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Effective/efficient mental health programs for school-age children: a synthesis of reviews

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Abstract

The prevalence of mental health problems, some of which seem to be occurring among younger cohorts, leads researchers and policy-makers to search for practical solutions to reduce the burden of suffering on children and their families, and the costs to society both immediate and long term. Numerous programs are in place to reduce or alleviate problem behaviour or disorders and/or assist positive youth development. Evaluated results are dispersed throughout the literature. To assess findings and determine common elements of effective children's services, a literature search was undertaken for evidence-based evaluations of non-clinical programs for school-age children. Prescriptive comments aim to inform service-providers, policy-makers and families about best practices for effective services such as: early, long-term intervention including reinforcement, follow-up and an ecological focus with family and community sector involvement; consistent adult staffing; and interactive, non-didactic programming adapted to gender, age and cultural needs. Gaps are identified in our understanding of efficiencies that result from effective programs. Policy implications include the need to develop strategies for intersectoral interventions, including: new financing arrangements to encourage (not penalize) interagency cooperation and, to ensure services reach appropriate segments of the population; replication of best practices; and publicizing information about benefits and cost savings. In many jurisdictions legislative changes could create incentives for services to collaborate on service delivery. Joint decision-making would require intersectoral governance, pooling of some funding, and policy changes to retain savings at the local level. Savings could finance expansion of services for additional youth.

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Introduction

This paper provides an overview, drawn from reviews, of evidence on the effectiveness and efficiency of mental health services for school-aged children, and addresses the policy implications of its findings. Evidence of

effectiveness compares outcomes for children (and youth) receiving and not receiving services; *efficiency*, in this paper, considers the cost of providing services compared to the cost to society of not providing such services. The study included both universal population-based services (provided to all children) and early intervention population-based services (provided only to at-risk children).

There is a high prevalence of mental health problems in children (20–30%) (Stephens, Dulberg, & Joubert, 1999) and many of them have multiple problems (Byrne et al., 2002), which are inadequately treated or

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undetected (Offord et al., 1999). Numerous publicly funded but uncoordinated agencies in the health, education, social services, recreation and corrections sectors provide various types of care for children, yet many still lack the appropriate care that would be informed by a more comprehensive view of their problems. Untreated problems in children is costly in human and fiscal terms, for themselves, their families and the wider society (Offord, Boyle, & Racine, 1992) (such as, the costs of lost potential, observed in school dropout rates, unemployment, welfare rates and crime).

The following questions, suggested by Knapp (1997), will be used to address the issues:

1. What outcomes are the interventions or services trying to achieve, a reduction of problems or promotion of competencies?
2. How? With what mix of services: prevention, enhancement of positive factors or treatment of negative factors?
3. For whom is the service intended, for what age or other characteristics?
4. Where is it delivered: at school, within the family, primary care, the community or in some combination?
5. Why and how is the program expected to help? Is the strategy specialized, or part of a coordinated or integrated plan?
6. What results are shown?

This paper sets out to analyse the evidence, focussing on reviews of the literature and seminal studies which address the above questions.

Correlates of child health outcomes and conceptual framework

Considerable research has confirmed associations between developmental, emotional and behavioural disorders and a wide array of interrelated influences on the individual, direct and indirect, biological and contextual (Greenberg, Domitrovich, & Bumbarger, 2001). Contextual factors include influences on a child within the family, neighbourhood, school and community (Offord & Lipman, 1996). Inherited traits and predispositions, physical health, cultural norms, parental education, parenting style, income and family stability, among other factors—all are potentially positive or negative influences. The positive relationship between emotional/behavioural problems and family socioeconomic status, e.g., is well established in population studies (Marmot, Ryff, Bumpass, Shipley, & Marks, 1997). Risk may include specific biological or environmental insults that produce neurological or psychological defects, but, as well, may involve the presence or

absence of resources and opportunities that more subtly shape developmental pathways.

In as much as they provide a child with resources to cope with or buffer negative stressors and thrive despite deficits, internal and external factors are protective of mental health. Both risk and protective factors interact to help determine child development (Benson & Saito, 1999). Exposure to accumulating risk factors increases the likelihood of mental health, developmental or behavioural problems (Offord et al., 1999), yet protective factors lessen the effect of risk factors as long as some degree of balance is maintained (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 1999).

