive youth development. As we observed in the section *The Pathways to Prevention Project: History, structure and early impact*, only Communities That Care in Australia (and internationally) has built a truly persuasive body of evidence that supports the community-level effectiveness of its community mobilisation and evidence-based collective impact model.

The Pathways to Prevention Project has, to date, produced a wide range of evidence that its family support services and the Phase 1 preschool interventions in 2002 and 2003 improved the lives of families and reduced the impact of adverse life circumstances for many of the preschool and primary-aged children in these families (Homel 2006a, 2006b). Key results were summarised at the end of the section *The Pathways to Prevention Project: History, structure and early impact*. An important finding at the end of preschool was that the combination of family support and the two preschool interventions produced the best results in reducing teacher-rated behaviour problems, although the FIP and the PIP were each beneficial in their own right.

However, until we were able to assemble and link the data on court-adjudicated youth offending for the 616 children in the 2002 and 2003 preschool cohort (a process described in *Data and key measures*), we were not in a position to examine long-term impacts. We focused on youth offending, partly because it is an extremely important and undesirable outcome for the children and their families, and partly because reducing youth crime was an objective of the John Barnes Foundation, who provided much of the early project funding.

This focus on stopping youth crime did not at all mean that the project partners—the university research team, the Mission Australia family support team and the schools—had crime prevention as their sole objective or that the crime focus dictated a ‘deficit model’ of operating. On the contrary: in all publications and in day-to-day operations, we emphasised positive child development and were collectively committed to a strengths-based approach in working with families and children. Our strengths-based approach is apparent on every page of the 2006 five-year ‘report card’ on the Pathways Project (Homel et al. 2006a). The research team’s emphasis on positive development is also evident in the parent empowerment dimensions of PEEM (Freiberg, Homel & Branch 2014) and in Clowning Around, our measure of child social-emotional wellbeing that was available towards the end of the Pathways Project. (Clowning Around is now Rumble’s Quest: Freiberg et al. 2023; see www.realwell.org.au.) Indeed, in addition to the youth crime data as an indicator of long-term impact, we would like to be able to access high school success data (eg finishing high school, gaining university or TAFE entrance, getting a job) and other indicators of life success, including the absence of any contact with the police (ie no involvement in less serious antisocial behaviour and offending) or with the mental health system. Unfortunately, for legislative, privacy and practical reasons, these data are difficult to access and to link with our cohort database.

The major new findings presented in this report are highlighted in the next section.

Key findings

The communication program and family support

Perhaps the most important single result of our analyses is that the Pathways to Prevention Project did indeed appear to help prevent the onset of youth offending for the 214 children in the preschool communication program; when combined with family support, it was even more successful. In the section *The preschool communication program and serious youth offending*, we showed that participation in the communication program corresponded to a 56 percent lower rate of offending than in the five comparison preschools, which, after statistical adjustment for covariates, produced an estimated effect size of 0.52, a relatively large impact. Among the 59 children in the communication program preschools whose families participated in family support activities, the youth offending rate was zero.

Because the design of the study was quasi-experimental, it is necessary to remain cautious about causal attribution. However, several lines of evidence converge to strengthen confidence that the Pathways interventions gave rise to the observed reduction in the onset of serious youth offending. Firstly, the results are in line with the results of the initial evaluation of the combined effects of FIP and PIP at the end of preschool and also with teacher ratings of children's academic achievement during Grade 1. Secondly, the mediation models reported in the section *The preschool communication program and serious youth offending* confirm the statistical significance of a plausible mediation pathway via levels of disruptive classroom behaviour from preschool through primary school. The communication program, especially in combination with family support, helped children to become better behaved at school, and we know that teacher-rated behaviour is a good predictor of youth offending, especially for boys (eg Broidy et al. 2003).

Thirdly, the emphasis of the communication teachers on empowering both teachers and parents to reinforce the classroom program helps us understand why family support surrounding this program may well have boosted the long-term effects, especially when it incorporated parent-child dialogic reading and the production of reading materials at home to stimulate children's use of language and to encourage parents' involvement in their children's early literacy development (Elias et al. 2006, 2002).

