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Parent Influence on Outcomes for Children: HIPPY as a Cost-Effective Option

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Abstract

Children development is affected by home environment, such as mother-child communication, effective discipline methods, home safety and educational activity provided by parents. Among these, parenting practices are the most influential factors affecting children's outcomes. In order to improve parenting practices, a number of parenting programmes and strategies have been implemented worldwide as well in New Zealand. In particular, HIPPY (Home Interaction Programme for Parents and Youngsters) has been successfully operated in New Zealand and overseas. HIPPY is a home-based programme that trains parents to help their young children with their learning and reducing antisocial behaviour in school or later life. This paper discusses the effects of parental practices on children's lives with a focus on HIPPY implemented to improve parenting skills and their cost effectiveness. The paper concludes with recommendations for action.

Keywords: Parenting; HIPPY; cost-effectiveness; crime-prevention; New Zealand.

Background

Family background is strongly associated with educational achievement, health and acquisition of capital in adulthood (Guo & Harris, 2000; NICHD, 2001). Both individuals and society are affected, as poor health, lack of qualifications,

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and poor social skills increase society's costs in relation to health, crime, and social benefits. It is also well known that children's life outcomes are affected by poverty, poor health, and low educational attainment (Barnett, 2006; Dobow & Ippolito, 1994; Ermisch, Francesconi, & Pevalin, 2001; Greenwood, Model, Rydell, & Chiesa, 1996; Guo & Harris, 2000; Sansfacon, 2004; Schweinhart, 1994). This is an endless cycle, well described by Blandon (2004), who showed that low income leads to low educational attainment which leads to low income and so the pattern is repeated, with gaps widening over time.

However, Guo and Harris (2000) indicated that poverty has no direct effect on children's intellectual development. Guo et al found that the physical setting of the house exerts the smallest effect on children's intellectual development when compared with cognitive stimulation and socialisation by parents. Analysis of factors that affect children's social and educational outcomes indicated that the home environment such as mother-child communication; effective discipline methods; home safety; and educational activity provided by parents, have a greater effect (up to six times greater) on children's outcomes than does the level of income (Dobow & Ippolito, 1994; Eamon, 2000; Korenman, Miller, & Sjaastad, 1995; Shulruf, O'Loughlin, & Tolley, 2009). Welfare benefits were found to have the least positive effect on children's educational outcomes (Haverman, Wolfe, & Spaulding, 1991; Shulruf, 2008; Shulruf, et al., 2009) or even some negative effects (I. Ku, 2001; I. Ku & Poltnick, 2003; Shulruf, et al., 2009).

Parenting practices are perceived to be the most influential factors affecting children's outcomes (NICHD, 2001; Shulruf, 2004; Shulruf, et al., 2009; Yoshikawa, 1994). Among these, cognitive stimulation activities have been found to be the most important. For example, a stimulating literacy environment and joint parent-child learning activities at home improved children's mathematics achievements (Crawley, 2003).

A study of educational achievements of children from lone parent or stepparent families indicated that parents being frequent readers significantly decreased the negative effect of this family structure in comparison to two-parent families (Dronkers, 1994; Evans, Kelley, & Wanner, 2009; Pong, Dronkers, & Hampden Thompson, 2003).

Furthermore, comprehensive parenting practices as measured by the commonly used measure HOME³ (Home Observation for Measurement of the Environment) (R. H. Bradley, Caldwell, & Corwyn, 2003; R. H. Bradley, Caldwell, Rock, Ramey, & et al., 1989; Caldwell & Bradley, 1984; Pungello, et al., 2010) indicate that HOME scores at age 3 were the most profound predictors for reading skills at

3 The Early Childhood (EC) HOME is designed for use between 3 and 6 years of age. It contains 55 items clustered into 8 subscales: 1) Learning Materials, 2) Language Stimulation, 3) Physical Environment, 4) Parental Responsivity, 5) Learning Stimulation, 6) Modelling of Social Maturity, 7) Variety in Experience, and 8) Acceptance of Child.

ages 8-10. The HOME scores at age 3 were stronger predictors for reading skills than socio-economic status (SES) at age 3 and 10 and than HOME scores at age 10 (Molfese, Modglin, & Molfese, 2003). These findings are supported by a comprehensive study of the inter-relationship between childcare experiences, family factors, and children's early development in USA, in which 1100 children were followed from birth through age 7. The findings indicate that "family influences are consistently better predictors of children's outcomes than early child care experiences alone" (NICHD, 2001, p. 487).

