Rapid Review of the Evidence on the Effectiveness of Mental Health Promotion Interventions in Low and Middle Income Countries

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Mainstreaming Health Promotion: Reviewing the Health Promotion Actions for Priority Public Health Conditions

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Abstract

This rapid review analyses the evidence on the effectiveness of mental health promotion interventions in low and middle-income countries (LAMICs). The review provides a narrative synthesis, based on a systematic review of the evidence under four key areas; interventions targeting individuals, communities, the health sector and intersectoral actions.

Searching a range of electronic databases, a total of 46 studies employing RCTs or quasi-experimental designs, were identified. Of these studies, 38 evaluating 35 separate interventions were assessed employing the Quality Assessment Tool for Quantitative Studies developed by the Effective Public Health Practice Project (EPHPP).

The findings indicate that effective mental health promotion interventions which lead to improvements in mental health, and related health and social gains, can be effectively implemented in LAMIC settings. There is robust evidence concerning the effectiveness of interventions promoting maternal and child mental health and school-based programmes. There are promising findings concerning community-based interventions and the potential of intersectoral actions in LAMICs deserve further investigation and support. Evidence for the sustainability and effectiveness of these interventions when integrated into routine settings in LAMICs needs to be strengthened. The implications of the review findings for future research, policy and practice in LAMICs are discussed.

Summary

Background

This rapid review analyses the evidence on the effectiveness of mental health promotion interventions in low and middle-income countries (LAMICs). The review provides a narrative synthesis, based on a systematic review of studies conducted in LAMICs, of the evidence under four key areas; interventions targeting individuals, communities, the health sector and intersectoral actions. The review focuses on interventions that are designed to promote positive mental health, and also includes universal /primary prevention interventions. Findings from mental health promotion interventions in key settings, including the home, school, workplace, community and health service settings are included.

Objectives

To identify evidence of effective mental health promotion interventions that have been implemented in LAMICs; to identify gaps in the existing research; and make recommendations for future research and practice.

Methods

A range of electronic databases were searched including; PubMed, PsycINFO
Scopus, Cochrane database of systematic reviews, and the ISI Web of Knowledge. A search was also conducted of Health Promotion and Public Health Review databases, WHO programmes and projects, together with relevant books and articles. The search criteria included studies of mental health promotion interventions in LAMICs, published or made available in English from 2000 onwards, that provide results based on experimental or quasi-experimental data. The review excluded studies in which there was no control/comparison group. The search process produced 194 articles that were relevant to mental health promotion in LAMICs. Full reports of all relevant studies were obtained. Two independent raters assessed the methodological quality of all intervention studies meeting the inclusion criteria using the Quality Assessment Tool for Quantitative Studies developed by the Effective Public Health Practice Project (EPHPP).

Main Results

The search strategy yielded a total of 46 studies, of which 38 studies evaluating 35 separate interventions were subject to full review. The following are the key findings:

Actions Strengthening Individuals and Families:

- The early years interventions delivered by community members show strong and convincing evidence of the feasbility of implementing psychosocial stimulation interventions in LAMICs and demonstrate significant positive effects on the children's development and the psychosocial functioning of both mothers and children.
- While there are only four studies of pre-school interventions included in this review, the findings are encouraging concerning their effectiveness on children's social and emotional wellbeing in LAMICs. The long term benefits of pre-school and parent training on child development, school attainment and occupational status are also in evidence.

Actions Strengthening the Community: School, Workplace and Community

- Ten studies, conducted in diverse countries, revealed reasonably robust evidence that school-based programmes implemented in LAMICs can have significant positive effects on students' emotional and behavioural wellbeing, and at the broader level on pupils' school adjustment. The findings are encouraging in relation to children living in areas of war and conflict. There is also evidence that interventions which combine lifeskills with reproductive and sexual health education, and substance misuse education can have a significant positive effect on pupils' risk-taking behaviour.
- There is a paucity of evidence on the effectiveness of workplace mental health promotion interventions in LAMICs and no study was found that met the inclusion criteria for this review.
- There are a number of very promising out-of-school community interventions addressing adolescents' emotional health as part of wider interventions addressing sexual health, HIV prevention, substance misuse, violence prevention, functional literacy and social participation among excluded groups, which show the potential for scaling up.

Actions Targeted at the Health Sector: Primary Care

- There is robust evidence that primary care interventions promoting child and maternal health can benefit the psychosocial development of both mothers and children and that these benefits can be sustained throughout childhood and adolescence. Examining the 10 intervention studies, the home visiting interventions were implemented successfully with undernourished children from very poor families over multiple years. Collectively, the findings are quite strong and indicate that low cost early stimulation interventions can be integrated into primary health care services and are likely to benefit the most disadvantaged children the most.
- With regard to caregivers' support programmes there are promising findings from two studies carried out in India and Russia for caregivers of people with dementia.

Intersectoral Actions on Removing Structural Barriers to Mental Health

- The findings from three poverty reduction intervention studies provide encouraging evidence that a combined microfinance and training interventions can have health and social benefits including reducing the levels of violence experienced by participants and increasing empowerment and wellbeing.

Authors' Conclusions

This rapid review indicates that effective mental health promotion interventions which lead to improvements in mental health can be effectively implemented in LAMIC settings. The findings for interventions promoting maternal and child mental health are very promising and the potential of school, workplace, community, and intersectoral interventions in LAMICs deserve further investigation and support. Evidence for the sustainability and effectiveness of these interventions when integrated into routine settings in LAMICs needs to be strengthened. There is an urgent need to invest in building the policy, practice and research capacity for mental health promotion in LAMICs in order that mental health promotion can be incorporated into the wider health promotion and global health development agenda, especially in low income countries.

I. Introduction

This rapid review analyses the current evidence on the effectiveness of mental health promotion interventions in low and middle income countries (LAMICs). The review provides a narrative synthesis, based on a systematic review of studies conducted in LAMICs, of the effectiveness of interventions to promote mental health. The evidence is presented under four key action areas following the technical guidance provided by the members of the WHO Task Force on Mainstreaming Health Promotion. This review builds on previous work undertaken in this area, in particular, the reviews of evidence by Barry et al., (2009a); Patel et al., (2008); Barry and Jenkins (2007); Jané-Llopis et al. (2005), Hermann, Saxena and Moodie (2005); and Hosman, Jané-Llopis and Saxena (2005).

Promoting mental health is an integral part of improving health and wellbeing (World Health Organization, 2001, 2002, 2004a, 2005). The concept of mental health cannot be separated from that of overall health, and the WHO proposition that 'there is no health without mental health' conveys clearly this positive sense of mental health (Prince et al., 2007). Mental health is fundamental to good health and contributes to the functioning of individuals, families, communities and society. Mental health promotion is concerned with promoting positive mental health, rather than the reduction of mental disorders, and employs strategies for strengthening protective factors and enhancing social and emotional wellbeing and quality of life among the general population. Mental health is conceptualised as a positive resource for living, which is embedded in the social, economic and cultural life of the individual and community. Therefore, mental health promotion brings a shift in focus from the modification of individualistic risk factors for mental disorders to the promotion of protective and competence enhancing factors that keep individuals and populations mentally healthy.

The importance of promoting mental health is reflected in a number of key international publications, which advocate for a comprehensive public health approach to mental health in order to improve mental health at a population level (WHO 2001, 2002, 2005). The WHO 2002 report acknowledges that policies focused on curing or preventing mental ill-health alone will not necessarily deliver on improved population mental health. A population approach to mental health underscores the universal relevance of mental health for the general population and identifies the need for policy and programme interventions, which extend beyond the clinical and treatment focus of current mental health service delivery, to address the influence of the

broader social and environmental determinants of mental health. Governments are developing a growing understanding of the importance of mental wellbeing for their populations.

A number of landmark international publications (WHO, 2004, Herrman et al., 2005; Jané-Llopis et al., 2005) have outlined the rationale for mental health promotion, its conceptual and research base, and distinctive approach to mental health improvement. The feasibility of implementing effective strategies that promote mental health has also been demonstrated through increased focus on evidence-based practice (Herrman et al., 2005; Barry and Jenkins, 2007). In keeping with this international momentum, mental health promotion policy and practice have been introduced and strengthened in a number of countries (Commonwealth of Australia, 2008; European Pact for Mental Health and Well-being 2008; Foresight Mental Capital and Well-being Project, 2008; Ministry of Health, New Zealand, 2005; Scottish Government, 2009; Department of Health, UK, 2009).

Good progress has been made over the last twenty years in establishing an evidence base for the promotion of mental health. Clusters of known risk and protective factors for mental health have been identified (Mrazek and Haggerty, 1994); there is a growing body of evidence that interventions exist which can modify these factors; and a number of intervention programmes evaluated in efficacy and effectiveness trials have been established and disseminated (Hosman and Jané-Llopis, 1999; WHO, 2004a; WHO, 2004b; Herrman et al., 2005; Jané-Llopis et al., 2005). There is compelling evidence from high quality studies that mental health promotion interventions, when implemented effectively, can lead to lasting positive effects on a range of health and social outcomes (Durlak and Wells, 1997; Friedli, 2003; Keleher and Armstrong, 2005; Herrman et al., 2005; Barry and Jenkins, 2007; Barry et al., 2009a). There is also an emerging evidence base on the economic case for investing in mental health promotion interventions (Friedli and Parsonage, 2007; Knapp et al., 2011; Zechmeister et al., 2008).
Barry et al., (2009a) identified over 60 systematic reviews, predominantly from high income countries (HICs), which show that high quality comprehensive mental health promotion interventions carried out in collaboration with families, schools and communities, lead to improvements not only in participants' mental health but also improved social functioning, academic and work performance, and general health behaviours. The beneficial effects of these interventions, and their cost-effectiveness, are especially evident for the most vulnerable individuals and families from disadvantaged backgrounds. These findings, may, therefore, have

the potential for wider application to other populations living in low resource contexts and settings.

Context and Rationale

This rapid review has a particular focus on the evidence for mental health promotion in LAMICs. Mental health is inequitably distributed as people living in poverty, especially those in debt, and those who are socially disadvantaged, bear a disproportionate burden of mental disorders and their adverse consequences (Melzer et al., 2004; Patel et al., 2005; Prince et al., 2007; Jenkins et al., 2008). As more than 85% of the world's population live in the 153 countries classified as LAMICs, according to the World Bank criteria, there is an urgent need to address mental health as part of the wider health promotion and development agenda in LAMICs.

Poor mental health is consistently associated with poverty, unemployment, low levels of education, low income or material standard of living, in addition to poor physical health and adverse life events (Melzer et al., 2004; Patel et al., 2005; Kessler, 2007; Prince et al., 2007; Lund et al., 2010). Studies across a number of countries also report that higher levels of positive mental health are associated with higher levels of education, paid employment, and higher social and economic position in society (Keyes, 2002; Lehtinen et al., 2005; Barry et al., 2009b). Higher national levels of income inequality have also been found to be to be associated with a higher prevalence of mental disorders (Pickett et al., 2006; Pickett and Wilkinson, 2009). The experience of inequity is corrosive of social cohesion and has a negative impact on people's mental health and their capacity for emotional and social wellbeing.

The WHO Commission on the Social Determinants of Health report (WHO, 2008) concluded that the impact of daily living conditions on health, and in particular the impact of inequitable distribution of power, money and resources, act as structural drivers of inequity. Friedli (2009) argues that mental health is directly and indirectly related at every level to human responses to inequity, influencing people's sense of agency, self-esteem, efficacy and connectedness, and their ability to deal with chronic stress and adversity. An integrated policy approach is required to address these structural factors and underlines the need for intersectoral action. Responsibility for promoting mental health at the societal level extends across sectors and all government departments and encompasses a concern with the impact of economic and social policies on population wellbeing and the quality of people's lives.

Given the strong links between poverty and poor mental and physical heath in LAMICs, there is a need for a framework for action that addresses the broader determinants of mental health focusing on the links between mental health, education, gender equality and poverty reduction. Miranda and Patel (2006) underscore the importance of mental health to the achievement of the Millennium Development Goals (MDGs), including improving child and maternal health, universal education, combating HIV/AIDS and other diseases, and eradicating poverty. The importance of mental health to the achievement of the MDGs is also recognised in the UN General Assembly Resolution in 2010 on global health and foreign policy. Petersen (2010) argues that in order to break the cycle of poverty and poor mental and physical health, mental health promotion needs to be at the heart of agenda for developing human and social capital in LAMICs. This view is also reflected in the WHO (2010) report on Mental Health and Development, which proposes that mental health should be integrated into broader development strategies and plans.

Mental health promotion interventions that can be implemented and sustained at a reasonable cost, whilst generating clear health and social gains in the population, represent a cost-effective use of resources and a strong case for policy investment (WHO, 2002, 2005; Friedli and Parsonage, 2007; Barry and Friedli, 2008; Knapp et al., 2011). While acknowledging that there are gaps in the evidence base, particularly with regard to upstream interventions for mental health promotion, reviewers of the international evidence indicate that there is sufficient knowledge to move evidence into practice (Jané-Llopis et al., 2005; Herrman et al., 2005; Barry and Jenkins, 2007). The WHO 2002 report stressed the importance of extending the evidence base to LAMICs and highlighted that evidence is "least available from areas that have the maximum need, i.e. developing countries and areas affected by conflicts" (WHO, 2002, p.27). As pointed out by McMichael et al. (2005), many of the effective interventions from HICs cannot be implemented in low resource settings. This situation is further complicated by the fact that there is a limited amount of primary research conducted in LAMICs, particularly in relation to mental health research (Sharan et al., 2007), and especially in relation to mental health promotion and prevention (Swartz, 2010). While the majority of the evidence on mental health promotion is derived from high-income countries, a number of intervention approaches can be identified which demonstrate their relevance and effectiveness in LAMICs (Patel et al., 2008; Patel et al., 2010).