A strong current has developed in the United States and elsewhere over the past 20 years for services to strengthen this mental ‘immune system’ in children, termed resilience, accompanied by a sizable literature. A resilience checklist by Grotberg (1998) identifies characteristics of resilience across various ages and culture. Resilience theory suggests that all children can benefit from preparation to help them respond to adversity with effective, healthy strategies and coping mechanisms (Catalano et al., 1999). Being risk free is not the same as being prepared (Greenberg et al., 2001). One is prepared, despite risks, when one can say, to paraphrase Grotberg, that one has caring people for support and guidance, confidence in one’s own self-worth, and good coping skills. Recreational, educational or social programs may aid healthy child development through risk factor reduction or positive youth development. Competence, engagement, support, identity and efficacy are frequently included as mechanisms. Programs may also address specific behaviours (e.g., substance abuse) or treat children’s mental health disorders and symptoms (e.g., attention-deficit hyperactivity). Whereas the former are likely universal or early intervention, the latter are more likely targeted or clinical interventions (i.e., limited to children exhibiting symptoms or with a diagnosed disorder).

Since more attention has been given to pre-school research (Zoritch, Roberts, & Oakley, 1998), we focussed primarily on reviews of universal and early intervention services for older children. Programs providing clinical services were excluded.

Methodology

A search of published and unpublished English-language scientific literature focussed on evaluations of universal and early intervention health promotion initiatives for children at risk related to health and social welfare, recreation and culture, occupation, remedial education, housing and corrections. Databases included: Medline (1990–2000); PubMed; OVID; Social Sciences Index (WebSPIRS) and Ideas. Website searches

Table 1
Quality of relevant reviews^a

Review	Search strategy stated	Comprehensive search	Relevance criteria described for primary studies	Quality of primary studies assessments	Comprehensive quality assessment (minimum 3 components)	Findings integrated	Adequate data to support conclusion	Strength of the review
Bauman, Drotar, Leventhal, Perrin, and Pless (1997)	X	X	X	X	X	X	X	Strong
Bennett and Offord (1998)	X	X	X	X	X	X	X	Strong
Breton et al. (1998)	X	X	X	X	X			Moderate
Catalano et al. (1999)	X	X	X	X	X			Moderate
DiCenso et al. (1999)	X	X	X	X	X	X	X	Strong
Dowswell et al. (1996)	X	X	X	X	X	X	X	Strong
Durlak and Wells (1997)	X	X	X	X	X	X	X	Strong
Emshoff and Price (1999)						X		Weak
Greenberg et al. (1999)	X	X	X	X	X	X	X	Strong
Greenwood et al. (2000)	X	X	X	X	X	X	X	Strong
Heneghan et al. (1996)	X	X	X	X	X	X	X	Strong
Hodgson, Abbasi and Clarkson (1996)	X	X	X	X	X			Moderate
Kalfus (1984)			X	X		X	X	Moderate
Kirmayer et al. (1999)						X	X	Weak
Lister-Sharp et al. (1999)	X	X	X	X	X	X	X	Strong
Marcotte (1997)	X	X	X	X	X	X	X	Strong
Mathur and Rutherford (1991)	X	X	X	X	X	X	X	Strong
Odom and Strain (1984)						X	X	Weak
Ploeg et al. (2000)	X	X	X	X	X	X	X	Strong
Rispens et al. (1997)	X	X	X	X	X	X	X	Strong
Thomas et al. (1999)	X	X	X	X	X	X	X	Strong
Tilford et al. (1998)	X	X	X	X	X	X	X	Strong
Yamada et al. (1999)	X	X	X	X	X	X	X	Strong

^a 6–7 criteria Met = Strong; 4–5 criteria Met = Moderate. <3 criteria Met = Weak.

included: the Internet search engine-Copernic; Cochrane; Centre for Reviews and Dissemination, UK; Université de Québec à Montréal (UQAM); Health Canada (2000), international health research organizations, and related links. Restricting reviews to English-only articles may, unfortunately, have omitted some useful international findings. Reference Manager (data management software) provided detailed lists from 1714 studies, which produced additional sources from references. Research centres, funding agencies, government departments, and health service agencies recommended unpublished material.

Content and quality were the primary selection criteria for investigators. Evaluation methods were critically appraised using parameters suggested in several references (Oxman, 1994). Economic evaluations had to address program goals, breadth of focus, timing and intensity, venues, audience, evaluation rigour and connections to other programs and the community. Investigators concentrated their attention on 'multi-disciplinary' programs that involved several service sectors and/or professions, where possible, and used only reviews of randomized controlled trials or quasi-experimental comparison groups to increase reliability. Where articles included a mix of experimental and non-experimental studies, those meeting the criteria were assessed first to assemble key conclusions. Non-experimental studies such as descriptive narrative literature and informed opinion were later considered for context.

The quality of review articles was assessed using suggestions from relevant literature (Oxman, Cook, & Guyatt, 1994; Guyatt et al., 2000). A review had to: address a focussed question; have effective, appropriate selection methods for relevant articles; appraise study validity; give sufficient methodology to reproduce assessments; provide consistent, complete and precise results; and consider results in terms of importance, applicability, benefits and limitations. Table 1 rates the quality of the 23 reviews summarized.

Results

Tables 2–7 provide a study-by-study summary of findings. Here we discuss a number of patterns and characteristics common to the early intervention programs, and to both early intervention and universal programs.