A longitudinal study (data taken from the US National Longitudinal Survey of Youth, NLSY) compared genetic and environmental contributions to educational outcomes. The findings indicated that genetic factors explained 23% of the correlation between the Home Observation for Measurement of the Environment (HOME) scores at age 3 and achievement in reading, vocabulary, and mathematics; whereas common-shared environmental factors explained 77% of this relationship (Cleveland, Jacobson, Lipinski, & Rowe, 2000). This evidence is important in distinguishing genetic factors from actual parental practices, which appeared to be three-fold more influential.

Parental practices were found to mitigate socioeconomic disadvantages (Cheadle, 2008; Guo & Stearns, 2002). For example, single mothers in low wage jobs who had higher scores on the Home Observation for Measurement of the Environment (HOME) scale, had children with fewer behaviour problems and better preschool ability (Jackson, Brooks-Gunn, Huang, & Glassman, 2000).

In addition to educational attainment, child behaviour is also significantly affected by parents' behaviours. For instance, higher rates of reported lax disciplinary practices, less efficient parental coping, lower rates of father-child communication, and less synchronous mother-child interactions were significantly associated with hyperactivity following statistical adjustment for the effects of conduct problems and other confounding factors. The best parenting predictor of hyperactivity was maternal coping (Keown & Woodward, 2002).

It is generally considered that, when it is of high quality, non-parental early childhood education has a positive influence on children's outcomes, though some negative effects have been found, particularly in relation to younger children. Nonetheless, the parental component in children's outcomes is significantly important. In a study of the development of academic skills from preschool through second grade it was found that children tended to show better academic skills across time if their parents had higher levels of educational attainment and reported more progressive parenting beliefs and practices (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002).

Burchinal et al (2002) concluded that family characteristics were the best predictors of children's outcomes. However, they suggested a close teacher-child relationship (as perceived by the teacher), may serve as an alternative pathway to

competence for children who may be at risk of lower achievement due to family characteristics.

Similar findings from other studies using data from NICHD (National Institute of Child Health and Human Development) and ECCRN (Early Child Care Research Network) (NICHD, 1999; No authorship, 2004) indicated that parental practices have at least the same effect on children's outcomes as does high quality non-parental early childhood education. However, non-parental ECE has been shown to have small but significant negative effects on mother/child interaction through the first three years of life (NICHD, 1999).

Where the parental effects are measured throughout a long term, parents' education significantly increases the chances of their children's higher educational achievement and decreases the probability of their children's economic inactivity (Ermisch, et al., 2001). The key factor in life outcomes are parents.

Parenting programmes and strategies implemented worldwide and New Zealand

In order to improve parenting practices, a number of parenting programmes and strategies have been implemented worldwide as well in New Zealand. Interventions for reducing antisocial behaviour are usually classified into four categories: individual based approaches; family based approaches; school based interventions; and community approaches (Curtis, Ronan, Heiblum, Reid, & Harris, 2002; Shulruf, 2004; Shulruf, et al., 2009). A literature review on parent education and support programmes (Shulruf, 2004) suggested that where programmes addressed parents of children under five years of age, the most effective programmes were those which included a home visiting component. These findings are in line with Schweinhart (1994) who identified the programmes with lasting effects: "Most of the preschool programs found to have long-term benefits included weekly home visits or emphasized parent involvement in other ways. The programs strengthened parents' ability to view their children as able, active learners and to support their children's development of a sense of control and of intellectual, social, and physical abilities".