II. Objectives of this Review

The objectives of this rapid review are:

- to identify evidence of effective mental health promotion interventions that have been implemented in LAMICs
- to identify the outcomes from effective interventions in terms of mental health improvements, and where available related positive benefits for physical and social health domains, data on cost-effectiveness and impact on inequity
- to draw conclusions, based on best available evidence, about which interventions are most likely to be effective in LAMIC settings
- to identify gaps in the existing evidence and highlight areas where further research is needed

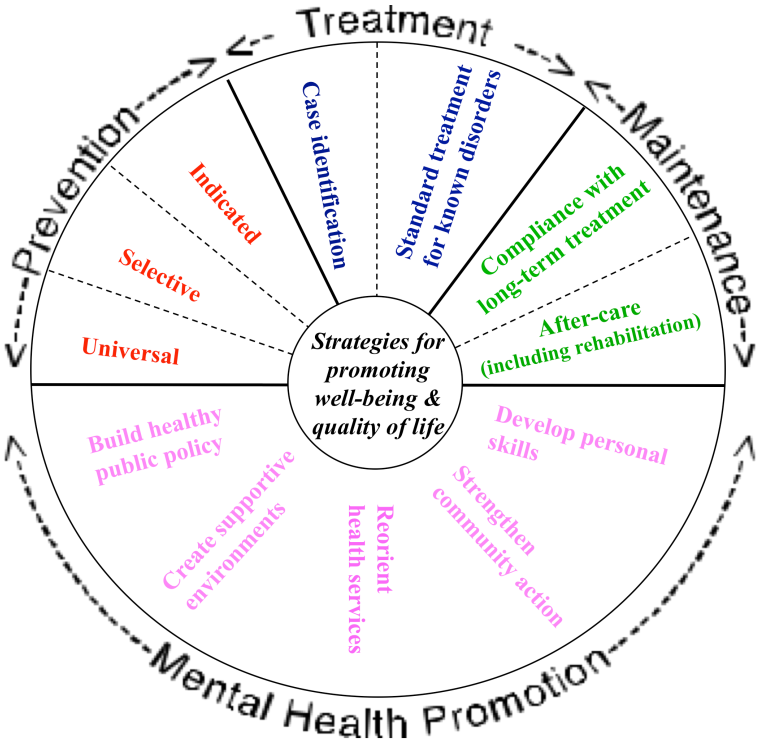
III. Mental Health Promotion Interventions and Theoretical Model

The practice of mental health promotion is underpinned by a multidisciplinary knowledge base of concepts, theories and research derived from different disciplines, which provide integrated models for designing, conducting and evaluating interventions. Fundamentally, mental health promotion builds on the basic tenets of health promotion as outlined in the Ottawa Charter for Health Promotion (WHO, 1986) and subsequent WHO directives (WHO, 2005b, 2009). Therefore, the principles of mental health promotion practice are based on an empowering, participative and collaborative process, which aims to enable people to increase control over their mental health and its determinants (Barry and Jenkins, 2007). In considering theoretical frameworks for practice, it is useful to make a distinction between the practice of mental health promotion and the prevention of mental disorders. These two areas, while clearly related and overlapping, tend to operate within different conceptual frameworks. Mental health promotion focuses on positive mental health and its main aim is the building of psychosocial strengths, competencies and resources. In contrast, the area of prevention concerns itself primarily with

specific disorders and aims to reduce the incidences, prevalence or seriousness of targeted problems, i.e. mortality, morbidity and risk behaviour outcomes. Articulated as such, these two fields have different starting points and seek to impact on different outcomes. In practice, however, there is much common ground between the two areas, particularly with regard to primary prevention and mental health promotion interventions.

The most widely used prevention framework in mental health was outlined by Mrazek and Haggerty (1994). Barry (2001) amended this framework to include mental health promotion (see Figure 1 for an adapted version). The 2009 report by the US Committee on Prevention of Mental Disorders and Substance Abuse of Children, Youth and Young Adults (O'Connell, Boat and Warner, 2009) strongly recommends the inclusion of mental health promotion in the spectrum of mental health interventions, endorsing the view that a focus on wellness and the promotion of mental health will have far-reaching benefits that extend beyond a specific disorder.

Within the mental health promotion framework, recognition of the broader determinants of mental health has led to a growing emphasis on models of mental health promotion that seek to intervene at the level of strengthening individuals, strengthening communities, reorienting health and other services, and intersectoral actions to remove the structural barriers to mental health through initiatives to reduce poverty, discrimination and inequalities (Barry and Friedli, 2008; Barry, 2009; Herrman et al., 2005; Lahtinen et al., 2005). Based on the international evidence on the effectiveness of mental health promotion interventions across these multiple levels (WHO, 2004; Jané-Llopis et al., 2005; Herrman et al., 2005; Keleher and Armstrong, 2005; Barry et al., 2009a), and the guidance provided by the WHO Task Force on Mainstreaming Health Promotion, the following action areas are included in this rapid review.



Barry, M.M. (2001) International Journal of Mental Health Promotion, 3(1) 25-34.

Actions strengthening individuals:

These actions include interventions promoting mental health in the early years for children and families, including home visiting, parenting programmes, and quality pre-school education.

Systematic reviews indicate that interventions which provide quality family support programmes, including home visiting and parenting support (Kendrick et al., 2000, 2007; Barlow et al., 2003; Elkan et al., 2000; Ciliska et al., 1999; Olds et al., 1997; Nores and Barnett, 2010), and quality pre-school programmes (Anderson et al., 2003; Nelson et al., 2003) for children and families living in poverty, have the potential to achieve long-term mental health benefits for both children and their parents. Positive findings with medium to strong effect sizes are reported. For example, Nores and Barnett (2010) report an average mean effect size of 0.29 across 38 studies of early childhood interventions with a diverse sample of programmes and countries globally.

Baker-Henningham and Lopez Boo (2010) published findings on a review of early childhood stimulation interventions for children aged 0 to 5 years in LAMICs. This review, covering 26 studies from 11 LAMICs, found that stimulation interventions have significant benefits for parenting behaviours and children's development, behaviour, schooling, and long-term mental

health. Economic analyses of several early childhood interventions demonstrate that effective programmes, particularly those with long-term outcomes, can repay the initial investment (up to 17 fold the return) with savings to governments and benefits to society, with those at most risk making the greatest gains (Karoly et al., 2005; Galinsky, 2006; Friedli and Parsonage, 2007). In the context of wider policy initiatives addressing poverty, interventions in the early childhood years have an important role to play in addressing child health inequities through enhancing the potential for positive health and social development for both children and their parents.

Actions strengthening communities:

These actions include mental health promotion interventions carried out in collaboration with schools, workplaces, and communities that produce benefits for the mental health of young people, adults, families and communities.

Schools and workplaces are important settings for promoting the mental health of young people, working adults and their families in LAMIC settings. There is a robust body of evidence from HICs that mental health promotion in schools, when implemented effectively, can produce long-term benefits for young people, including emotional and social functioning and improved academic performance (Tilford et al., 1997; Durlak and Wells, 1997; Lister-Sharp et al., 1999; Greenberg et al., 2001; Harden et al., 2001; Wells et al., 2001, 2003; Payton et al., 2008). Systematic reviews show that comprehensive programmes that are implemented continuously for more than one year, are aimed at the promotion of mental health as opposed to the prevention of mental disorder, and that target multiple health outcomes in the context of a coordinated whole school approach, are the most consistently effective strategy (Wells et al., 2003; Jané-Llopis et al., 2005). The evidence also indicates that long-term interventions promoting the positive mental health of all pupils and involving changes to the school environment are likely to be more successful than brief class-based prevention programmes. To date, there has been a relative paucity of research, on the transferability of effective interventions across cultures, education systems and school structures.

With regard to workplace mental health promotion, effective interventions address the physical, environmental and psychosocial factors influencing mental health, they strengthen modifying factors such as social support, control over decision-making and effort-reward balance, provide skills and competences for addressing short-term and long-term responses to work related stress,

enhance role clarity, staff involvement and policies to tackle bullying and harassment (Stansfeld et al., 1999; Van der Klink et al., 2003; Michie and Williams, 2003). Promoting workers' wellbeing and mental health requires change at the organizational level as well as more individual focused approaches (Giga et al., 2003; Bambra et al., 2007). A comprehensive policy for mental health at work is needed to address the structural factors influencing employee wellbeing, including issues of salaries, career opportunities and job security (Marmot et al., 1999). Policy initiatives, legislation and regulatory mechanisms are required to safeguard the rights of workers against the negative impact of exploitation and effort-reward imbalance, especially among vulnerable groups such as migrant and contract workers. Chopra (2009) endorses the use of the workplace as a critical setting for health promotion in LAMICS, as such interventions can lead to gains for both employees and employers through reduced absenteeism, improved health and wellbeing and productivity (WHO, 2000), thus improving both economic and social sustainability.

Community-based interventions, based on the participation and empowerment of local community members, provide a useful model for promoting mental health in disadvantaged community settings (Arole et al., 2005). Although the evidence base is quite limited in terms of the documented impact of interventions on mental health, community initiatives aimed at building social capital, strengthening community networks and increased participation by excluded groups have an important contribution to make in promoting community mental health and wellbeing (Morgan and Swann, 2004; Whiteford et al., 2005; Friedli, 2009; Wilkinson and Pickett, 2009).

Environmental interventions, which improve the quality of the built environment, including improving housing and urban regeneration projects, which address the psychosocial aspects of deprivation, can lead to positive mental health impacts (Ellaway et al., 2001; Weich et al., 2002; Whitley, 2005; Thompson et al., 2001; Thomson et al., 2006).

Effective interventions in LAMIC settings include economic empowerment initiatives such as micro-credit schemes and community banks, literacy promotion, interventions that promote gender and racial equality, violence prevention and crime reduction in marginalised communities (Patel et al., 2005; Kim et al., 2009; Mohindra et al., 2008; Plagerson et al., 2010). A review by Ribeiro et al. (2009) found that the frequency of exposure to violence in LAMIC was very high, especially among women and children, and was significantly associated with mental health problems such as depression, anxiety, alcohol and drug misuse and suicidal ideation. Violence

reduction programmes are being implemented in many LAMICs (Patel et al., 2007). The promotion of gender equality, including interventions that confront traditional beliefs and cultural norms, has been a critical part of violence prevention, with promising interventions in the school and community settings.

Actions targeted at the health sector:

Primary health care has an important role to play in strengthening the mental health of individuals, families and communities and in recognising the importance of mental health to overall health and well-being (Jenkins and Ustun, 1998; Jenkins, 2004; WHO & WONCA, 2008). Prince et al. (2007) in the Lancet series on global mental health, report evidence from systematic reviews of population-based research showing moderate to strong positive associations between depression, anxiety and coronary heart disease, Type II diabetes, and fatal and non-fatal stroke. Studies also support a strong association between mental disorder and risk factors for chronic diseases, such as smoking, reduced activity, poor diet, obesity and hypertension (Prince et al., 2007). While there is a paucity of review level evidence on promoting integrated physical and mental health interventions, there is reasonably strong evidence on the mental health impact of interventions in specific areas such as exercise (Fox, 2000; Taylor et al., 2007) and on interventions in the primary care setting for the prevention of depression (Muňoz, 1998; Peden et al., 2005) and for women at risk of postnatal depression (Shaw et al., 2006).

In developing countries maternal depression during the postnatal period has been found to be associated with subsequent under-nutrition and developmental delay in early childhood (Baker-Henningham, 2005; Patel et al., 2004). There is some review level evidence from HICs for interventions promoting maternal mental health including routine ante-natal screening for mental health problems such as depression and experience of intimate partner violence (NICE, 2007), and targeted parenting programmes for at risk mothers. Several programmes targeting malnutrition and promoting psychosocial development have been delivered through primary care services in LAMICs, including the Integrated Child Development Services in India (Kapil, 2002; Chaturvedi et al., 1987; Patel et al., 1982; Tandon, 1989) which is a government funded initiative running on a national basis over 30 years.

The relevance of mental health to priority health conditions in LAMICs, such as HIV/AIDS and other infectious and noncommunicable diseases, is increasingly being recognised. The importance of addressing the mental health needs of people with HIV/AIDS has been demonstrated in a systematic review by Collins et al., (2006), which examined the mental health risk factors and consequences of HIV interventions in developing countries. The global investment in HIV prevention and care initiatives presents an opportunity to integrate mental health approaches into new health care programmes (Prince et al., 2007) and into community and school-based sexual health interventions (Paul-Ebhohimhen et al., 2008), where they have been relatively absent to date. The benefits of integrating mental health promotion into primary health care are significant, including addressing the shortage of specialist health services and health professionals through the delivery of community-based accessible care by trained community health workers and informal caregivers (Funk et al., 2008).