Finally, our finding is in line with the results of simulation modelling undertaken by the late Professor Anna Stewart and her colleagues and summarised in the 2006 Pathways report (Homel et al. 2006a: 100–101; Livingston, Stewart & Palk 2006). The simulation built on our initial analyses that, at the beginning of preschool, 15 percent of children were in the 'at risk' range on the RBRI but, by the end of preschool, this proportion reduced by 33 percent to 10 percent. It also built on then just-published results from the Mater-University of Queensland *Study of Pregnancy and its Outcomes* that about 50 percent of children identified as 'at risk' at the age of five go on to offend as juveniles (Bor et al. 2001). Simulations were run out to 2016, leading to the prediction of a 21 percent reduction in youth offending in the Pathways community if the program effects were maintained.

This prediction is broadly in line with our results detailed in the *Pathways and offending at the community level* section, where we compared rates of offences at an aggregate level in the Pathways region over the years 2008 to 2021. In 2008, the first year for which statewide crime data were available to us, the 2002 group of preschoolers had reached the minimum age of criminal responsibility; by 2016, most of the cohort would have reached the age of adult responsibility (17 years at that time in Queensland). Thus, the years 2008 to 2016 are of particular interest.

We show in the section *Pathways and offending at the community level* that, compared with areas in Queensland that were also in the lowest SEIFA decile in 2001, over the years 2008 to 2016, the rate of offences with an alleged offender who was a young person in the Pathways region was consistently lower, by at least 20 percent. We observed that the rate ratios presented in Figure 9C show that the Pathways SA2s had a rate of offences with alleged young offenders about 0.8 the rate of comparable SA2s in 2008, and this decreased further to 2014. It is therefore possible to cautiously conclude, subject to the results of further analyses, that the Pathways Project may have had an impact on youth offending at the community level.

Family support

The FIP was multifaceted, highly flexible, strengths-based, responsive and complex in delivery, but in all those respects was very similar in structure and operations to many family support initiatives around the world (Chaskin 2006). Because it was well implemented, with family support workers drawn from the three major cultural groups in the community (Vietnamese, Pacific Islands and Indigenous Australian), and because very little is known from the scientific literature about the impact of Pathways-style family support, it is important to assess its benefits for families and for their children. Much is already known about these benefits from case studies and qualitative studies (Homel, Lamb & Freiberg 2006), and our quantitative analyses confirm, to some extent, the positive findings from these modes of enquiry.

Firstly, it is important to emphasise that quantitative methods can capture only a tiny fraction of the work undertaken with families. Fortunately, the RBRI had been developed already, was designed for Australian conditions and proved to be an invaluable child measure. The research team devoted years to the development of two other key outcome measures: the PEEM (Freiberg et al. 2014) and Rumble's Quest (the new version of Clowning Around that was used in the latter stages of the Pathways Project). Rumble's Quest/Clowning Around is a world-first computer game that validly and reliably measures the social and emotional wellbeing of children aged 6–12 years (Freiberg et al. 2023). It was simply not possible to devote the time to the development or use of other measurement tools, especially for family function and wellbeing (for which, unfortunately, there are few suitable measures).

Secondly, it is asking a lot of any community-based intervention to produce measurable effects on children when the primary client is one or both parents. In the case of Pathways family support, we hypothesised that improvements in parent efficacy because of the support activities, as measured by PEEM, would lead to improvements in child wellbeing indexed by Rumble's Quest and reductions in child behaviour problems indexed by RBRI. In our 2015 Criminology Research Grant report and the accompanying *Trends & issues* paper (Homel et al. 2015a, 2015b), we were able to present evidence for this hypothesised pathway, at least for parents who were initially assessed as having low levels of efficacy. In the 2015 report, we also outlined the results of a series of analyses of the effects of different levels of family support on children's wellbeing at the transition to high school, drawing on the risk and protective factors derived from the Transition to High School Survey. As the section *The Pathways to Prevention Project: History, structure and early impact* summarised, these analyses suggest that family support did flow on to child outcomes in Grade 7, generally having the effect of moving children of families receiving family support (who were generally more at risk of poor outcomes) into closer alignment with families who had no need to seek support.