Reviews discussed efforts to reduce deficiencies related to depression, anxiety, externalizing/internalizing or other psychological/social problems (Table 2), reductions in risky behaviours (Table 3), outcomes to increase competence and resilience through various protective strategies (Table 4) or programs with a combination of both outcome strategies (Table 5). Some reviews contained school-based programs to promote

positive behaviours and prevent psychosocial problems (Table 6); others contained community-based programs with similar aims (Table 7).

Although universal or early intervention programs to develop protective factors (generally by increasing competence or skills), are more effective (Tables 4 and 5) than programs to reduce existing negative behaviours (Tables 2 and 3) (Greenberg Domitrovich, & Bumbarger, 1999); nevertheless, program effectiveness can vary by age, gender and ethnicity of children. Younger children, either pre-school age or in early grades, benefit more than older children (Zoritch et al., 1998) but programs for some older children are also effective (Ploeg, Ciliska, & Brunton, 2000). Programs to address a specific problem or problems, which are sensitive to cultural or gender-based differences (Thomas et al., 1999), have greater effect than broad, unfocussed interventions. For example, because adolescent boys and girls have responded differently to suicide prevention programs, gender-focussed programs are advisable. Similarly, programs for aboriginal children have more positive results when they use traditional knowledge and modes, are based on community initiatives, and involve both family and community (Kirmayer, Boothroyd, Laliberte, & Simpson, 1999).

Programming that has multiple, integrated elements involving more than the single domain of family, school or community, is more likely to have positive results than single focus, single domain interventions (Tables 4 and 5). This characteristic was shared by initiatives to create competence by skills acquisition (Catalano et al., 1999), to address clustered risky behaviours (Dowswell, Towner, Simpson, & Jarvis, 1996), to reduce risk and, to some extent, to change established behaviour (Lister-Sharp, Chapman, Stewart-Brown, & Sowden, 1999).

Theoretical bases of programming seem effective when appropriate for the type of intervention (Contento, Balch, Bronner, & Lythe, 1995). For example, positive outcomes associated with skill acquisition were enhanced by interventions using interactive learning based on social learning theory, developmental social norms, social influence and social reinforcement (Lister-Sharp et al., 1999), on social pressure modelling and on skill rehearsal (Tables 4 and 5) (DiCenso, Guyatt, & Willan, 1999). Effect sizes decreased over time for knowledge and skills acquisition (Rispen, Aleman, & Goudena, 1997) and behaviour reduction (Thomas et al., 1999), suggesting the need for periodic follow-up and reinforcement of positive interventions. An exception, Marcotte (1997), found an increased effect size over time (Table 2) among programs to treat depression in adolescents by cognitive behavioural change. This may derive from the intervention or from unrelated factors such as the natural progression of milder disorders.

Certain methods of program delivery (Table 6) are associated with lower effectiveness. Fear-inducing

Table 2
 Reductions in deficiencies: psychosocial problems, injury, abuse, hyperactivity

Topic/author	Studies included	Goals: program orientation	Intervention strategies	Outcomes	Results
Treating depression in adolescence (Marcotte, 1997)	<i>N</i> = 7	Decrease depressive symptoms	Role-play	Depression, self-esteem, anxiety, conflict resolution, irrational beliefs	<i>Effect size:</i> Reductions in children's negative behaviour: At post-test from 0.41 to 1.70 (small to large) At follow-up from 0.60 to 1.69 (medium to large) Treatment more effective with parental involvement
			Social skills	Self concept	
			Self-modeling	Cognitive distortions	
			Rational-emotional therapy		
			Cognitive behaviour		
Preventing unintentional injuries in children and young adolescents (Dowswell et al., 1996)	<i>N</i> = not stated	Prevent unintentional injury	Cycle helmets	Injury rates	Educational programs alone have little effect
			Car seats		Community programs with broad range of strategies/ participation more effective
			Road safety		
			Crossing patrollers Redistribute traffic safety Home devices: Smoke detectors Child-resistant containers		

Table 3

Reductions in risky behaviours: teen pregnancy, sexually transmitted diseases (STDs), crime, family breakdown, suicide