Intersectoral actions on removing structural barriers to mental health:

Intersectoral actions to remove the structural barriers to mental health in LAMICs, include interventions such as poverty reduction and access to education and employment opportunities which impact on mental heath and wellbeing. The evidence indicates that higher levels of education, improved standards of living, freedom from discrimination, fewer adverse life events and good physical health enhance positive mental health (Barry and Friedli, 2008).

A number of LAMICs countries have been involved in the development of community banks and microcredit schemes, which provide loans to the poor thus reducing the risk of mental disorders and suicide by removing the key cause of stress. Findings from the Bangladesh Rural Advancement Committee, which provides health care and education alongside credit for income generating schemes, show that the members have better nutritional status, better child survival, higher educational achievement, lower rates of domestic violence and improved well-being and psychological health (Chowdhury & Bhuiya, 2001). A recent systematic review of the evidence base of the impact of microfinance (micro-credit and micro-savings) on poor people in sub-Saharan Africa (Stewart et al., 2010) found that micro-finance has positive impacts on people's savings, health, food security and nutrition. The review found some evidence that micro-credit is empowering women, however, this was not consistent across the reviewed studies. Evidence of the impact on micro-finance on education was varied with some evidence indicating the negative effect of micro-credit on the education of clients' children. The research to date indicates that the

more traditional microcredit schemes, which incorporate health and education training alongside the provision of credit, are more effective in terms of their mental health benefits.

The importance of addressing the role of poverty and other social and structural factors such as education, gender and cultural beliefs have also been demonstrated in relation to effective interventions for violence prevention and the prevention of HIV (Harrison et al., 2010). Interventions need to move beyond a focus on individual risk and protective factors to consider the broader or upstream determinants of positive mental health and wellbeing operating at the societal and structural level.

IV. Methods of the Review

Population: The review examines the evidence in relation to the general population from childhood through to adulthood, living in LAMIC settings, with no exclusions based on age, gender, or ethnicity.

Types of Interventions: The review focuses on interventions that are designed to promote positive mental health, and also includes universal / primary prevention interventions. As stated earlier, mental health promotion is a process of enabling individuals, families, groups and communities to increase control over their mental health and its determinants. The focus is on promoting positive mental health with the aim of developing and enhancing emotional and social wellbeing, psychosocial strengths, competencies and resources. The emphasis, therefore, is on strengthening protective factors and enhancing wellbeing. For this review, an intervention was defined as any planned action, programme or policy which was undertaken with the aim of improving mental health or modifying its determinants. Studies in all settings, including the home, school, workplace, community and health services were included in this review. Interventions that were delivered by professionals, trained community volunteers/paraprofessionals and peers were included as were interventions implemented across multiple settings. This review included the following interventions promoting mental health:

- Home visiting and day centre programmes for children and families
- Parenting programmes

- Pre-school education including teacher training, home-based and centre-based interventions
- School-based interventions including universal and targeted classroom-based curriculum approaches and multicomponent school, family and community programmes
- Workplace interventions that address the physical, environmental and psychosocial factors influencing mental health
- Community-based interventions aimed at addressing psychosocial aspects of deprivation, building social capital, strengthening community networks and increased social participation
- Combined physical and mental health interventions in the primary care setting (including interventions for population groups experiencing malnutrition, maternal depression, HIV)
- Societal and structural interventions with a mental health promotion focus including micro-finance initiatives, poverty reduction and violence prevention interventions

The review does not include interventions covering selective/secondary and indicated/tertiary prevention of mental disorders or treatment interventions, i.e. activities which aim to reduce the incidences, prevalence and seriousness of targeted mental health disorders.

Outcomes of interest: This review sought to extract and assess all the outcomes measured in the included studies. Outcomes were grouped into two categories (i) mental health benefits and (ii) broader health and social benefits.

Mental health benefits included evidence of improved:

- emotional and social wellbeing (including positive affect, attachment, emotional literacy, improved levels of mood and reduced depression / anxiety)
- psychological wellbeing (including resilience, mastery, confidence, autonomy, self-efficacy, attentiveness/involvement and the capacity to manage conflict and problem solve)
- social wellbeing (including positive relations with others, social participation, improved conduct problems, delinquency, interpersonal violence and bullying)

Broader health and social benefits include improved:

- physical health (including improved health behaviours and recovery rates)
- sexual health

- cognitive development
- educational attainment
- greater productivity
- employment and earnings
- better quality of life
- reduced levels of substance use
- reduced levels of violence

Any adverse events or harms associated with the intervention were also documented.

Types of Evidence: The range of evidence includes studies based on randomized controlled trials, cluster randomized controlled trials, and quasi-experimental study designs in which changes in the mental health of the target group who have taken part in the intervention are compared with those who have not. The control conditions were documented in this review. Studies without a control/comparison group were not included.

Search Strategy

The following methods were used to identify the evidence included in this review paper:

Academic Database search

- PubMed
- PsycINFO
- Scopus
- Cochrane database of systematic reviews
- ISI Web of Knowledge

Search of Health Promotion and Public Health Review Databases

- CASEL
- Evidence for Policy and Practice information and Coordinating (EPPI) Centre
- University of York National Health Service Centre for reviews and dissemination
- The Effective Public Health Practice Project
- National Institute of Clinical Excellence (NICE)
- National Institute of Health Research (DARE, HTA, EEP)
- Effective Public Health Practice, Health Evidence Canada

- CDC Community Guide to Preventive Services
- US Mental Health and Substance Abuse (SAMHSA)
- WHO programmes and projects - http://www.who.int/entity/en/

Additional sources

Google Scholar

Reference list of relevant articles, book chapters and reviews were scanned and any additional references were obtained.

Personal Contact

Key individuals and organizations identified through the search process were contacted to identify further details on publications.

Search Terms

In order to identify relevant studies the following key search terms were used:

- mental health promotion/promoting mental health
- positive mental health/mental capital
- social wellbeing/ emotional wellbeing/ psychological wellbeing

combined with the terms:

- infants /children
- adolescents/ young people/ youth
- adults/ workers/employees
- families/ communities
- population groups/indigenous communities
- gender
- stigma/ discrimination
- primary care
- maternal health
- child health
- sexual health
- HIV prevention
- social capital/ social networks/ social functioning

- empowerment
- microfinance/ micro-credit
- violence

and the settings:

- home/ pre-school/ school
- workplace/ community
- health services

and the intervention related key words:

- promotion/ intervention/ programme/ policy
- parenting/ early years/ home visiting
- organizational/ implementation/evaluation

and the origin of the intervention:

- middle income countries/ low income countries
- developing world/countries

Inclusion Criteria: Published academic and grey literature in printed or electronic format was deemed eligible for inclusion. Unpublished literature was also eligible although the review team did not make a systematic search for this type of literature. Studies published or made available in English from 2000 onwards were included. Studies in other languages were identified but not included in this review process (see Table 7 for a list of studies identified in non-English languages).

Data Collection and Analysis

Two authors were involved in screening all studies for inclusion to minimize the risk of bias in study selection. The review was conducted in four stages; identification of relevant studies; classification of these studies; quality assessment; and extraction of findings.

Identification of Relevant Studies from LAMICs

The search process produced 10,471 articles. All titles and abstracts were scanned for relevance as to whether they met the inclusion criteria. Duplicates, articles not relevant and articles that did

not meet the inclusion criteria were removed. A total of 194 articles relevant to mental health promotion in LAMICs were selected for review. These articles were sorted into three groups (i) intervention studies (ii) contextual articles relevant to mental health and mental health promotion in LAMICs and (iii) systematic review / review of reviews of interventions implemented in LAMICs. Full reports of all relevant studies were obtained.

Classification of Relevant Studies from LAMICs

Studies were classified according to action areas, type of study, the populations involved, specific intervention focus, country where carried out, intervention setting, programme outcomes, impact on inequality and implementation issues. Two reviewers assessed the studies in order to ensure that they met the inclusion criteria set out for this review.

Quality Assessment

All studies meeting the criteria went on to the next stage of quality assessment and extraction of findings. The Quality Assessment Tool for Quantitative Studies developed by the Effective Public Health Practice Project (EPHPP) was used to assess the methodological quality of the intervention evaluations. Each study was rated independently by two reviewers (MB and AC). The two reviewers' quality assessments were compared and disagreements were resolved through discussion. For each of the six components, a rating of strong, moderate or weak was assigned. Studies were assessed for:

1. Selection Bias: representativeness of target population *(strong rating – individuals very likely to be representative of target population)*
2. Study Design: likelihood of bias eliminated due to allocation process in study *(strong rating = studies that used randomized controlled trials or controlled clinical trial)*
3. Confounders: if confounders were controlled for in the design or in the analysis *(strong rating = studies that controlled for 80% of relevant confounders)*
4. Blinding: whether the assessors were blinded to which participants were in the control and intervention groups and whether the study participants were aware of research question *(strong rating = outcome assessor is not aware of intervention and study participants are not aware of research question)*
5. Data Collection: validity and reliability of data collection tools *(strong rating = data collections shown to be valid and reliable)*
6. Withdrawals and Drop-Outs: number of participants that withdrew from the study at follow-up *(strong rating = follow-up rate is 80% of participants or greater)*

Following the assessment of each component, the study received an overall global rating of strong, moderate or weak. The criteria for each rating were:

Strong global rating: no weak ratings

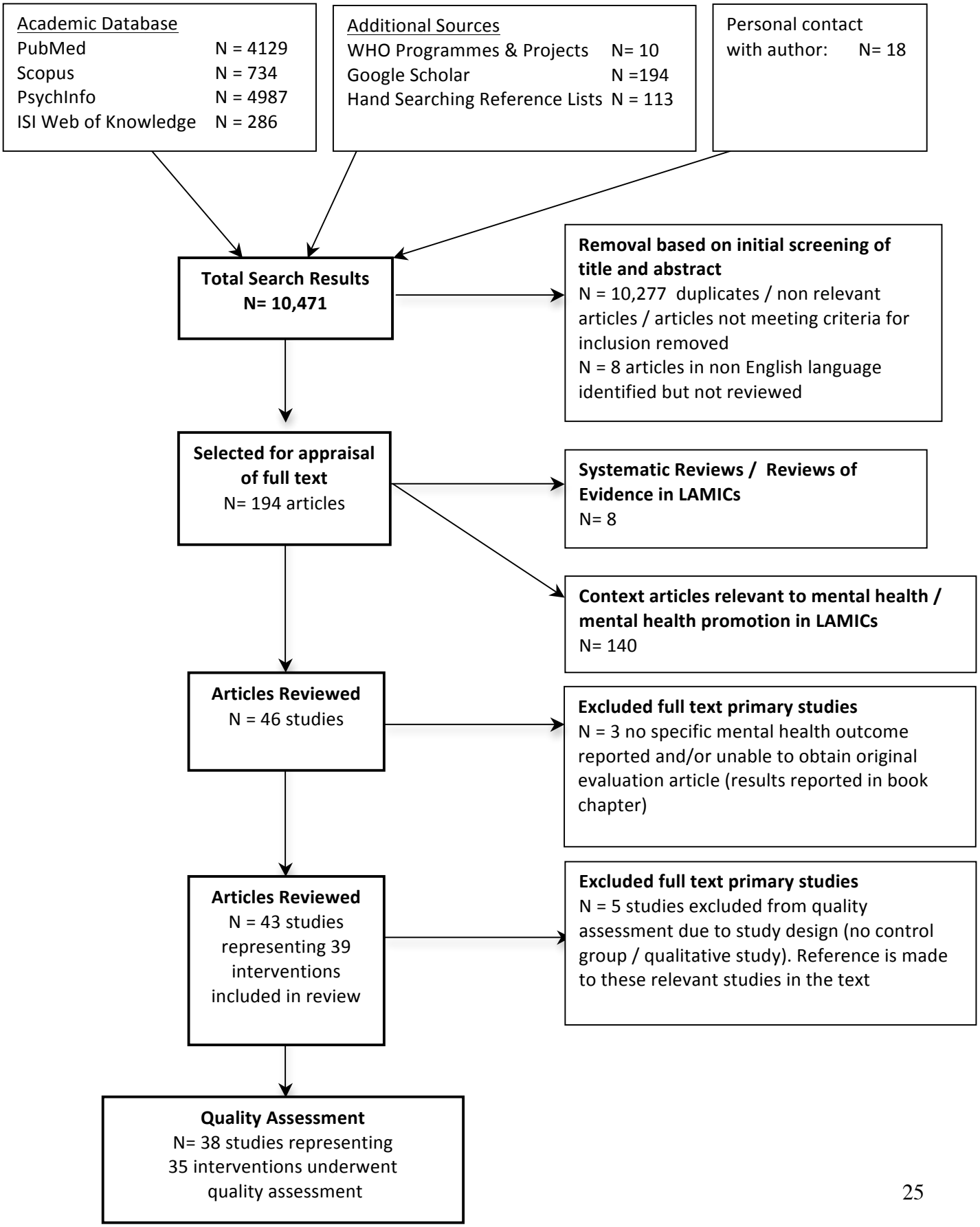
Moderate global rating: one weak rating

Weak global rating: two or more weak ratings.