In analyses not included in this report (Working Paper 1; Allen et al. 2023b), we revisited the question of whether family support improved children's behaviour, drawing on data not just from Phase 1 (2002 to 2003) but from across the life of the Pathways Project (2002–2011). To overcome the problem that family support families were self-selected and, not surprisingly, faced a variety of problems at a level not experienced by non-Pathways families, matching was conducted on the number of known children in the family, baseline RBRI scores and the proportion of males in the family. Despite this matching, a family's receipt of parent or carer Pathways support was not significantly associated with changes in children's RBRI up to 24 months following the onset of support. However, we have not yet investigated the interaction of family support with changes in PEEM scores to explore further whether impacts on children's behaviours are restricted to families where PEEM improves from a low base.

Using the same general methodology to investigate the impact of family support on PEEM, we did find, as we expected, that Pathways family support was clearly associated with improvements in parental efficacy and empowerment, consistent with earlier (less statistically rigorous) analyses. The effect size of about 0.5 was quite substantial for social science research and translates into important improvements in parents' self-efficacy and confidence to advocate for the needs of their children. In other words, the FIP succeeded in its stated aim of supporting families to support their children, strengthening parents' capacities to connect with school and other institutions and building their confidence to perform the parenting role and advocate on behalf of their children.

Finally, in the *Family support and serious youth offending* section, we investigated the effects of family support at any time from preschool to the end of primary school on serious youth offending for the 543 children in the Phase 1 preschool cohort who transitioned to one of the seven Pathways primary schools. More than four families in 10 (41%) in this sample availed themselves of the Pathways family services on at least one occasion.

To better describe the diverse patterns of service use over the 10 years of the project, we used longitudinal latent class analysis. This analytic technique appears not to have been used previously to unravel the complexities of community-based family support services, although it has been used for other kinds of social and health services. This led to the identification of three categories of users (Figure 5): those whose use was ‘Early’, in preschool or Grade 1 (26%); ‘Later’ users, in the latter years of primary school (11%); and ‘High’ level users (only 5%) who received a lot of support for most of the time the child was at school.

Controlling for involvement in the communication program and covariates, the pattern of use of family support could not be shown in a logistic regression to be related to youth offending, except that the Later and High use categories of support were associated with a significantly higher rate of offending. This suggests that the types of services available were not sufficient to overcome the effects of the key risk factors that we identified in Working Paper 2 (Allen et al. 2023c), such as impulsivity and low levels of prosocial attitudes among Grade 7 children.

The classification tree analysis in the section *Family support and serious youth offending* threw some light on the complex effects of family support, while underlining both the higher risk of youth offending that boys face and the protective effects of participation in the communication program. Reflecting their high levels of adversity, the Late or High forms of family support were associated with relatively high rates of offending, especially for boys. However, none of the girls whose families received support at any time and who participated in the communication program offended. The same pattern was observed for boys in the communication program whose families sought support in the preschool year or in Grade 1. These patterns highlight the importance of multifaced preventive initiatives that address the needs of children and their families in a mutually reinforcing way (Bierman et al. 2017).

Implications for prevention policies

The short- and long-term success of the communication program, and the role of family support, suggest that this approach could be a model for early prevention strategies in very socially disadvantaged communities across Australia where there is chronic underinvestment in community-based developmental crime prevention. The following features of the program are important when considering how to extend the reach of quality early prevention initiatives:

- The communication program was designed and implemented by people expert in the field of early childhood literacy and language development in very young children. The link with a university postgraduate training program taught by Dr Gordon Elias at Griffith University was critical because it ensured that the AVT teachers, who were already employed in the Department of Education to assist children facing learning difficulties, were fully up to date in their knowledge and skills (Freiberg 2004).
- The program was not introduced from outside by an education consultant or by a university but was resourced and delivered within the state education system. We made the point in the section *The Pathways to Prevention Project: History, structure and early impact* that the road to scale runs through public systems. Helping to build the capacity of public systems to use the latest knowledge and methods, whether in teaching, in family support or in other forms of outreach in communities, is fundamental to achieving scale and sustained impact.