Topic/author	Studies included	Goals: program orientation	Intervention strategies	Outcomes	Results
Effectiveness of school-based interventions in reducing adolescent risk behaviour: a review of reviews (Thomas et al., 1999)	<i>N</i> = 18	Knowledge	Lectures	Reductions in behaviour:	Drug prevention and sexual risk reduction programs more comprehensively evaluated than emotional/behavioural problem prevention programs:
		Social influence	Class series	Smoking	Didactic, knowledge-based programs have no effect on behaviour
		Social norms	Peer led	Alcohol	Interactive programs more effective in changing behaviour than non-interactive
		Reasoned action Social learning	Teachers led: Discussion group	Drug use Sexual risk	Intervention success decreases with time Interactive programs based on social learning theory, including developmental social norms and social reinforcement are most effective
		Health belief	Role playing Skills practice	Behaviour and emotional problem Pregnancy rates STD rates Attitude change	Overall effective programs result in modest changes Gender differences
A systematic review of the effectiveness of adolescent pregnancy primary prevention programs (DiCenso et al., 1999)	<i>N</i> = 20 RCTs (none strong methodologically)	Pregnancy prevention	School, community and clinic-based interventions by trained adult or peer leaders	Sexual activity	Focus on sexuality does not increase sexual activity
				Pregnancies	Effective programs substantial in duration, focussed on behaviours; theory-based; engaged participants; shared facts, focussed on social pressures, modelling and skill rehearsal; included trained adult or peer leaders
A systematic review of the effectiveness of primary prevention programs to prevent STDs (Yamada et al., 1999)	<i>N</i> = 24 randomized or controlled clinical trails (None strong methodologically; 4 moderately strong)	Reduction in STDs	Primary prevention of STDs by trained peer/professional/paraprofessional educational sessions For low-income African-American and Hispanic adolescents	Condom use	4 'moderate' studies had a positive impact on at least one outcome
				No. of sexual partners	Effective programs theory-based, include interpersonal skills training
				Frequency of intercourse; protected/unprotected oral/anal/vaginal intercourse Diagnosed STDs	Minimum 8 h with trained facilitators

Evaluating intensive family preservation programs: a methodological review (Heneghan et al., 1996)	N = 5 RCTs	Support the family and prevent out-of-home placements	Family workers provide home-based intensive services:	Out-of-home placement rate	5 RCT placement rates:
	N = 5 Quasi-experimental design		Case management	Costs	Treatment group 24–43%
			Family counselling Concrete services (financial, transportation)	Family functioning Recurrent abuse	Control group 20–57% Methodologically flawed studies show no benefit of family prevention services in reducing out-of-home placements
Effectiveness of school-based curriculum suicide prevention program for adolescents (Ploeg et al, 2000)	N = 7	Suicide prevention	Psychological education (cognitive-behavioural principles)	Suicide-related knowledge	Insufficient evidence to support school-based suicide prevention curriculum
			Stress-inoculation; coping skills acquisition, rehearsal	Attitudes: mental health indicators	Beneficial and harmful effects
				Perceived stress Anger Self-esteem	Programs may need modification for at-risk and girls vs. boys Comprehensive, multistrategy programs to address adolescent clustered <i>Risk</i> behaviours
Suicide prevention and mental health promotion in first nations and inuit communities (Kirmayer et al., 1999)	N = 5	Suicide prevention	Community social development programs:	Attempts at self-injury	<i>Effective programs are:</i>
			School-based skills Band councils		Community-initiated Partnership with band councils or/aboriginal organizations Draw from traditional knowledge/wisdom of elders Community consultation
			Competency Continuum of services: prevention, early intervention, crisis psychotherapy, after care Aimed at biological, psychological and spiritual dimensions		Broad focus
Suicide intervention and prevention programs in Canada (Breton et al., 1998)	N = 15	Suicide prevention	School based prevention education	Process vs. outcome evaluations	Prevention strategies poorly defined
	Quasi-experimental		Gate keepers as interventions		Intervention strategies better defined but insufficient information on screening procedures School based programs should include family and community domains
	6 prevention 5 intervention 4 mixed				

Table 4
Increasing child/youth competence/resilience: positive youth development, nutrition, health promotion

Topic/author	Studies included	Goals: program orientation	Intervention strategies	Outcomes	Results
Positive youth development programs (Catalano et al., 1999)	<i>N</i> = 25	Positive youth development	Skill development:	Competence	<i>Positive changes in:</i>
	School (<i>N</i> = 6) Community (<i>N</i> = 2) School/family (<i>N</i> = 7)		Social Cognitive Decision making	Self-efficiency Pro-social norms Pro-social Involvement	Youth behaviour Interpersonal skills Quality of adult/peer relationships
	School/community (<i>N</i> = 1)		Coping	Recognition for positive behaviour Bonding	Self control
	School/family/community (<i>N</i> = 9)		Refusal/resistance	Positive identity Self determination	Problem solving
			Environmental, organizational change strategies influencing: Teachers Peer norms Peer perceptions Improving community relations	Belief in future Resiliency Spirituality	Self efficacy Academic achievement
Effectiveness of nutrition education: a review (Contento et al., 1995)	<i>N</i> = 217	Nutrition education and intervention	Behavioural change	Eating behaviour measured by dietary recalls, records	<i>Best practice interventions:</i> Include more than one domain Address 5 youth outcomes (minimum) 9 months or more
	<i>N</i> = 43 re. school-aged		Communication and educational strategies for enhancing awareness	Impact on knowledge, attitudes, skills, behaviours, health outcomes	Careful attention to implementation and outcome evaluation
			Environmental interventions	Effect of behaviour interventions—parental role	Effective programs behaviourally focussed and based on appropriate theory of behaviour change
					Most effective programs: Actively involve participants, surrounding school, community and environment Involve self-assessment and feedback Require active participation Tailor messages to motives of target groups Educate intermediaries Address short-term cognitive behaviour