Data Synthesis

Following the quality assessment stage, the inclusion of studies and extraction of key findings was finalized. Extracted data were entered into a table of study characteristics (Table 1) and the quality assessment ratings for each study iowere collated and entered into a quality of evidence table (Table 3).

Figure 2: Search Results



V. Search Results

The results of search and study selection are shown in the flowchart in Figure 2. The search strategy yielded eight systematic reviews/ review articles from LAMICs. A total of 46 studies were identified, summary descriptions of which may be found in Table 1 in the Appendix. Of these studies, three had no specific mental health outcomes or a full report of the study could not be located and they were, therefore, excluded. An additional five studies were excluded from quality assessment due to study design (no control group / qualitative study). All excluded studies are shown in Table 2. The remaining 38 studies representing 35 interventions were reviewed and underwent quality assessment. The agreed assessment ratings for all studies reviewed are included in Table 3 in the Appendix. Table 4 shows the number and percentage of evaluation studies carried out in upper middle income countries, lower middle income countries and low income countries.

Table 4: Number and percentage of studies reviewed from upper middle, lower middle and low income countries

	No. of Studies	**% of Interventions**
Upper Middle Income Countries	22	57.9%
Lower Middle Income Countries	12	31.6%
Low Income Countries	4	10.5%

Only 10% of all evaluations reviewed were carried out in low income countries. This is in contrast to upper middle income countries which carried out just over 57% of all studies. In terms of the upper and lower middle income countries, South Africa and India combined carried out 29% of all the evaluation studies. Over half of all the studies (55%) were carried out in five countries, South Africa, India, Jamaica, Palestine and Pakistan. The number and percentage of studies carried out in each individual country is shown in Table 5 in the Appendix.

Nearly all of the identified studies were published in the English language (96.2%). A number of background studies, which discussed or reviewed policy issues relevant to mental health promotion in LAMICs (N= 140 articles), were located and reference to these studies has been included in the commentary in this report.

VI. Appraisal of the Evidence

The evaluated studies are presented under each of the Action Areas covered by the review. With regard to the early years interventions, the studies are split under two headings; interventions under Actions on Strengthening Individuals include community-based programmes for mothers and their children delivered by trained community volunteers, while Actions Targeted at the Primary Care Sector includes early years interventions delivered through integrated primary health care services delivered by primary care staff.

Actions Strengthening Individuals & Families: Early Years Interventions

Home Visiting and Parenting Programmes:

In this review, four studies of psychosocial stimulation interventions in the early years were identified. All interventions were provided by locally trained paraprofessionals. Early years interventions provided through primary health care services are reviewed under the Primary Care section. As may be seen in Table 2, all four studies were conducted in upper middle income countries, two were conducted in South Africa (Cooper et al., 2009; Baek et al., 2007) one in the Caribbean (Janssens, 2009) and another in Bosnia and Herzegovina (Dybdahl, 2001). Two of the interventions were universal interventions designed to promote the quality of mother child interactions (Cooper et al., 2009; Janseens, 2009). One peer support parenting intervention in South Africa was designed specifically for pregnant mothers with HIV (Baek et al., 2007) and a parenting intervention in Bosnia and Herzegovina was implemented in an area affected by armed conflict (Dybdahl, 2001).

Type of Interventions: Two of the interventions reviewed involved home visits by lay community workers (Cooper et al., 2009; Janseens, 2009). In the case of the Cooper et al. study, community workers received four months training in basic parenting and counselling skills and the mother-infant intervention. The indicated peer support intervention for pregnant mothers with HIV provided counselling for women with HIV, conducted regular support group meetings, and visited mothers in their homes (Baek et al., 2007). The parenting intervention for mothers affected by armed conflict provided support to mothers in groups of five (Dybdahl, 2001). Local preschool teachers were trained as group leaders for the discussion group.

Not all studies provided details of specific programme duration / intensity (Baek et al., 2007; Janseens, 2009), of those that did, the intervention duration varied from weekly group meetings over the course of five months (Dybdahl, 2001) to 16 home visits over the course of six months (Cooper et al., 2009).

Design of Studies: Two of the four studies used RCT designs to evaluate the interventions (Cooper et al., 2009; Dybdahl, 2001). The sample size varied quite considerably across the studies, ranging from N=87 (Dybdahl, 2001) to N=448 (Cooper et al., 2009). All but one of the studies included follow-up data up to 12 months post-intervention with one study also reporting data at 18 months follow up (Cooper et al., 2009). The studies were found to use well validated international measures.

Outcomes: The main outcomes reported in these studies relate to maternal outcomes, mothers' overall wellbeing and child outcomes. Studies reported improvements in:

- mothers' interaction with their children at both six and twelve months follow up (Cooper et al., 2009)
- mothers' wellbeing including; a reduction in depressive disorders (Cooper et al., 2009), an increase in life satisfaction and reduction in mothers' trauma (Dybdah, 2001), and an improvement in women's psychological wellbeing (Baek et al., 2007)
- children's psychosocial functioning (Cooper et al., 2009; Dybdahl, 2001).

One study found that while the home visiting programme had strong effects on the cognitive development of younger children (aged 6-18 months), there was no social - emotional impact on the mother or child at one year follow up (Janseens et al., 2009).

In terms of the broader health and social outcomes, two studies noted improvements in children's physical development (growth and weight gain) as a result of the programme (Cooper et al., 2009; Dybdahl, 2001). One study reported improvements in the cognitive development of younger children (aged 6-18 months) enrolled in the study (Janseens et al., 2009). One study reported an increase in the uptake of services provided for women with HIV (Baek et al., 2007).

Quality of Evidence: Three studies received a strong quality assessment rating (Cooper et al., 2009; Janseens et al., 2009; Dybdahl, 2001). All three studies had a strong methodological

design (two were RCTs), controlling for potential confounders and using valid and reliable data collection methods. Two of these studies reported significant effects of early stimulation on maternal interaction and mother and child psychological wellbeing (Cooper et al., 2009; Dybdahl, 2001). One study received a poor quality assessment rating (Baek et al., 2007) due to a weak pre-post design, validity and reliability of data collection methods not reported and high rate of study withdrawals at follow-up.

While there are only a small number of studies reviewed under this action area (see others included under the Actions targeted at the Health Sector) the findings regarding the implementation of early childhood interventions by lay community members are promising, especially with regard to the group-based interventions for mothers in areas of conflict (Dybdahl, 2001) and the longer term impacts reported by Cooper et al., 2009 for both infants and their mothers.

Pre-School Programmes:

Four pre-school interventions in LAMICs were identified. Of these, three interventions were carried out in upper middle income countries (Baker-Henningham et al., 2009; Baker-Henningham & Walker, 2009; Cueto et al., 2009; Kagitcibasi et al., 2009, 2001) and one intervention was carried out in a low income country (Aboud, 2006).

Types of Interventions: The pre-school interventions varied significantly. In Bangladesh a preschool education programme was provided for a half-day six days a week to children age between 4.5 and 6.5 years (Aboud, 2006). In Jamaica, the Incredible Years teacher training intervention (Webster-Stratton, 2000) was adapted and implemented with children attending pre-schools. The Wawa Wasi Programme was implemented in Peru where mother-carers take care of a maximum of eight children (under four years of age) from the community in their home whilst mothers of the children attend work (Cueto et al., 2009). The Turkish Early Enrichment Project examined the effectiveness of two different types of early enrichment (home based and centre based preschool) on children age between 3 and 5 years of age. For this home-based intervention, mothers implemented a cognitive programme at home with their children (daily for 15-20 minutes) with the help of local paraprofessionals and also attended the Mother Enrichment group meetings which were held bi-weekly for two years.

Three of the four interventions provided details about pre-programme training. Pre-school teachers received 7 days training for the Incredible Years intervention (Baker-Henningham et al., 2009). For the preschool intervention in Bangladesh, teachers received 26 days training and this was followed by a 16 day refresher course (Aboud, 2006). Paraprofessionals received seven day training course in Turkey and local aides received weekly training prior to visiting mothers in their homes (Kagitcibasi et al., 2001).

Design of Studies: One study used a randomized controlled trial to examine the impact of the intervention (Baker-Henningham et al., 2009). A quasi experimental design was used to evaluate two interventions (Cueto et al., 2009; Kagitcibasi et al., 2001). One study used a cross-sectional design with children from pre-school villages and non-preschool villages randomly selected (Aboud, 2006). Two studies had a sample size over 400 children (Aboud, 2006; Baker-Henningham et al., 2009). One study had a small sample size of 100 children (Cueto et al., 2009). All studies used well validated international measures to examine the impact of the pre-school interventions on children's cognitive, social and emotional development. One study examined the long term outcomes (seven year follow up and seventeen year follow up) of the parent training and pre-school interventions (Kagitcibasi et al., 2009).

Outcomes: Two studies reported significant improvements in children's social and emotional skills (Aboud, 2006, Baker-Henningham et al., 2009). Another study reported that mothers observed improvements in children's social and emotional skills (Cueto et al., 2009). In addition to improvements in the children, Baker-Henningham et al., 2009 and Baker-Henningham & Walker, 2009 reported that trained teachers were more likely to display positive behaviour towards the children as a result of the teacher training and that there was a significant increase in the extent to which teachers promoted children's social and emotional skills. This study also noted improvements in children's behaviour, school readiness skills and improved relationships between teachers and children's parents. The Turkish Early Enrichment study found that educational pre-schools and parent training both resulted in significant improvements in children's social skills. Furthermore, children whose mother received training had lower aggression rates and more positive self-concept than children in preschool and day care centres.

Regarding the wider health and social outcomes, the Baker-Henningham et al., 2009 study reported improvements in teacher-classroom atmosphere with the quality of the classroom environment declining in the absence of the intervention. In addition, teachers also reported being less stressed and more confident in their teaching ability. Two studies found improvements

in children's cognitive skills and overall school readiness (Aboud, 2006, Kagitcibasi et al., 2009, 2001). The results from a seven year and seventeen year follow up study of the Turkish study indicate the long term effectiveness of pre-school and parent training on school attainment and occupational status (Kagitcibasi et al., 2009).

Quality of the Evidence: Three studies received a strong quality assessment rating as a result of the methodological design, sample and methods used (Aboud, 2006, Baker-Henningham et al., 2009, Kagitcibasi et al., 2001, 2009). One study received a moderate quality assessment rating (Cueto et al., 2009) due to the sample size and reported baseline differences between intervention and control group across socioeconomic status, living conditions and parental educational levels.

Overall, there are too few high quality studies to generate any strong conclusions about the effectiveness of pre-school interventions on children's social and emotional wellbeing in LAMICs. The findings from the three high quality studies are, however, promising. The Aboud (2006) study demonstrates the feasibility of implementing a pre-school intervention in a low income country where both the level of family education and resources are extremely poor. Aboud (2006) reports that the quality of the implementation matters in that preschools with better overall quality had higher scores on verbal and non verbal reasoning and readiness scores. The most important quality subscales for child outcomes were activities, interaction and programme structure.

The adaptation of the Incredible Years intervention in Jamaica reports significnat results in the use of an evidence-based programme to prevent conduct problems in early years in a LAMIC setting. The findings from this study indicate that teachers valued the training of the programme highly and reported wide ranging benefits for themselves and the children. The positive views from the teachers points to programme acceptability and fidelity of implementation which is known to impact on programme sustainability. In addition, given the use of existing staff and structures this programme is potentially suitable for scaling up in other low resource countries.

Actions Strengthening the Community: School, Workplace and Community Interventions

Schools Programmes:

Ten studies describing eight interventions implemented in LAMIC school settings were identified (see Table 1). Of these ten studies, one was carried out in a low income country

(Jordans et al., 2010), six were carried out in lower middle income countries and three studies were carried out in upper middle income countries.

Type of Interventions: The majority of studies were universal interventions designed for adolescents (>12 years of age). Interventions varied in their focus from the promotion of social, emotional and problem solving skills (Srikala & Kumar, 2010), mental health awareness raising (Rahman et al., 1998a) and the promotion of positive mental health through the use of a physical fitness (Bonhauser et al., 2005). One programme specifically targeted children at risk of developing depressive symptoms (Yu & Seligman, 2002). Another intervention was designed to promote positive life skills within the context of sexual risk prevention (Smith et al., 2008 & Caldwell et al., 2010). Five studies examined the implementation of classroom-based psychosocial interventions implemented in areas affected by armed conflict including Nepal, Indonesia and Palestine. Three of these studies examined the efficacy of a classroom-based intervention developed by the Centre for Trauma Psychology in Boston for children with elevated psychosocial distress (Jordans et al., 2010; Tol et al., 2008; Khamis et al., 2004). One intervention sought to promote resilience through the use of after-schools activities (Loughry et al., 2006) and another intervention was designed for children with post traumatic stress reactions in Pakistan (Thabet et al., 2005).