- The communication program was part of a multisystemic/ecological community intervention, underpinned by a robust partnership between government, the community sector (especially Mission Australia), schools/preschools and a university research team expert in the science of prevention and child development.
- The focus was preventive and universal, not remedial. In other words, the project went far beyond the traditional role of specialist teachers working with children identified as ‘at risk’ in some sense (important as this is). The communication program, boosted by being part of the larger Pathways Project intervention, lifted the performance of the whole preschool, not just the performance of the ‘strugglers’.
- The program achieved sustained impact by building the capacity of the classroom teachers and the parents to reinforce the learning activities when the specialist teachers were not present. All early prevention initiatives should achieve sustained impact by building the capacity of frontline professionals to base their work on good science.
- The program was delivered at an appropriate level of intensity for most of the preschool year (30 weeks, preceded by several weeks of language assessment). It also used small group methods (four or fewer children), helping to ensure that teachers could be responsive to the measured needs of each individual child, especially those for whom English is not their first language.

When considering how to implement this model nationwide, the fact that, in the Pathways case, the program was focused on communication and language skills should not be the primary consideration. Social skills development, for example, is of equal importance. What matters is an investment in evidence-based and community-based primary prevention within a universal, developmentally informed framework, preferably in early childhood but also at other critical life transitions, especially before the transition to high school.

The analysis of risk and protective factors in the final year of primary school presented in Working Paper 2 (Allen et al. 2023c), combined with the apparent failure of a well implemented family support program to effectively address the critical factors of child impulsivity and the development of strong prosocial values, highlights the need for carefully designed interventions to assist children (and schools and families) to make the transition to high school successfully. We noted in our 2015 report (Homel et al. 2015a) that many Grade 7 children in the Pathways schools were at a crossroads in their lives but were young enough to be open to interventions that provided new opportunities for positive youth development. Nevertheless, as we found in Working Paper 2, the prominence of impulsivity and behavioural risk (as assessed by the RBRI) as important explanatory variables for offending clearly points to the importance of earlier supports for children showing dysregulated behaviour. Such supports would be more beneficial in preschool and early primary school than in the last year of primary school, when some children may already be engaging in delinquent behaviour. All the features of the communication program listed above, especially the focus on improving the lives of all children before Grade 7 (or Grade 6 as it is now), translated (of course) to the new context, should be built into the design of these preventive interventions.

Comprehensive family support built on trust, cultural appropriateness and strong relationships is an essential foundation for working in disadvantaged communities. A striking but unsurprising finding of our research is that family support works in its primary stated objective, to empower parents and carers. The impact achieved, as measured by PEEM, was quite substantial, and the case studies and many stories from families underline the often transformative consequences of such empowerment.

Sometimes, the kinds of supports that the Pathways team could provide led to improvements in child behaviour and wellbeing (eg Homel et al. 2015b), but sometimes they did not. It seems that the help many parents sought late in the primary school career of their child was not sufficient to divert these children (mostly male) from an antisocial pathway that led in some cases to the Children's Court.

One implication is that family support teams working in disadvantaged community settings need to be able to draw on the expertise of many professions, particularly psychologists, psychiatrists and other professions expert in working with children at behavioural risk. Ideally, such expertise should be permanently available in every community team. Further, community agencies working with families and children need to have strong partnerships with schools. The power of such partnerships is demonstrated by the success of the communication program and its multisystemic model of delivery, based on expert knowledge and skills.

Underpinning such partnerships must be a commitment to work within a public health framework that aims to improve the lives of all children in each locality. This universal, preventive orientation requires data-guided decision-making and the use of evidence-based strategies that fit local circumstances. These approaches are very challenging to implement, so a commitment is required to establish a variety of learning communities that can ensure constant improvement in the quality and effectiveness of what is done (Homel, Branch & Freiberg 2024).

Further research

The role of family support, in combination with the communication program, will be rigorously modelled in further research. We will also examine the possibility of gender interactions, because the early evaluations of the communication program showed that the behavioural effects were mostly restricted to boys. We will also explore more complex mediation pathways, using school suspensions and measures of child impulsivity in addition to the RBRI.

The moderating role of changes in PEEM in relation to child behaviour will be further investigated (Allen et al. 2023b). We will also consider changes in PEEM in relation to different types and amounts of family support that families may receive.

Finally, the analysis of aggregate crime data will be refined in further research. We will examine the data using appropriate statistical models and explore the feasibility of obtaining offence data for Queensland SLAs in 2001, to identify areas that were comparable to the Pathways SA2s in offending prior to the start of Pathways. We also hope to seek other community-level indicators of child outcomes that may have been influenced by Pathways over the years, such as paediatric hospital admissions.

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