tactics such as ‘shock incarceration’ programs (Table 5) seem ineffective (Greenwood, Model, Rydell, & Chiesa, 2000). Programs that deliver information only, and in a didactic mode, appear to be less effective (Hertzman & Wiens, 1996) than interactive activities impacting both school and family. Long-term programming, from several months to years, is shown to be more effective than short, intensive initiatives (Heneghan, Horwitz, & Leventhal, 1996). Early interventions for children at risk (Durlak & Wells, 1997) or in the early stages of disordered behaviour can also be effective (Greenwood et al., 2000). Certain behaviours and attitudes proved more resistant to change (e.g., substance misuse, unsafe sex and oral hygiene (Thomas et al., 1999).

The continuing presence of appropriate adult staff (Tilford, Delaney, & Vogels, 1998), and mentoring or a stable relationship with a successful adult, were important aspects of program delivery. The latter promotes positive social/emotional development, academic achievement, and reduces disordered behaviour (Grossman & Tierney, 1998). Peer mentoring effectively promotes favourable academic and social behaviour in early intervention programs (Kalfus, 1984) and social skills in children with behaviour disorders (Mathur & Rutherford, 1991), but is less reliable for general competencies and skill maintenance (Odom & Strain, 1984).

Almost every review dealt with services that were all or, in part, within a school venue. Easily accessible on-site, school-based services encourage continuing participation, an important element of an intervention, yet risk breaches of confidentiality and labelling of participants. Programs operated out of community centres can provide confidentiality and serve a larger catchment area, but reach a smaller proportion of area children than school-based programming. When children are already exhibiting symptoms, the inclusion of families in community-centre-based interventions is an important factor for success (Greenwood et al., 2000). A comprehensive solution would include services in both venues. Educational and fiscal policies that limit the use of schools for non-curricular activities are current challenges to such a solution.

Though a lack of data about cost–benefits in the reviews renders economic evaluation difficult, other findings in the policy literature (Browne et al., 1999; Browne, Byrne, Roberts, Gafni, & Whittaker, 2001) identify cost savings from preventive children’s health initiatives.

Discussion

The findings have numerous implications for further research and policy direction in the child mental health field. Reviewers noted some inconsistent methodology

and deficiencies in study design, intervention strategies and reporting, necessitating caution toward some results (Breton et al., 1998). However, the number of common findings from so many differing samples and interventions lends credence to their reliability.

The benefits of creating programs around an ecological approach to children’s services are echoed in the broader literature (US Public Health Service, 2000). It seems clear that effective services for school-aged children should address their individual needs and involve the multiple domains and support systems in their lives. The evidence calls for universal services to bolster protective factors and for tailored, long-term, timely interventions for high-risk children, an approach consistent with other recent findings (Board on Children, Youth and Families, 2002; Offord et al., 1999). An underlying thread is that effective children’s services, and agencies, should address the whole child rather than focussing only on a single problem behaviour, since children often have a cluster of emotional/behavioural problems, interrelated with one another and with external factors. Research is still needed to prove the benefits of specific innovative, intersectoral combinations of health, social, educational and recreational programs to promote competence in the face of deficiencies and risks, assist behavioural change, and affect the prognosis of child/youth behaviour problems. We need to determine the accessibility and population coverage of effective, universal and early intervention strategies by age, gender and culture and evaluate policies to encourage their adoption and support. Comprehensiveness of research into interventions can be assessed using the framework proposed in Fig. 1.

Furthermore, we need to understand what organizational and financial barriers impede the implementation of ecological, community-wide, universal and early intervention strategies, study best practices and normalize inclusion of cost effectiveness as a part of evaluation. Such evidence would then inform policy changes to facilitate intersectoral cooperation and appropriate long-term funding. Transparent public decision-making would rely on the dissemination of evidence about effective interventions and upon mechanisms to encourage replication of proven effective services.

With some notable exceptions (Knapp, 1997), research overlooks organizational and financial governance and policy mechanisms needed to foster integration within and across differently financed services. Few studies evaluate whether universal and early intervention initiatives can save the public sector money. However, that aspect is receiving more recent attention (Browne et al., 2001).