Home visiting programmes have been implemented in many forms. However, there is a large body of research indicating that high quality intervention programmes based on home visiting have significant positive effect on children's outcomes (Doherty, Friendly, & Beach, 2003; Kitzman, et al., 2010; MacLeod & Nelson, 2000; Olds, Sadler, & Kitzman, 2007). For example, a review of 24 evaluated intervention programmes revealed that home visiting programmes as well as parent training in community facilities decreased children's anti-social behaviours and youth delinquency (Farrington & Brandon, 1999). Similar conclusions from the literature were found by Vimpani (2000) who suggested that

home visiting is a needed form of intervention for vulnerable families. A study by (Greenwald, Hedges, & Laine, 1996) demonstrates crime prevention benefits from a combination of very high quality centre-based programmes with home visiting.

Long term outcomes of home visiting programmes (for example, Parent-Child Home Program, Manhasset, N.Y.) have been reported by Levenstein et al (1998) who showed that evaluation of the outcomes 10 years after the families graduated from the programme revealed that 84% of the participant children graduated from high school, compared with 54% among the controls. In addition, the dropout rate was significantly lower among the graduates in comparison to the controls (16% vs. 40% respectively). Other positive outcomes from this programme were reported by DeVito and Karon (1990) who found that graduates of the programme achieved better reading and math score than the norm in the California Achievement Test (CAT).

MacLeod & Nelson (2000) meta-analysed 56 home visiting programmes. Their findings indicate that home visiting programmes have a positive effect on HOME, parental attitudes, parental behaviour and decreasing child maltreatment (follow-up effect sizes .37, .71, .37, .32 respectively). With regard to the programme components, intensive family programmes with high levels of participant involvement, an empowerment/strengths-based approach, and a component of social support had higher effect sizes than programmes without those elements.

Among the home-visiting programmes, HIPPY (Home Interaction Programme for Parents and Youngsters) has been successfully operated in New Zealand and overseas. HIPPY is a home-based programme that trains parents to help their young children with their learning and reducing antisocial behaviour in school or later life. It was first introduced to New Zealand in 1992 and undertaken by a family service centre located in a low socioeconomic, urban neighbourhood in the Greater Auckland Region, New Zealand. The intervention was funded by the Ministry of Social Welfare at that time. Evaluations of HIPPY showed positive impact on literacy, numeracy, school suspensions, grades, classroom behaviour, and achievement test scores up to year 6 (Barhava-Monteith, Harre, & Field, 1999; F. Bradley, Smith, Long, & O'Dowd, 2002; Burgon, 1997; van Tuijl, Leseman, & Rispen, 2001; Westheimer, 2003).

The cost effectiveness of home visiting programmes has not been thoroughly investigated. For example, Barnett (1993) found only two economic evaluations of educational home visiting programmes. However, available analyses indicate a very positive benefit-cost ratio. Figures provided by Barnett suggest a benefit-cost ratio of 2.4:1 for a two and half year programme where the outcomes included reduction in the cost of special services and increased earning. The second economic evaluation was made of a home visiting programme from birth to age four which targeted low-income mothers. The analysis, which took into account the

estimated annual cost of crime, indicated that the programme produced a ten-fold reduction in the cost of crime.

Weikart and Schweinhart (1997) suggested that programmes which comprised of both home visiting and preschool showed a benefit-cost ratio of 8.74:1. It should be noted that, while the benefit-cost ratio is very favourable, the most famous example of this approach, the Perry Preschool Project, operated at a very high cost, for a limited period of time, as a University-based and staffed intervention.

In his review, Sansfacon (2004) presented a range of cost-benefit studies relating to crime prevention. Within the cluster of the developmental crime prevention studies, it appeared that intervention at age 3-4 gained the best benefit-cost ratio (2.48-7.16:1 for programmes comprising both childcare services and home visiting). In a recent and very comprehensive review and meta-analysis on early intervention programmes for youth, Aos, Lieb, Mayfield, Miller, and Pen- nucci (2004) indicated that HIPPY demonstrated a benefit-cost ratio of 1.8:1.