Interventions varied in duration and intensity from 15 sessions over the course of five weeks (Jordans et al., 2010) to implementation over an entire academic year (Loughry et al., 2006). The majority of interventions were implemented by the school teachers and it was reported that teachers received training prior to programme implementation. In the case of the classroom-based interventions that were implemented in areas of conflict, these interventions were delivered by local paraprofessionals (Jordans et al., 2010; Tol et al., 2008; Khamis et al., 2004), local young adult volunteers (Loughry et al., 2006) and mental health professionals (Thabet et al., 2005).

The majority of the school interventions were developed in the implementing country. Three interventions were developed in the United States and adapted culturally for local implementation; Penn Optimism Programme (Yu & Seligman, 2002), HealthWise South Africa (Smith et al., 2008; Caldwell et al., 2010) and classroom-based intervention in conflict areas (Jordans et al., 2010; Tol et al., 2008; Khamis et al., 2004).

Design of Studies: Five of the school studies were evaluated using a randomized controlled trial. The sample sizes varied across studies, ranging from N = 100 (Rahman et al., 1998a) to N =

2,193 (Smith et al., 2008) participants. The majority of studies used well validated international measures to evaluate the effects of the programme. These measures were generally self report measures that were administered by trained research assistants. Two studies did not provide sufficient data about the validity and reliability of the measures used (Rahman et al., 1998a; Smith et al., 2008).

Outcomes: In terms of the effects of these school-based programmes on mental health outcomes, several interventions reported positive effects on students:

- emotional wellbeing – self esteem, self efficacy, coping skills, confidence and motivation (Srikala & Kumar, 2010; Bonhauser et al., 2005; Khamis et al, 2004; Caldwell et al., 2010, Smith et al., 2008)
- knowledge and awareness of mental health and emotional health (Rahman et al., 1998a)
- behavioural wellbeing - conduct, aggressions, peer relationship problems (Srikala & Kumar, 2010; Jordans et al., 2010; Khamis et al, 2004; Loughry et al., 2006)
- pro-social behaviour (Jordans et al., 2010; Khamis et al., 2004)
- depressive symptoms (Yu & Seligman, 2002)
- anxiety symptoms (Bonhauser et al., 2005; Tol et al., 2008)
- post traumatic stress related symptoms (Tol et al., 2008)

Only one study found that the intervention programme had no effect on the students in the intervention group when compared with the control group (Thabet et al., 2005).

Other broader health and social outcomes included:

- improved attitudes about reproductive and sexual health (Smith et al., 2008)
- reduction in the level of substance misuse (Smith et al., 2008)
- improved school adjustment (Srikala & Kimar, 2010; Yu & Seligman, 2002)
- improved physical fitness (Bonhauser et al., 2005)
- improved hyperactivity levels (Khamis et al., 2004)

Quality of Evidence: In relation to the quality of the evaluations, six studies were categorised as strong due to the methodological design, sample and methods used (Yu and Seligman, 2002, Jordans et al., 2010; Tol et al., 2008; Khamis et al, 2004, Loughry et al., 2006; Thabet et al.,

2005). Five of the six studies reported significant improvements in children's emotional and behavioural wellbeing as a result of the intervention. One study (Thabet et al., 2005) reported no significant change at post-intervention. Three studies received a moderate quality rating as a result of selection bias (Bonhauser et al., 2005), not reporting the percentage of withdrawals / dropouts (Srikala & Kimar, 2010), the validity or reliability of measures used (Smith et al., 2008). One study received a weak quality rating due to small sample size, failure to report the validity and reliability of measures used and whether confounders were controlled for in the study (Rahman et al., 1998a).

Overall, the results from these studies provide strong to moderate evidence regarding the positive impact of the school-based mental health promotion programmes in LAMICs. The studies evaluating the effectiveness of the classroom based psychosocial intervention which was implemented in areas of conflict provide some of the strongest evidence of the benefits of school-based interventions in LAMICs. The sustainability of this intervention in middle and low income countries must, however, be considered given the use of paraprofessionals to implement the programme and not teachers.

Although the quality of implementation was not monitored in most of the school studies reviewed, several recommendations were suggested to improve future implementation, effectiveness and sustainability in some studies. The involvement of key stakeholders from the planning stage was found to be essential in terms of incorporating the programme into the school curriculum (Bonhauser et al., 2005). The importance of teacher training and programme fidelity was demonstrated in an evaluation of the HealthWise intervention in South Africa. Schools that had the greatest involvement in teacher training and programme implementation reported the more positive outcomes (Caldwell et al., 2010). The studies reviewed point to the effectiveness and promise of school based interventions that are implemented as part of a multilayered system in LAMICs, where interventions are designed to impact on students, teachers and the community as a whole.

Out-of-School Community Interventions:

This review identified five out-of-school community based interventions for adolescents (see Table 1 for summary details). Three interventions were implemented in lower middle income countries and two interventions were implemented in a upper middle income country.

Type of Interventions: Balaji et al., (2011) evaluated a multi-component intervention in India comprising of school-based peer education and teacher training, community peer education, and health information material distributed through the community. The Familias Fuertes intervention is a family strengthening programme designed for parents and their children age 10-14 years (Vasquez et al., 2010). This seven week (21 hour) programme is an adapted version of the evidence based "Strengthening Families" programme in the United States (Iowa State University Extension, 2010) and was implemented with adolescents and parents in Honduras. The Ishraq programme (Brady et al., 2007) is a multidimensional programme aimed at improving the life skills, literacy, recreational activities and health knowledge of girls in Egypt. Adolescent girls (age 13 to 15) who are no longer in school meet four times a week for 30 months in groups of 25 in youth centres or schools. Local young women aged 17-25 were trained as programme facilitators/promoters.

Two studies evaluated the impact of HIV prevention interventions. The Stepping Stones intervention is a participatory HIV prevention programme that aims to improve sexual health through building stronger, more gender equitable relationships. The programme is designed for men and women aged 15-26 and is delivered to single sex groups over the course of 6-8 weeks (50 hours). Programme facilitators are the same age as participants and receive three weeks of programme training (Jewkes et al., 2008). The CHAMPSA is an adapted version of the US evidence based CHAMP HIV prevention programme which aims to strengthen family relationships as well as target peer influences (Bell et al., 2008). This programme consists of 10 (90) minute sessions delivered over 10 weekends to families. Community caregivers are trained as facilitators to deliver the intervention.

Design of Studies: Three interventions were evaluated using a randomized controlled trial (Balaji et al., 2011; Jewkes et al., 2008; Bell et al., 2008). Both the Ishraq and Familias Fuertes interventions were evaluated using a quasi-experimental design (Brady et al., 2007; Vasquez et al., 2010). The sample size varied considerably across the studies, N = 41 (Vasquez et al., 2010) to N = 2, 776 (Jewkes et al., 2008). Three studies used well validated national and international measures (Balaji et al., 2011; Jewkes et al., 2008; Bell et al., 2008). The Familias Fuertes study was lacking information on the reliability and validity of some of the scales used and the Ishraq study was lacking information on all of the scales used (Vasquez et al., 2010; Brady et al., 2007).

Outcomes: Regarding the effects of these community based programmes on mental health outcomes, several interventions resulted in significant improvements in:

- participants' emotional wellbeing including reduced levels of depression (Balaji et al., 2011; Jewkes et al., 2008, Vasquez et al., 2010)
- reported level of suicidal behaviour (Balaji et al., 2011)
- participants' knowledge and attitudes about mental health (Balaji et al., 2011)
- women's knowledge and attitudes about key health gender and rights issues (Brady et al., 2007)
- peer relationships (Brady et al., 2007, Bell et al., 2008)
- teacher – student relationships (Balaji et al., 2011)
- parenting behaviours, self esteem and positive perceptions about their family relationships (Vasquez et al., 2010; Bell et al., 2008)

Broader health and social outcomes include:

- a reduction in adolescent and family member drug use (Vasquez et al., 2010; Balaji et al., 2011; Jewkes et al., 2008, Bell et al., 2008)
- improved attitudes regarding reproductive and sexual health (Brady et al., 2007; Balaji et al., 2011; Bell et al., 2008)
- reduction in the incidences of herpes simplex type 2 (HSV-2) (Jewkes et al., 2008)
- reduction in perpetration of physical violence / intimate partner violence (Balaji et al., 2011; Jewkes et al., 2008)
- reduction in level of sexual abuse (Balaji et al., 2011)
- improvement in academic achievement (Brady et al., 2007)
- desire to delay marriage (Brady et al., 2007)
- greater social participation e.g. through sport (Brady et al., 2007)

Quality of Evidence: Three of the five studies received a strong quality assessment rating due to strong methodological design, sample size and measures used (Balaji et al., 2011; Jewkes et al., 2008, Bell et al., 2008). The results from the Balaji et al. (2011) study are particularly noteworthy give the significant improvements that were shown in a variety of adolescent outcomes such as probable depression, violence, substance use, suicidal behaviour, menstrual problems and sexual abuse, all of which have been identified as priority health concerns for youth in LAMICs (Patel et al., 2007). Two studies received a moderate quality rating due to

small sample size (Vasquez et al., 2010) and failure to report validity and reliability of measures used (Brady et al., 2007).

Promoting Mental Health in the Workplace

One intervention aimed at reducing psychosocial problems in the workplace was identified but was not subject to review due to the study design (no control group). However, in view of the cross-cultural application of this intervention, and the absence of other studies from LAMICs, the SOLVE programme will be briefly described. The UN's International Labour Organisation (ILO) developed a workplace intervention known as SOLVE which is aimed at reducing the incidence of psychosocial problems related to job stress, workplace violence, tobacco use, drug and alcohol abuse and HIV/AIDS. The intervention begins with a 32 hour policy development course and is followed by 18 months of intensive training to educate employees about the causes, consequences and methods of prevention for each of the five SOLVE domains (stress, tobacco, alcohol and drugs, HIV/AIDS and violence). The intervention has been implemented in several countries around the world, specifically targeting resource-poor countries in Africa and Southeast Asia that have been hard hit by the AIDS epidemic (e.g. Zambia, Thailand, Swaziland, South Africa, the Philippines, Namibia, Malaysia, Kenya, India and China). Probst et al., (2008) examined the effectiveness of SOLVE across seven countries; Belgium, Canada, India, Sri Lanka, Malaysia, Namibia and South Africa (N=268 individuals). The results indicate that the intervention led to significant improvements in participants' knowledge about HIV/AIDS, job stress, workplace violence, tobacco use and drug and alcohol abuse. The training resulted in equivalent knowledge gains regardless of the country in which the training was taking place or the specific course attended thus demonstrating the generalizability of the outcomes in multiple contexts. The results of this study suggest that SOLVE may be effective in improving employee knowledge regarding the causes, consequences, and methods of prevention for several major psychosocial workplace issues. However, further more rigorous studies need to be carried out to determine the long term effectiveness and sustainability of SOLVE in LAMICs.

Actions targeted at the Health Sector: Primary Care

Child and Maternal Health Interventions in Primary Care

Ten studies concerning primary care based psychosocial stimulation and/or nutrition supplementation interventions were identified (see Table 1). Two studies were carried out in low

income countries (Hamadani et al., 2006; Klein & Rye, 2004), two studies were carried out in lower-middle income countries (Rahman et al., 2009; Rahman et al., 2008), and the remaining six studies were carried out in upper middle income countries. Of the ten interventions, three of these were evaluations of home visiting interventions in Jamaica. These interventions were implemented with differing groups of disadvantaged children; undernourished (Powell et al., 2004 & Baker-Henningham et al., 2005), low birth weight (Gardner et al., 2003 & Walker et al., 2004) and children with delayed growth (Walker et al., 2006 & Walker et al., 2005 & Grantham McGregor, 1991 & 1997).

Type of Interventions: All of the interventions were psychosocial stimulation interventions delivered through primary care that aimed to improve mother-child interaction. Two of the interventions combined the stimulation intervention with dietary supplementation (Walker et al., 2006 & Walker et al., 2005 & Grantham Mc Gregor, 1991, 1997; Hamadani et al., 2006). The Thinking Healthy Programme was based on cognitive behavioural therapy and was designed to support pregnant mothers with depression (Rahman et al., 2008). All of the interventions involved home visits. Four interventions supplemented the home visits with community based workshops for the mothers (Hamadani et al., 2006; Rahman et al., 2009; Klein & Rye, 2004; Eickmann et al., 2003).

With the exception of the Care for Development intervention in rural China (Jin et al., 2007), all of the interventions were of medium to long term duration (greater than 8 weeks) and high intensity (weekly visits). Some interventions were implemented for greater than nine months (Powell et al., 2004 & Baker-Henningham et al., 2005; Walker et al., 2006 & Walker et al., 2005 & Grantham Mc Gregor, 1991, 1997; Hamadani et al., 2006; Rahman et al., 2008). In the Jamaican Home Visiting Intervention, mothers received between five and 48 visits and the results from the evaluation showed that mothers receiving less than 25 visits did not benefit from the intervention, thus indicating the importance of programme duration and intensity (Powell et al., 2004; Baker-Henningham et al., 2005). The majority of home visits were conducted by paraprofessionals employed in government health centres. Occupational therapists delivered one intervention (Eickmann et al., 2003) and in another study local women received training to implement the stimulation and supplementation intervention in community nutrition centres (Hamadani et al., 2006).