Current programs developed to influence children’s development and mental health are generally unconnected and certainly unintegrated. Many programs initiated locally to meet perceptions of community need

Table 5
Outcomes for combination of risk reduction/enhanced competence

Topic/author	Studies included	Goals: program orientation	Intervention strategies	Outcomes	Results
Health promotion in schools: a systematic review (Lister-Sharp et al., 1999)	<i>N</i> = 32 of 200 reviews	Health promotion	Class room changes in school ethics and environment, community and family involvement	Most affected: Healthy eating Fitness Injury prevention and abuse Mental health Least affected: Substance misuse Safe sex Oral hygiene	Ecological multidomain approaches more effective than single domain Most effective programs based on social learning and social influence
Primary prevention mental health programs for children and adults—a meta analytic review (Durlak and Wells, 1997)	<i>N</i> = 177 150 published 27 unpublished	Primary prevention of behavioural and social problems in preschool, primary, secondary school children	Primary prevention with mental health focus Environment-centered, aimed at school/home environments or Person centered	Externalizing/ internalizing behaviours Academic achievements Socioeconomic status Cognitive processes Psychosocial skills	Average participant surpasses performance of control group average (50–82%) Outcomes reflected 8–46% difference favouring prevention Most interventions reduced problems and increased competencies Need studies with longer follow-up and more details of interventions
Schools mental health and life quality (Bennett and Offord, 1998)	<i>N</i> = 4 Prospective Cohort	Mental health Quality of life	School characteristics controlling for student, classroom, and local socioeconomic characteristics	Cognitive behaviour emotional outcomes Examination process School attendance	Wide variation in student cognitive and behaviour outcomes School-to-school variations not explained by student entry characteristics teacher–pupil ratios, instructional resources, physical facilities School and classroom processes (working conditions, teacher, self-efficiency, morale, commitment; ability grouping, disciplinary climate,

	Analytic			Classroom behaviour	parent-school relations) related to student outcome Relationship between school processes and student outcomes not well understood
Prevention of mental health problems (Greenberg et al., 1999)	Criteria	Violence prevention	Curriculum-based teaching	Psychopathology:	<i>Best practice</i>
	$N = 34$ of 130 programs	Social/cognitive skill building	Conflict resolution	Aggression	Stressing protective factors (competence and skills) more effective than targeting disordered or risk behaviour
	20 Targeted	Changing school ecology Multicomponent	Anger management Empathy skills	Depression Anxiety	Youth participation more effective than lecture Multiple, coordinated, ecological approaches more effective in creating competence but not in reducing risky behaviour Multiyear programs have more enduring effectiveness
	14 Universal	Multidomain	Team building Role playing Interaction Linking families and children	Risky behaviour: Impulsiveness Antisocial	<i>Future studies</i> More rigorous designs
A review of psychosocial interventions for children with chronic health problems (Bauman et al., 1997)	RCTs $N = 11$	Psycho-social health in face of physical illness	Structured intervention manual	Deficiencies in cognitive skill Cognitive and social skills competence	Longer follow-up Aim more at internalizing (mood problems) Address who most benefits from which approaches? Measure multiple outcomes
	Non RCTs $N = 4$			Self esteem	11 studies demonstrate positive outcome in at least one psychosocial variable
	Asthma $N = 7$ Cancer $N = 3$ Epilepsy $N = 2$ Mixed diagnosis $N = 3$			Self-efficiency Focus on control Family functioning	Useful points about lack of methodologically sound studies
Prevention of child sexual abuse victimization	$N = 16$ studies	Assess effects of child sex abuse prevention programs	Instructional concepts	Knowledge of sex abuse concepts	Longer duration and skills emphasis most effective
a meta analysis of school programs (Rispen et al., 1997)			Behavioural: Protection skills Film Colouring book	Acquisition of self-protection skills	Post test effect size was 0.71 (moderate) Follow-up 0.62 effect size

Table 5 (Continued)

Topic/author	Studies included	Goals: program orientation	Intervention strategies	Outcomes	Results
Diverting children from a lifetime of crime (Greenwood et al., 2000)	$N = 493$	Crime prevention Competency Development: Target high risk Address substance abuse, anger Cognitive behavioural skills	Supportive early childhood intervention (4 years) for children at risk for later antisocial behaviours ($N = 7$) Interventions for families with children acting out $N = 6$ 4 years of school-based interventions, e.g., incentives to graduate Interventions early in delinquency (Andrews, et al., 1990) $N = 80$ Lipsey $N = 400$ (1992)	Trouble with law/probation Teacher ratings School achievements Teacher ratings: Acting out behaviour Cognitive scores Educational attainment	<i>Early:</i> 6% referred to probation compared to 22% of matched controls Reductions in child abuse 4% vs. 19% One-half the arrests compared to controls at 27 years follow up Better grades More motivation More employment at age 19 Decreased acting out Reduction in aggression, externalizing behaviour school failure Reductions in recidivism by 30–50% Better school achievement, less delinquency Less destructive Graduation incentives increase high school completion and college enrollment 30% of the arrests of control students Decreased troublesome youths Some programs reduce recidivism equally by as much as 50% 'Shock incarceration' and 'Scared straight' techniques more harmful than beneficial
Health promotion in schools: a systematic review. (Lister-Sharp et al., 1999)	$N = 32$ of 200 studies met criteria	Health promotion	Class room; changes in school ethics and environment Community and family involvement	Most affected Healthy eating Fitness Injury	Ecological multidomain approaches more effective than single domain Most effective programs based on social learning and social influence