An interesting analysis was presented by Dubowitz (1990) who found that intervention programmes with home visiting components that were facilitated by lay personnel were slightly more effective, had a higher retention rate and cost 35% less in comparison to those where professionals visited.

It is clear from the research that children's outcomes are affected by genetic factors, which determine potential (Silventoinen, Kaprio, & Lahelma, 2000); parental practices and non-parental education (Guo & Harris, 2000). Non-parental education systems are the focus of considerable government attention in the developed world. An example is New Zealand's 10 Year Strategic Plan for Early Childhood Education (*Pathways to the Future: Nga Huarahi Arataki*, 2004), which focuses on non-parental early childhood education only.

Benefit-cost analysis of HIPPY

Aos et al (2004) summarised benefits and costs of a number of intervention programmes including HIPPY. Based on US data HIPPY's benefit-cost ratio stands at 1.8:1. That is, each \$1.00 invested in the programme benefits the society by \$1.80.

While only limited data are available, an attempt has nevertheless been made to calculate the benefit-cost ratio, using a number of conservative assumptions (see table 1). Further data and discussion are invited in respect of the following analysis:

Conservative benefit-cost analysis within the New Zealand context suggests benefit-cost ratio of 4.28:1. The analysis (Table 1) estimates a modest effect of 10% in crime prevention should the programme be implemented for all children

within deciles 1-2. However, implementing HIPPY for targeted populations within deciles 1-2 areas will increase the benefit-cost ratio significantly as suggested in the literature (Karoly, et al., 1998; Karoly, Kilburn, Bigelow, Caulkins, & Cannon, 2001).

HIPPY has been demonstrated to address needs of low-income families whose children are at risk of poor outcomes. There is a strong case for implementing HIPPY on a large scale, in order to achieve national effect.

Table 1 Estimates for cost-effectiveness of New Zealand HIPPY programme (adjusted to 2010)

Description	Cost / benefit	Reference
Average number of prisoners 2001	\$7,246	Ministry of Justice ⁴
Monthly cost of an inmate (1996)	\$4,306	Ministry of Justice ⁵
Monthly cost adjusted to 2004	\$5,954	
Annual cost of an inmate	\$ 71,447	
Annual cost of all inmates	\$ 422,112,981	
Estimated saving due to 10% reduction in crime (saving on correction only)	\$ 42,211,298	(Barnett, 1993; Bytes, 2001; Kerr, 2003)
As costs of correction form only 16% of total saving for the society, the saving due to 10% crime reduction	\$263,820,613	(Reynolds, Temple, Robertson, & Mann, 2002)
Estimated proportion of inmates from decile 1-2	60%	Ministry of Justice ⁶
Estimated cost for the society due to crime committed by people from deciles 1-2	\$158,292,369	
Annual cost of HIPPY child	\$2,500	
Number of children in deciles 1-2 in one cohort (estimate)	12,000	Ministry of Education ⁷
Total annual cost of HIPPY for all children decile 1-2	\$30,000,000	
Total annual saving for the society	\$ 128,292,369	
Estimated Benefit-Cost effectiveness	4.28	

⁴ <http://www.justice.govt.nz/pubs/reports/2003/conviction-sentencing-2002/chapter-4.html#table-4-3>

⁵ <http://www.justice.govt.nz/pubs/reports/2003/conviction-sentencing-2002/chapter-4.html#table-4-3>

⁶ http://www.justice.govt.nz/pubs/reports/1998/prison_census/chapter_11.html#Table%2011.1

⁷ <http://www.minedu.govt.nz/index.cfm?layout=document&documentid=5110&data=>

Since HIPPY strengthens the parent/child bond, as well as contributing to better educational outcomes, it can be seen as a 'foundation' intervention upon which can be built non-parental early childhood education. In fact HIPPY's function as an outreach programme provides a pathway to participation in ECE. It provides a pathway for mothers to acquire employment skills (Younger, 2003) and enter the workforce.