All of the interventions provided training prior to programme delivery and three interventions provided ongoing support for the trainers (Powell et al., 2004, Baker-Henningham et al., 2005; Aracena et al., 2009, Rahman et al., 2008). Six of the interventions were developed in the country in which they were implemented and evaluated. One intervention was adapted from the Jamaican Home Visiting Intervention and was modified to suit the cultural context of Pakistan (Hamadani et al., 2006). The Learn Through Play programme (Rahman et al., 2009) was originally developed in Toronto, Canada for use by lay home visitors with at risk multi-ethnic parents and children. The MISC intervention was implemented in multiple countries (Israel, Sweden, United States, Sri Lanka and India) prior to adaptation and implementation in Ethiopia (Klein & Rye, 2004). The WHO Care for Development intervention is a part of the Integrated Management of Childhood Illness (IMCI) package which was developed by the WHO and UNICEF and has been introduced to more than 200 countries worldwide.

Design of Studies: All except one of the evaluation studies (Eichmann et al., 2003) used a randomized controlled trial to evaluate the effectiveness of the intervention. The sample size in the studies varied from N = 41 (Aracena et al., 2009) to N = 798 (Rahman et al., 2008). Seven of the studies had a sample size greater than 120 participants. Three studies examined the long term impact of the programme; at five months follow up (Gardner et al., 2003); six years follow up (Klein & Rye, 2004), four years and sixteen years follow up (Walker et al., 2005; 2006). All of the studies employed well validated international measures which were administered by trained interviewers. Measures assessed children's mental and motor development, physical, and psychosocial development, mother's psychological wellbeing, knowledge and attitudes and parent-child interaction.

Outcomes: These studies reported improvements in

- children's social and emotional wellbeing (Gardner et al., 2003; Walker et al., 2006; Hamadani et al., 2006; Klein & Rye, 2004; Jin et al., 2007).

- mothers' psychological wellbeing including levels of depression, psychological distress and improved attitudes to parenting (Powell et al., 2004; Rahman et al., 2009; Aracena et al., 2009; Rahman et al., 2008, Eickmann et al., 2003)
- parent-child interactions (Klein & Rye, 2004; Rahman et al., 2008)
- parental knowledge about child rearing practices (Powell et al., 2004; Hamadani et al., 2006; Rahman et al., 2009)
- mother's perception of social support (Rahman et al., 2008)

In terms of long term effects, two of the longitudinal studies showed sustained programme effects in relation to children's psychological functioning at six years follow up (Klein & Rye, 2004) and at 16 years follow up (Walker et al., 2006; Walker et al., 2005). In the case of the Walker et al., 2006 study, the children in the intervention group were significantly less anxious and had lower rates of depression and higher self esteem when compared with the control group at 16 years follow up. Regarding mother's depression, Rahman et al., (2008) found that the mothers in the intervention group had lower depression scores at six and 12 months follow up. In addition, Klein and Rye (2004) found that improvements in parent-child interactions were maintained at six years follow up.

Regarding the broader health outcomes, studies reported the following improvements:

- mental and psychomotor development of children (Powell et al., 2004; Gardner et al., 2003; Walker et al., 2005 & Grantham McGregor, 1991, Hamadani et al., 2006; Aracena et al., 2009)
- cognitive and linguistic development of children (Jin et al., 2007; Klein & Rye, 2004)
- school engagement in terms of better school grades, remaining in school for longer and higher IQ (Walker et al., 2006; Walker et al., 2005; Grantham McGregor, 1991, 1997; Klein & Rye, 2004)
- conduct problems and antisocial behaviour (Walker et al., 2004; Walker et al., 2006; Walker et al., 2005; Grantham McGregor, 1991, 1997)
- completion of scheduled immunization (Rahman et al., 2008)
- physical health of mothers (Aracena et al., 2009)

Walker et al. (2004, 2006) found that the effects of the home visiting intervention on children's mental and motor development were sustained at four years follow up and that the effect of the

intervention on children's conduct problems and school engagement was sustained at 16 years follow up. In addition to child health outcomes, two studies reported improvements in the physical health of mothers (Aracena et al., 2009; Rahman et al., 2008). Rahman et al. (2008) also reported that infants in the Thinking Healthy Programme intervention group were more likely to have completed their scheduled immunizations, thus indicating that mothers were more engaged in their children's health and wellbeing.

Quality of Evidence: Eight studies in this section received a strong quality assessment rating (Powell et al., 2004; Baker-Henningham et al., 2005; Gardner et al., 2003; Walker et al., 2004; Grantham McGregor, 1991; 1997; Walker et al., 2005; 2006; Hamadani et al., 2006; Rahman, Robert & Husain, 2008; Eichmann et al., 2003). All eight studies were judged as having a low risk of bias across the assessment areas. Two studies received a moderate quality rating as a result of potential detection bias (Jin et al., 2007), not addressing potential confounders and not reporting the validity and reliability of measures which were developed by the research team (Klein & Rye, 2004).

Overall, the results from the Walker 2005, 2006 studies provide some of the strongest and most extensive evidence of sustained benefits from home-based early childhood interventions in LAMIC settings. There is also evidence that early stimulation interventions can enhance mothers' awareness and knowledge and improve mother-child interaction. In addition, there is considerable evidence that these interventions have related health and social benefits for the mother and child. It is interesting to note that interventions that provided nutrition only programmes had no effect on the outcomes for children or mothers and it was only when they were combined with psychosocial stimulation that positive effects are found.

These results from these studies further highlight the importance of using local infrastructure to reduce costs and ensure programme sustainability. In one study, transport was provided to and from the workshops which the authors concluded is not sustainable (Eickmann et al., 2003). The use of local primary care centres are ideal in LAMICs given their accessibility to the local community.

One study highlighted the importance of providing supervision of the community health aides when working with families in very poor settings (Rahman et al., 2008). It was recommended that strong supervisory mechanisms need to be in place when scaling up programmes of this nature and that this supervision could be low cost in the form of peer groups in which health workers from each locality meet on a regular basis to discuss the families they are caring for.

Primary Care Interventions for Caregivers:

Two studies were identified, which were evaluations of a home care programme for supporting caregivers of persons with dementia in India and Russia (Dias et al., 2008; Gavrilova et al., 2009). The home care intervention was devised by the 10/66 Dementia Research Group and the programme is currently being implemented and evaluated in China, Dominican Republic, Peru, Mexico, Argentina and Venezuela.

Types of Interventions: The home care programme was delivered using trained community caregivers who received one week training and visited the carers' homes at least once a fortnight for six months (Dias et al., 2008). The home care advisors were supported and supervised by two part time specialists, a psychiatrist and counsellor. In Russia, however, it was not possible to recruit primary care health workers, as a result, the intervention was implemented by newly qualified doctors (Gavrilova et al., 2009).

Design of Studies: The home care intervention was evaluated using a randomized controlled trial in both studies. The sample size across the two studies was small N= 81 (Dias et al., 2008), N= 60 (Gavrilova et al., 2009). Both studies used well validated international measures.

Outcomes: Both studies reported improvements in caregivers' mental health and quality of life. Dias et al. (2008) and Gavrilova et al. (2009) reported significant improvements in caregivers' mental health and perceived burden.

Quality of Evidence: The two evaluation studies received strong quality assessment ratings. Both studies were judged as having a low risk of bias as a result of a strong methodological design, controlling for confounders and the use of valid and reliable measures. The results from the home care programme for supporting caregivers are strong and support findings from high income countries which report significant benefits of caregiver intervention on caregivers' knowledge and burden (Pinquart & Sorensen, 2006; Brodaty et al., 2003). In addition, this intervention is an example of an intervention that utilises low cost health resources, training locally recruited individuals with no prior experience with dementia care. Furthermore, this is one of the few interventions that has been implemented and evaluated in multiple countries in LAMICs using randomized controlled trials. The results from India and Russia (Dias et al., 2008; Gavrilova et al., 2009) combined with the results from the other evaluations that are currently underway in the Dominican Republic, Peru, Mexico, Argentina and Venezuela will provide a good understanding about the effectiveness and sustainability of the Home Care Programme in LAMICs.

Intersectoral Actions on Removing Structural Barriers to Mental Health

In this review, three studies relating to intersectoral actions on removing structural barriers to mental health were identified. Descriptions of these studies may be found in Table 1. All three interventions were microfinance interventions and were implemented in South Africa (upper middle income country). Two studies evaluated the Intervention with Microfinance for AIDS and Gender Equity (IMAGE) (Pronyk et al., 2006; Kim et al., 2007). This poverty focused microfinance initiative for women is combined with a gender and HIV education curriculum. Women aged 14-35 were selected for this study. The third study (Fernald et al., 2008) examined the effects of small individual loans on applicants' mental health.

The IMAGE intervention offers microfinance services through a group lending model for the development of income generating activities. Women also take part in the Sisters-for-Life (SFL), a 12 -15 month curriculum covering a range of topics including gender roles, gender inequality and domestic violence. Local women are trained as facilitators for one week and are provided with ongoing support by project staff. In the case of the Fernald et al., (2008) study, applicants who had been previously rejected for a loan were reviewed and offered a 'second chance'. Applicants' wellbeing was subsequently assessed 6-12 months later.

Design of Studies: All three studies used a randomized controlled trial to evaluate the impact of the interventions. Sample size ranged from N=237 (Fernald et al., 2008) to N=3339 (Pronjk et al., 2006). One study used well validated international measures (Fernald et al., 2008).

Outcomes: In terms of the outcomes of these microfinance interventions, women in the combined microfinance and IMAGE curriculum showed significant improvements in empowerment indicators, participation in social groups and household economic wellbeing. There were also modest intervention effects on levels of openness and communication about sexual matters. In addition the risk of physical or sexual violence intimate partner violence was reduced by more than half (Pronyk et al., 2006; Kim et al., 2009). The results from the Fernald et al. (2008) study are more mixed. Credit access was associated with significantly increased levels of stress among men in the intervention group, however, there was a significant reduction in depressive symptoms in men but not women.

Quality of Evidence: All three studies received a moderate quality rating. The two IMAGE studies received a moderate rating as a result of not providing data on the validity and reliability

of measures used and loss of participants at two and three year follow up (Pronyk et al., 2006; Kim et al., 2009). In terms of the Fernald et al. (2008) study, given the fact that (i) the terms of credit were substantially different to other models of microfinance (ii) the interest rates were considerably higher than those offered by many NGOs in other LAMICs and (iii) the sample frame of the study was the 'marginal' clients of the lender and not the full sample who borrow in this market, the quality of the evidence is reduced in that the result from this study may not be generalized to other groups.

VII. Costs

Only two studies in the review included information on intervention costs. Gardner et al., (2003) reported that the home visiting intervention implemented in Jamaica with low-birth weight infants and their mothers cost US$70 per child including the visitor, transport and toys for the eight week period. Aracena et al., (2009) reports the cost of the home visiting programme for adolescent mothers in Chile was US$6 per mother per month, in comparison to the standard pre-natal programme at the local health centres which cost US$3.30. The results from these two studies highlight the potential cost benefit of early stimulation interventions which can have a significant lasting impact on mothers and their children. A number of studies from high-income countries have demonstrated significant cost benefits from early years interventions, and particularly so for long-term outcomes (Karoly et al., 2005). Economic analyses of early childhood interventions that focus on home visiting, parenting, as well as those that combine services with early childhood education, demonstrate that effective programmes can repay their initial investment with savings to government and benefits to society, with those at higher risk making the greatest gains (Karoly et al., 2005; Galinsky, 2006; Friedli and Parsonage, 2007).

Karoly et al. (2005) report on a cost-benefit meta-analysis for home visiting programmes serving at-risk children and for early childhood education progammes serving low-income 3 and 4 year olds. For five of the seven studies the estimates of the net benefits per child served range from about $1,400 per child to nearly $240,000 per child. Viewed another way, the returns to society for each dollar invested extend from $1.26 to $17.07. Positive net benefit was found for programmes that required a large investment (over $40,000 per child) as well as those that cost considerably less ($2,000 per child). Friedli and Parsonage (2007) have argued that the potential lifetime benefits of effective parenting programmes are so large relative to the costs that the

interventions do not need a high success rate (1 in 25 for conduct disorder and 1 in 55 for conduct problems) to make them a worthwhile investment. Further economic analyses of child and maternal health interventions in LAMIC settings are warranted.

There is a paucity of appropriate economic evaluations of school-based and community-based mental health promotion initiatives. It is surprising to note that the microfinance initiatives reported in this review did not include some element of an economic evaluation. There is a need for further empirical research to develop the evidence base on the cost-effectiveness of mental health promotion interventions in both HICs and LAMICs. As economic evaluations of mental health interventions may not transfer easily between countries, due to differences in infrastructures, resources and cultures, (McDaid, Knapp and Raja, 2008), further research is needed to estimate the cost benefit and cost-effectiveness of almost all the interventions covered in this review.

VIII. Equity Issues

This review has a particular focus on the evidence of mental health promotion interventions in low and middle-income countries. The review searched specifically for studies originating from developing countries and the term 'developing countries' along with 'low and middle income countries' were included in the list of search terms employed.