Effectiveness of mental health promotion intervention—a review (Tilford et al., 1998)	<i>N</i> =not stated studies: 1980–1995	Mental health promotion for children, young people, adults, elderly and high risk	Re: youth: Health education Outward bound program School curriculum, coping skill development Exercise for pregnant teens	prevention and abuse Mental health Least affected: Substance misuse Safe sex Oral hygiene	Self concept Mental health	Appropriate staff necessary for self-concept programs School programs effective Minority groups need tailored, separate self-concept activities Outdoor activities a good means of developing self-concept
Effective mental health promotion: a review (Hodgson et al., 1996)	<i>N</i> = 6 RCTs school-aged	Intervention focussed on: Coping skills Social relationships Healthy environments Meaningful activities Social policy Reduction in life stresses	School-based groups High risk groups		Coping with negative feelings Social skills Peer relationships Attitudes to school	Better conflict resolution Less shyness Fewer learning problems More socially competent Less depressive conduct disorders Better academic achievements Less substance use <i>Successful programs:</i> Aim to influence a combination of risk/protective factors Involve group's social network, e.g., teachers, parents, family Intervene at different times not once only Combine interventions, e.g., social support and coping skills

Table 6

Where and how to provide universal and early intervention services: school-based programs: peer mediation, day-care, health education, positive behaviour promotion, psychosocial problem prevention

Topic/author	Studies included	Goals: program orientation	Intervention strategies	Outcomes	Results
Schools mental health and life quality	<i>N</i> = 4	Mental health	School characteristics (controlling for student, classroom, and local socioeconomic characteristics)	Cognitive behaviour emotional outcomes	Wide variation in cognitive and behaviour outcomes
(Bennett and Offord, 1998)	Prospective	Quality of life		Examination process	School-to-school variations not explained by student entry characteristics, teacher–pupil ratios, instructional resources, physical facilities
	Cohort			School attendance	Student outcomes related to school and classroom processes (working conditions, teacher, self-efficiency, morale, commitment; ability grouping, disciplinary climate, parent–school relations)
	Analysis			Classroom behaviour	
Peer mediated intervention: a critical review	<i>N</i> = 39 peers as tutors	Peers' positive influence on the behaviour of target children	Peers as tutors	Academic accomplishments (spelling, reading, arithmetic)	Peers effective in promoting favourable academic and social behaviour outcome
(Kalfus, 1984)	<i>N</i> = 6 peers as facilitators		Peers as reinforcing agents	Classroom behaviour, articulation, social behaviour	Peer value as facilitators of generalized and maintenance of competencies less clear
	<i>N</i> = 20 peers as reinforcers		Peers as facilitators of generalizations		
Peer mediated interventions promoting social skills of children and youth with behaviour disorders (Mathur and Rutherford Jr., 1991)	<i>N</i> = 21	Promoting social skills of children with a behaviour disorder	Peers as mediators	Social skills	Peer-mediated approaches produce immediate positive treatment effects on promoting social skills
				Social competence	Typologies of peer-mediation identified
Prevention and intervention strategies with children of alcoholics (Emshoff and Price, 1999)	<i>N</i> -not stated	Reduction in substance use	Short-term small group format emphasizing:	Knowledge	Increased information
			Information	Social support	Skills-building in coping and social competence
			Problem/emotion focussed	Coping skills	Social support
			Coping skills	Emotional function	Effective programs have outlet for safe expression of feelings
			Social/emotional support		

Positive youth development programs (Catalano et al., 1999)	N = 25	School (N = 6)	Skill development:	Competence	<i>Best practices:</i> Include more than one domain Address minimum 5 youth outcomes for 9 months or more Careful attention to implementation and outcome evaluation
		Community (N = 2) School/family (N = 7) School/community (N = 1) School/family/community (N = 9)	Social Cognitive Decision making Coping Refusal, resistance Environmental: organizational change strategies: influencing teachers, peer norms, peer perceptions Improving relations with the community	Self-efficiency Pro-social norms Pro-social involvement Recognition for positive behaviour Bonding Positive identity Self determination Belief in future Resiliency Spirituality	
Prevention of mental health problems (Greenberg et al., 1999)	Criteria	Violence prevention	Curriculum-based teaching	Psychopathology:	<i>Best practice:</i> Stressing protective factors (competence and skills) more effective than targeting disordered or risk behaviour Youth participation more effective than lecture Multiple, coordinated, ecological approaches more effective in creating competence, not in reducing risky behaviour Multiyear programs more enduring effectiveness <i>Future:</i> More rigorous designs Longer-term follow-up Aim more at internalizing (mood problems) Who (with what characteristics) most benefits from which approaches? Measure multiple outcomes
	N = 34 of 130 programs	Social/cognitive skill building	Conflict resolution	Aggression	
	20 targeted	Changing school ecology Multicomponent	Anger management Empathy skills	Depression Anxiety	
14 universal	Multidomain	Team building Role playing Interaction Linking families and children	Risky behaviour: Impulsiveness Antisocial Deficiencies in cognitive skill Cognitive and social skills competence		