It can confidently be predicted, based upon evidence, to provide benefits to the nation in decrease of delinquency, crime and related costs; in decrease in the cost of government assistance; and in increased revenue as a result of better employment opportunities available to both HIPPY graduate parents and children.

Discussion

The evidence from the research indicates that outcomes for children are heavily influenced by parenting practices (Aos, et al., 2004; Guo & Harris, 2000; NICHD, 2001). Parental skills and practices can be improved and high quality programmes, which include home visiting components, have been proved as effective, with a high benefit-cost ratio (Aos, et al., 2004; Burchinal, et al., 2002; Karoly, Kilburn, & Cannon, 2005).

It appeared that HIPPY meets the criteria for successful programmes. For example, Stanwick (2001) listed the fundamentals of successful crime prevention programmes: Address family relationships; Improve parent-child relationship; Focus on family communication; Improve parental monitoring and discipline; Include structured and sequenced parental training; Teach skills through role-playing exercises and practice in the group or in homework assignments; Place emphasis on the efficacy and characteristics of the trainer. All these elements are major components of HIPPY, as are the cognitive stimulation and joint parent-child learning activities, found to be most important in effecting positive outcomes for children (Crawley, 2003; Yoshikawa, 1994).

Furthermore, the U.S. Department of Justice⁸ has named HIPPY as an effective universal intervention programme of crime prevention (Kumpfer & Alvarado, 1998). Kumpfer et al (1998) also listed the attributes of the successful tutor, which mirror the requirements for HIPPY tutors: good communication skills; openness and willingness to share; sensitivity to family and group processes; dedication to, care for and concern about the family; flexibility; humour; credibility; personal experience with children as a parent or childcare provider. It should be noted that HIPPY consistently models this style over two years of

⁸ U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention

parent training and participation, the duration serving to embed this behaviour (Burgon, 1997; Hall, 2004)

There is now a large body of research showing that HIPPY improves children's class behaviour, achievements in mathematics and literacy and increases mothers' employability (Baker & Piotrkowski, 1996; Baker, Piotrkowski, & Brooks-Gunn, 1998; Barhava-Monteith, et al., 1999; R. H. Bradley & Gilkey, 2002; Fruchter, 1992; Lombard, 1994; Parecki, Paris, & Seidenberg, 1996; Wolf & Lalley, 1999).

It is widely held that the parenting style which best promotes good child outcomes is the warm/authoritative style. It is recommended that HIPPY be considered as the first service of future Family Service Centres. In this way, gains for children and families can be made within a comparatively short time-frame, while HIPPY serves the function already noted in Government research into Family Service Centres, namely, that of outreach to families in need (Burgon, 1997).

Conclusions

It is further recommended that a thorough and comprehensive evaluation will be established in order to extend the body of knowledge within the literature, and within the New Zealand context, of the medium and long-term outcomes for children, parents and families, together with benefit cost analysis. Given such indications of a growing investment in policies relevant to parenting, an important issue concerns the effectiveness of different approaches to parent education and support, and in particular the types of policy context that are most conducive to supporting parents in their role. Cost effectiveness analysis provides some indication of the effectiveness of these varying policy environments that is likely to have an impact on child outcomes.

It is acknowledged that policies relevant to parent education and support are typically not a distinct topic in governments' portfolios but rather consist of multiple, often disparate strands that lack the cohesion of an overarching strategy for promoting effective parenting. The need for analyses that attempt to link parenting education and support policies to child outcomes is crucial, particularly given government expenditure on social policies including parent education and support is growing cross-nationally. It is therefore suggested that policy makers, researchers and service providers work collectively to progressively build a more robust evidence base for the development of policy that provides effective support for parents and in turn ensures improved outcomes for children and families.

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