Table 1, which contains a summary of the characteristics of the studies reviewed, indicates the equity implications of each study under the column marked Impact on Inequity. Using the Equity Checklist for Systematic Review Authors (Ueffing et al. (2009) to review the included studies, it is clear that the overwhelming majority of the study population groups are drawn from the most disadvantaged and poorest people living in poor countries. Intervention studies focused on children and families living in poor communities, undernourished children, refugees displaced by war, women and adults with low levels of education, and adults with high rates of HIV infection, unemployment, living in areas of rural isolation and extreme urban poverty. The evidence of effective interventions in promoting the mental health of these population groups in low resource settings is significant and lends weight to the case for the potential of these actions to impact on the health and wellbeing of people living in poverty.

The majority of the interventions reviewed in this report deal with the most vulnerable individuals and families experiencing high levels of poverty, stress and increased risk. As demonstrated by the findings, these interventions have the potential to mitigate adverse outcomes for vulnerable children and adults and to break cycles of disadvantage and social exclusion. However, we need to have realistic expectations about how much such interventions can achieve. These interventions seek to impact on complex problems related to the negative effects of poverty and they tend to focus primarily on individuals or family units, and as such do not have the capacity to address the wider structural factors impacting on poor, disorganized or violent communities. By themselves such programmes are insufficient to alleviate the effects of poverty on positive emotional and social development and psychological functioning. If individuals and families live in communities where poverty is entrenched, programmes that focus solely on individual change rather than broader policy solutions will have limited impact. Clearly, there are limits to how much locally based programmes can overcome the political, socioeconomic or structural forces that maintain inequities and disempowerment and that strategies are more likely to successful when they are integrated within macroeconomic and policy strategies aimed at creating equity (Kim et al., 2009). The effectiveness of these interventions in addressing inequity must, therefore, be considered in the context of wider policy initiatives addressing the structural determinants of poverty and health inequities.

IX. Conclusions

This rapid review of the available evidence indicates that effective mental health promotion interventions which lead to mental health gains can be effectively implemented in LAMIC settings. Effective mental health promotion interventions also show potential for wider health and development gains in LAMICs. This review identified thirty eight studies of effective interventions that were found to be feasible, and potentailly sustainable in LAMICs, building on community resources including working with families, young people, health care workers, grassroot workers and community volunteers.

The early years intervention studies delivered by community members show convincing evidence of the feasibility of implementing psychosocial stimulation interventions in LAMICs and demonstrate significant positive effects on the children's development and the psycohsocial functioning of both mothers and children. These interventions, along with those included under the Primary Care section in this review, have the potential of being scaled up in LAMICs

employing local resources. The results from the Home Visiting Intervention study in South Africa (Cooper et al., 2009) are most promising in that long term benefits were reported for both mothers and infants at six and 12 months follow up. In addition, the fact that this intervention was implemented by lay community workers is particularly encouraging in terms of the intervention being sustainable in a low resource LAMIC setting. The results from the group-based intervention for mothers in areas of conflict (Dybdahl, 2001) are also promising considering the simple, inexpensive and short-term intervention programme that was used. It was suggested that one probable explanation for the positive effects of the intervention on the children is that through the mothers' symptoms reduction, the mothers were more able help their children. The fact that the Roving Caregivers Programme study by Janseens et al., (2009) found significant positive effects on the cognitive development of children age between 6 and 18 months and not for children age 18 to 30 months could suggest that early interventions are more effective when they seek to enrol caregivers as soon as possible after the birth of their child or preferably during the prenatal stage. The recommendation that programmes start as early as possible (preferably antenatally), is supported by findings from evaluations of early years interventions in HIC settings.

As home visiting and parenting programmes often deal with the most vulnerable families, these interventions are viewed as having the potential to break cycles of disadvantage and social exclusion. The findings from this review show that interventions delivered by trained community members lead to benefits for children and mothers living in poor communities, for refugee families who are displaced in war torn areas, and for women diagnosed with HIV. However, the effectiveness of these interventions needs to be viewed in the context of wider policy initiatives addressing poverty and the wider structural determinants of child health inequities. Engle et al., (2007) identified several factors that are associated with programme effectiveness in LAMICs including; providing services directly to children is more effective than only providing information to parents, the provision of demonstrations and opportunities for skill building with parents increase effectiveness. They also point out that disadvantaged children, including children with restricted growth, benefit more than advantaged children, younger children (aged 2-3 years) benefit more than older children, and longer exposure to the intervention results in more consistent and larger effects on child development. This intervention model, which has been extensively evaluated in HICs and proven to have long-term positive health, social and economic gains, shows very promising evidence of effectiveness for families living in LAMIC settings. It is, therefore, reasonable to conclude that high quality, low-cost,

evidence-based interventions in the early years can be implemented successfully and sustained by trained community members in LAMIC community settings.

While there are only four studies of pre-school interventions included in this review, the findings are promising concerning the effectiveness of pre-school interventions on children's social and emotional wellbeing in LAMICs. The results from the Aboud (2006) study in Bangladesh are, however, most promising as this intervention was implemented in a low income country where both the level of family education and resources are extremely poor. Aboud (2006) argues, where mothers and fathers have not attended schools, preschools are crucial to giving children experiences with complex learning materials as well enhancing their social emotional development.

It is also important to note that the evaluation of the Incredible Years intervention in Jamaica (Baker-Henningham et al., 2009) is the first study to report the use of an evidence-based programme to prevent conduct problems in early years in a LAMIC. The study findings indicate both programme acceptability and fidelity of implementation, which are known to impact on programme sustainability.

The findings from the seventeen year follow up of the Turkish Early Enrichment project are impressive, as they indicate the long term benefits of pre-school and parent training on child development, school attainment and occupational status (Kagitcibasi et al., 2009). These findings mirror those of the High Scope Perry Pre-School project (HSPP), which confirm that a high quality pre-school programme can achieve a significant positive impact on the life-course of poor children (Schweinhart et al., 2005). With follow-ups over 40 years, the HSPP programme demonstrates developmental, academic, social and occuaptional gains for children into adulthood and a cost-benefit analysis indicating a 17 fold return on the initial investment in this programme due to savings in health, welfare and criminal justice costs (Schweinhart et al., 2005; Karoly et al., 2005).

Overall, given the positive findings regarding the immediate and long term-impact of the pre-school interventions in LAMICs, combined with the low-cost nature of these programmes (use of existing staff and structures) these interventions are potentially suitable for scaling up in other low resource countries.

With regard to school-based interventions, findings from the ten studies reviewed indicate that there is reasonably robust evidence that school programmes implemented across diverse

LAMICs can have significant positive effects on students' emotional and behavioural wellbeing, and at the broader level on pupils' school adjustment. The findings are particularly encouraging in relation to children living in areas of war and conflict, where the school setting provides an important community forum for reaching out to young people and their families coping with the negative mental health impacts of war.

There is also some evidence that interventions which combine lifeskills with reproductive and sexual health education, and substance misuse education can have a significant positive effect on pupils' risk-taking behaviour. These findings are reflective of the evidence from multiple reviews of school-based interventions in high income countries which point to the effectiveness of multi-component interventions that adopt a social competence approach and the development of a supportive environment when compared with interventions that focus on specific problem behaviours (Green et al., 2005, Barry et al., 2009; Adi et al., 2007; Stewart-Brown 2006; Tennant et al., 2007). The integration of these multicomponent programmes into the school system holds important potential as many of the core elements of health education progammes are based on generic social and emotional skills training targeting clusters of common risk and protective factors.

Furthermore, the LAMIC studies reviewed for this report endorse the effectiveness of comprehensive school programmes, a finding that is similar to the evidence from systematic reviews in HICs, which have consistently recommended multi-component programmes that take a whole school approach (i.e., involve the students, the school environment, the families and the local community),. As Srikala & Kumar (2010) point out, schools offer a feasible and cost-effective means of reaching young people and their families in LAMICs. The classroom based psychosocial intervention (CBI), which was implemented with children affected by armed conflict in rural Nepal, is an example of an evidence-based comprehensive i multicomponent approach to promoting positive mental health with the classroom intervention. This intervention is complemented with activities aimed at strengthening community resilience and individual supportive counseling for children in need of more specialized care. Harnessing the skills of teachers and providing support in the school setting provides a sustainable and low cost method of improving children's emotional and behavioural wellbeing, developing positive coping strategies and promoting school performance.

The current evidence clearly demonstrates the potential of school-based programmes in promoting the mental health and wellbeing of young people. The findings of this review suggest that teachers, when appropriately trained, are effective implementers of mental health promotion programmes. Similar to findings from high income countries, several of the studies reviewed highlighted the importance of teacher training and the need to monitor programme implementation in LAMICs. With the majority of studies examining the effectiveness of school-based programmes for adolescents, there is a dearth of evidence on the effectiveness of school based intervention for younger children (<12 years of age) in LAMICs. There is a strong need for further high quality studies with longitudinal designs to assess the impact of school-based intervention especially in younger age groups in order to strengthen the evidence base in LAMICs.

In terms of the quality of evidence for out-of-school community interventions in LAMICs, there are a number of very promising interventions addressing sexual and emotional health, HIV prevention, substance misuse, violence prevention, functional literacy and social participation among excluded groups, which show the potential for scaling up. The findings from these studies show the potential of community based programmes, and the need for further more rigorous studies to be carried in order that these interventions can be scaled up to serve the needs of regional and national populations.

Given the high prevalence of HIV in LAMICs (UNAIDS, 2004), efforts aimed at the promotion of positive life skills are important in the reduction of infected adolescents. The CHAMPSA and the Stepping Stones interventions are examples of adapted community-based interventions that address HIV risk behaviours by strengthening family relationships as well as peer influences through enhancing social problem solving and peer negotiation skills for youth. The results from evaluations of these multiple level interventions are significant, with the CHAMPSA programme having a direct impact on caregivers' relationship with their children and HIV transmission knowledge. The results from the Stepping Stones intervention indicate a reduction in known risk factors for HIV in young men and women and improvements in the levels of sexual violence and substance misuse among males. This intervention also illustrates effective use of local resources with the intervention being implemented in local schools after school hours. The youth health intervention in Goa also employed a multicomponent approach with school and communtiy-based elements, based on active community involvement in the programme planning. Further evaluations of such multicomponent interventions should be carried out to determine the long

term effects on the family process and youth outcomes. For example, the involvement of community members in every aspect of the CHAMPSA programme from the design of the intervention, pilot testing, delivery and research is likely to have impacted on the relevance and acceptability of this intervention to families in underserved communities. This is important in terms of the scaling up and sustainability of the intervention. These findings also reflect the conclusions from a systematic review of HIV prevention interventions for South African youth (Harrisson et al., 2010), which identified the need to move beyond individual level measures of knowledge and psychosocial factors to adress social and structural factors underlying HIV risk including addressing social norms, gender, poverty and alcohol use.

Community-based approaches build on the strengths and assets of the local community and help to create a sense of ownership and empowerment among the disadvantaged. The positive findings from the Israq programme are particularly noteworthy given that out-of-school adolescent girls are identified as one of the most vulnerable and disadvantaged groups in Egyptian society (Brady et al., 2007). Strengthening community networks increases feelings of support and the attainment of skills gives people a greater sense of agency and control over their lives, which in turn impact positively on their mental health and wellbeing. Patel and colleagues (2007) suggest that such programmes are likely to promote mental health not only in the individuals who are direct recipients of the interventions but also in all who live in the community. Valuable lessons can be learned from the scaling up of community based programmes such as the Ishraq intervention in Egypt over the past ten years. Ishraq partners are collaborating with local NGOs to work with several youth centres in each governorate. In addition Ishraq's objectives have been closely aligned with national objectives and Ishraq is now seen as supporting national policies. At local level considerable investment has been made in gaining the support of community leaders and parents. These are important considerations that can be applied to all interventions when being scaled up in LAMICs.

There is a paucity of evidence on the effectiveness of workplace mental health promotion interventions in LAMIC settings. The promotion of mental health is relevant to many aspects of employment including health and safety, workers' rights, exploitation, equal opportunities, bullying and harassment, job security. Given the fact that 75% of the world's labour force are based in LAMIC's there is an urgent need for further research on workplace interventions such as the SOLVE initiatve that aim to improve the mental health and overall quality of life of workers in LAMICs.

It is clear from the review findings that there is robust evidence that primary care interventions promoting child and maternal health can benefit the psychosocial development of both mother and child and that these benefits can be sustained throughout childhood and adolescence. Examining the Jamaican intervention studies, the home visiting intervention was implemented with undernourished children from very poor families over multiple years. It is possible that this may have contributed to the wide ranging benefits of this intervention including social, emotional, educational, cognitive, mental and psychomotor developments. Collectively, the results from these studies are quite strong and indicate that low cost early stimulation interventions can be integrated into primary health care services and are likely to benefit the most disadvantaged children the most.

It is encouraging that home visits by trained community aides produced these benefits for mothers in addition to benefits to child development. Community health aides based in primary healthcare centres in LAMIC's are in a good position to deliver interventions to promote childhood development in addition to their usual duties. Klein and Rye (2004) suggest that the presence of these health workers in the community following termination of the programme could have contributed to sustained effects six years post-implementation. In addition, Baker-Henningham et al. (2005) suggest that paraprofessionals may be more successful in forming collaborative relationships with the mothers than professionals and this may be one of the reasons for the success of these interventions. Similar findings have been reported from studies in HICs where peer-led interventions in disadvantaged community settings, involving trained community mothers, have lead to long term improvements in child and maternal functioning for families from disadvantaged communities (Johnson et al., 1993; 2000) and from indigenous communities (Fitzpatrick et al., 1997). These findings support the integration of mental health components into the delivery of routine maternal and child services through primary care. National initiatives, such as the Integrated Child Development Services in India, which delivers a package of services to young children and their mothers, provide a concrete example of what is possible through working with local health workers and community volunteers (Tandon, 1989: Tandon and Kapil, 1991).