Table 7
Where and how to provide universal and early intervention services: Community-based programs: mentoring

Topic/author	Studies included	Goals: program orientations	Intervention strategies	Outcomes	Results
Peer-mediated approaches to promoting children’s social interaction: a review (Odom and Strain, 1984)	N = 4	Promote positive social behaviour of targeted youth	Peer-mediated interventions using:	Play, social behaviour	‘Prompt and reinforce’ methods and peer/initiation methods more effective than proximity re. positive social behaviour Results mixed as to whether gains generalized to other settings Generalization appears to be related to socially responsive peers
	N = 5		Proximity (4)		
	N = 6		Prompt and reinforce (5) Peer/initiation (5)		

Scope of Human Services
(Browne, et. al., 2002)

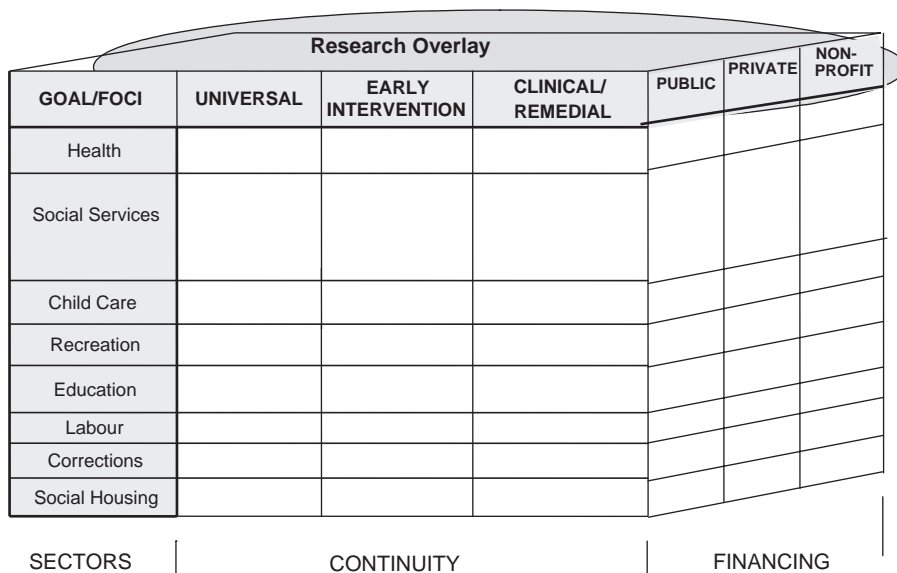


Fig. 1. Integration model.

compete for funding and community support. Determining program effectiveness is only a beginning. Given service delivery problems, some children are undoubtedly not receiving potentially beneficial programs. Jones and colleagues make the point that ‘universally available’ is not synonymous with ‘equal access’ or ‘equal participation’ (Jones, 1992). Policy

initiatives need to be developed to ensure sufficient funding and promote delivery of effective programs to appropriate children. Program planning should also consider meeting intersectoral needs, providing transportation if necessary, or other tangible aid to families, to reduce program attrition or bolster intervention effectiveness.

A strategy of risk factor reduction entails long-term initiatives in education and a rebalance of societal resources to address core risk factors such as socio-economic inequity. Protective factor enhancement and promoting of competencies may be more readily achievable with ‘relatively’ short-term comprehensive, early, multimodal and multidisciplinary initiatives. Though further research is needed, the findings from this and similar reviews could enhance current services and inform development of effective intersectoral services for youth.

This evidence compels us to examine policy changes to foster integration of separately financed and governed children’s services at a local level. For many jurisdictions, legislative changes could create incentives for such services to collaborate on service delivery. Collaboration rather than consolidation avoids creating a new bureaucracy, and preserves both agency autonomy and peer checks and balances necessary for productivity. Joint decision-making would require intersectoral governance, pooling of some funding, and policy changes to retain savings at the local level. Savings could finance expansion of services for additional youth. An intersectoral governance structure could include all the sectors identified in Fig. 1, representatives of the continuum of services and public, private, not-for-profit funding sources.

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