With regard to the caregivers' support programmes in India and Russia (Dias et al., 2008; Gavrilova et al., 2008) the results are impressive. Given the recent estimates which show that dementia is a major cause of burden of disease amongst older people in LAMIC (Prince et al.,

2007), there is a strong need for further research on the impact of the provision of support and training of caregivers. Concerning other primary care interventions, it is clear that there is a major gap in the evidence from LAMICs and that there is much potential for the integration of mental health promotion interventions into other primary health care services, especially with regard to services to adults, including the prevention of communicable and noncommunicable diseases.

With regard to intersectoral actions to promote mental health, the findings from the studies in this review contribute to the ongoing debate about the impact of microfinance interventions. The IMAGE study provides encouraging evidence that a combined microfinance and training intervention can have health and social benefits such as reducing the levels of violence experienced by participants and increasing empowerment wellbeing. Many authors have pointed out that the training content is critical in catalysing health gains. Others have stressed the importance of the training process, in particular the value of participatory group based learning (Kim et al., 2009). Violence against women and girls remains a major public health challenge in LAMICs. These studies shows that a structural intervention aimed at empowering individuals and communities can contribute to measurable health outcomes and that such empowerment can form part of a viable public health strategy. Findings from the impact of the Comprehensive Rural Health Project in India, which focused on income generation, community empowerment and equity, education and health care, suggests that the opportunity to independently earn money for women resulted in a range of positive changes at both the individual and family level (Arole et al., 2005; Kermode et al., 2007). In turn this was seen to have a direct impact on mental health by increasing women's sense of competence and control and consequently their mental health. Sustaining these impacts and expanding beyond the local context are important challenges. Kim et al. (2009) contend that there are limits to locally based programmes for overcoming the political, socioeconomic or institutional forces that maintain inequities and empowerment and that strategies are more likely to be successful when they are integrated within macroeconomic and policy strategies aimed at creating greater equity.

Recommendations for Research

The mental health interventions in LAMICs identified in this review have achieved success across a diverse range of countries, however, relatively few have been systematically scaled up

to serve the needs of regional or national populations. Thus, evidence for their sustainability and effectiveness when integrated into routine settings in LAMICs needs to be strengthened.

Nevertheless, the range and quality of studies from LAMICs included in this review is impressive and the quantity of published studies has grown considerably over the last 10 years. The limitations of this rapid review must of course be acknowledged in terms of the bias in favour of English language publications and the possibility that there may be studies published in other languages that will not have been accessed. That said, the studies included in this review clearly demonstrate that high quality and effective interventions, and their evaluation through well designed research studies, are possible and are being carried out in LAMIC settings. Many of the interventions reviewed have been conducted with the poorest people living in low resource areas, including areas of armed conflict. The findings are, therefore, very encouraging in terms of what can be achieved when the necessary resources, expertise and capacity are made available for the development and implementation of high quality interventions. The emerging evidence that trained community workers can deliver effective interventions to local communities is also very encouraging. As argued by Petersen et al (2010), in view of the shortage of trained mental health specialists in many LAMICs, these studies hold promise that mental health promotion can be scaled up at a reasonable cost.

In terms of programme implementation, given the limited number of studies providing robust evidence in certain action areas, it is necessary to also consider how well-validated programmes that have been developed in low resource settings in HIC countries could be adapted and implemented in LAMICs. A number of programmes that have already been adapted and successfully implemented in LAMICs are referenced in this review (Health Visitor Intervention, Cooper et al. 2009; Learning through Play, Rahman et al., 2009; Mediational Intervention for Sensitizing Caregivers, Klein et al., 2004; CHAMP, Bhana et al., 2004; HealthWise, Smith et al., 2008; Caldwell et al., 2004; Penn Optimism Programme, Yu & Seligman, 2002). The potential of many other evidence-based interventions, such as those in schools and workplaces, to be transferred across cultural and socio-economic settings is also indicated. Further implementation research is needed in order to examine the level and quality of programme planning, delivery and resourcing that is needed and how these are influenced by contextual factors in the local setting. As advised by Saxena et al. (2006) further insight is needed regarding the transferability and cultural adaptation of evidence-based progammes and policies across countries and cultures.

Much of the evidence included in this review has focused on individual-level interventions. There is a need to generate evidence on the effectiveness of interventions operating at the community and macro level in promoting positive mental health. The complexity of such multifaceted interventions presents a particular challenge in terms of programme evaluation, as they do not lend themselves to the adoption of traditional evaluation approaches and experimental designs. This calls for the development of more pluralistic evaluation methods which are responsive to the realities of programme implementation across diverse cultural settings, and consequentially, a broader based approach to evidence review in this area (Barry and McQueen, 2005).

In terms of building research capacity, the Global Forum for Health Research and the World Health Organisation in 2004 examined the obstacles to mental health research in LAMICs. This study found a large difference between a group of middle income countries that are making significant economic progress and most of the low income countries where available funding for health is stretched to provide even basic services. The results show a very imbalanced approach to research with five countries - China, India, Brazil, Argentina and South Africa - accounting for nearly almost two-thirds of the articles published in relation to mental health (Sharan et al., 2007). Razzouk et al. (2009), in examining the mental health research capacity and resources in LAMICs for the years 1993 – 2002, found that the greatest shortage of mental health research capacity was among the poorest African and Asian countries. Some 84% of LAMIC contributions were made by researchers in just 12 countries with Brazil, China, India alone accounting for 43% of indexed mental health publications. Razzouk and colleagues recommended that LAMICs establish partnerships, especially between relatively better and less well resourced countries for conducting research.

These conclusions are also supported by the findings from the present review, which found that only 10% of all evaluations reviewed were carried out in low income countries. It is important to state that LAMICs do not represent a homogeneous grouping of countries and there are vast differences in the level of infrastructure, sociopolitical and economic contexts and, therefore, level of development across the countries that are included under the World Bank criteria as being LAMICs. Therefore, a more refined approach to research capacity development is needed, taking into account more sophisticated development indices and the influence of country specific contextual factors. The development of culturally valid measures of mental health, that will support the evaluation of culturally appropriate interventions in LAMICs, is identified as an area

for methodological development that will be critical to the advancement of future research in this area.

Recommendations for Policy and Practice

Based on the evidence reviewed in this report, the following action areas are recommended for implementation and further research in LAMIC settings:

Actions Strengthening Individuals and Families

- Invest in Home Visiting and Parenting Interventions
  - The early year intervention studies show convincing evidence of the feasibility and effectiveness of implementing psychosocial stimulation interventions using local resources.
  - Programmes implemented by locally trained community workers result in significant improvements in child development, maternal and child psychosocial functioning and parenting practices.
  - There is evidence to suggest that the most effective child development programmes:
    - provide learning opportunities for children and their families
    - are of longer duration
    - are designed for younger more disadvantaged children.

- Implement Pre-School Programmes
  - High quality early childhood enrichment for children provided through education at preschools result in significant gains in children's social and emotional wellbeing, cognitive skills, behaviour and school readiness.
  - Longitudinal studies show evidence of long-term effects on school attainment and occupational status.
  - Use of existing resource, such as staff and structures, is an important advantage when considering the implementation and scaling up of pre-school interventions in LAMICs.

Develop Actions Strengthening the Community: School, Workplace and Community Settings

- School

- School based mental health promotion interventions provide strong evidence of the significant positive effect of these interventions on students' social and emotional wellbeing, behavioural wellbeing, knowledge and awareness of mental health and the impact on broader health and social outcomes including school adjustment, reproductive health and substance misuse.
- Classroom based psychosocial interventions focused on developing coping skills and promoting wellbeing, including for children living in areas affected by armed conflict, provided particularly strong outcome evidence.
- There is some evidence of the potential of comprehensive interventions that aim to promote positive mental health within the context of sexual risk prevention.
- There is strong evidence regarding the effectiveness of teachers, as opposed to external professionals, in implementing mental health promotion programmes in schools.
- Implementation issues highlighted include; the need for whole school involvement, the implementation of school-based programme within the context of a broader community approach, the importance of teacher training, the provision of booster training sessions, and the need to monitor programme implementation.

➢ Out of School interventions

- There is evidence for the impact of out-of-school, community-based interventions comprised of multi-component interventions that address emotional health, sexual health, HIV prevention, substance misuse, violence prevention, functional literacy and social participation among excluded groups.
- Given the high prevalence of HIV, violence, gender issues and substance misuse in LAMICs, the positive outcomes from these community based interventions, which are based on empowerment, active participation and capacity building, are particularly noteworthy.

➢ Workplace Interventions

- There is a paucity of evidence on the effectiveness of workplace mental health promotion interventions in LAMICs.
- There is an urgent need for further research on workplace interventions that aim to improve the mental health and overall quality of life of workers in LAMICs.

Actions Targeted at the Health Sector: Primary Care

- Primary Care (child and maternal health)
  - There is robust high quality evidence that primary care interventions promoting child and maternal health can benefit children's and mothers' social, emotional and psychological wellbeing, parent-child interaction and parental child rearing knowledge. Broader health benefits include improved cognitive and motor development, school engagement and reduced conduct problems.
  - Significant sustained effects on children's social and emotional development were noted in a number of studies.
  - Studies provide strong evidence of effectiveness for interventions that are integrated into other child and family services. This in turn makes the delivery of services more feasible on a large scale with reductions in delivery costs, less duplication of services, and easier access for families.
  - The use of local resources, i.e. the primary care settings and trained village primary health workers, is also important in terms of sustainability of interventions in LAMICs.
  - Supervision during training process and implementation was noted as being central to ensuing ongoing quality implementation.

- Primary Care (interventions for adults)
  - Two studies provide strong evidence of a home care programme for supporting caregivers of persons with dementia.
  - There is major gap in the evidence concerning other primary care interventions in LAMICs and further research is needed on the integration of mental health promotion into primary health care services.

Intersectoral Actions on Removing Structural Barriers to Mental Health

- There is some encouraging evidence that a combined microfinance and training intervention can have positive health and social benefits including reduced risk of violence, economic wellbeing, empowerment and participation in social groups.
- The engagement of local women trained as facilitators is important in terms of the sustainability of such initiatives.

- In addition to the need for further high quality evaluations of microfinance initiatives, there is a need for further research on the role that mental health promotion can play in the development and effectiveness of macro level initiatives such as poverty reduction, violence prevention, gender equality and HIV prevention.

Additional broader recommendations based on review of studies

Irrespective of the action area, there is a need for:

- policy support and governments to place a higher priority on mental health promotion policy
- stable and secure funding
- strong leadership
- strong community involvement and support
- awareness among community members and health professionals of the importance of mental health to overall health and of the benefits of interventions for family and community life
- procedures to be put in place for programme monitoring, evaluation, accountability, reporting and programme revision
- the provision of ongoing technical support as a means of dealing with barriers to achieving programme expansion and quality

Health promotion strategies in LAMICs cannot rely soley on government resources to achieve health outcomes. Therefore, an important element of developing mental health promotion in LAMICs is investing in training local community members and health workers to implement the majority of interventions. This contributes not only to the sustainability of the programmes but also the active involvement and empowerment of communities through local community health workers (Saxena & Maulik, 2003). In addition, as Patel et al., (2007) point out, many interventions that are set up with no specific mental health goal are likely to promote mental health, such as interventions aimed at empowering local communities and combating social and economic inequities.

Mental health promotion needs to be incorporated into the wider health development agenda in order that the broader determinants of mental health, such as poverty, exploitation, social exclusion and discrimination, can be successfully addressed by national governments,

international agencies, donors and NGO's. There is an urgent need to invest in building the policy, practice and research base for mental health promotion in LAMICs. This entails investing in the assets and capabilities of people, ensuring access to life opportunities and resources, and working in partnership with people living and working in LAMICs in order to develop strategies and that can be locally owned and adapted. Building the capacity for developing and implementing mental health promotion policies and practices in LAMICs is fundamental to sustaining action for health development. Capacity needs to be built across the health, education and community sectors with a focus on low-cost available resources and on empowerment models of child development, family support and community development.

At a policy level, there is a need for strategic investment in developing the leadership, technical and research skills required for building and translating evidence into effective and sustainable mental health promotion policy and practice in LAMICs. This requires capacity building in contextualising policies and translating international evidence into effective actions tailored to the social, cultural and socio-economic contexts and realities of people living and working in in LAMICs. Through partnership working, there is an opportunity to build and support national leadership, technical and research expertise and workforce development for mental health promotion. Commitment needs to be mobilised so that mental health promotion policy, actions and workforce development in LAMICs is given a greater priority in national policies and in development aid from global funding agencies, thereby ensuring that sustainable funding for mental health promotion in LAMICs is a central plank of health promotion and global health development.

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Appendix