



***National Institute for
Health and Clinical Excellence***

Public health interventions to promote positive mental health and prevent mental health disorders among adults

Evidence briefing

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*Lorraine Taylor, Nichole Taske, Catherine Swann, Seta Waller
with support from Elaine Barnett-Page and Linda Seymour*

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Foreword

The Health Development Agency (HDA) was established in 2000 to help build the public health evidence base, with an emphasis on what works and a special focus on reducing inequalities in health. In April 2005, the functions of the HDA were transferred to the National Institute for Clinical Excellence (NICE) to form a new organisation known as the National Institute for Health and Clinical Excellence (also known as NICE).

Wanless (2004) highlighted the need for appraising the effectiveness of public health interventions, not only to reduce health inequalities but also to maximise cost effectiveness. The government's white paper *Choosing Health* (Department of Health 2004) similarly reiterates the importance of building and maintaining an evidence base for public health. From April 2005 the HDA's evidence base work is continuing under the auspices of NICE.

The HDA had the task of mapping and synthesising the evidence across priority areas of public health. It developed a systematic approach to compiling the evidence, identifying gaps and making the evidence base accessible. The evidence briefing series was one of the ways used to disseminate the HDA Evidence Base (full details of the process of developing the Evidence Base and the associated methodological activities can be found in: Kelly et al. 2002, 2004a/b; Swann et al. 2005; Graham and Kelly 2004; Killoran and Kelly 2004).

This evidence briefing is a review of reviews about the effectiveness of public health interventions aiming to promote positive mental health and prevent mental health disorders among adults. The necessity for reviewing reviews, or tertiary-level research, stems from the proliferation, over the last decade or more, of systematic and other types of review in medicine and public health. The HDA's other evidence briefings have covered:

- accidental injuries in children and older people
- ante-and post-natal home visiting programmes
- breastfeeding
- drug misuse
- health impact assessment
- HIV prevention
- housing
- management of obesity and overweight
- prevention and reduction of alcohol misuse
- prevention and reduction of exposure to second-hand smoke
- prevention of sexually transmitted infections
- prevention of low birth weight
- public health interventions for increasing physical activity among adults
- smoking and public health
- teenage pregnancy and parenthood
- youth suicide prevention.

Taken together, these briefings provide a comprehensive synthesis of the evidence drawn from review level literature, including systematic reviews. They are available on the NICE website at: www.nice.org.uk

These evidence briefings have been based on evidence drawn from systematic and other kinds of reviews. This means that the type of evidence that does not traditionally find its way into reviews has not been considered in detail for these documents.

In another HDA evidence series, 'evidence reviews', the scope of the coverage is extended to primary research, other kinds of evidence and other types of study. Evidence reviews published to date include: *Drug misuse prevention among young people*, *Self-management of chronic illness*, *Worklessness and health*, and *Work, non-work, job satisfaction and psychological health*.

The construction of the HDA Evidence Base involved collaboration with a number of partners who have an interest or expertise in practical and methodological matters concerning the drawing together of evidence and its dissemination. In particular, the HDA acknowledged the following: the Centre for Reviews and Dissemination at the University of York; the EPPI-Centre within the Institute of Education at the University of London; Health Evidence Bulletins Wales; the ESRC UK Centre for Evidence Based Policy and Practice at Queen Mary College, University of London and its nodes at the City University London and the MRC Public Health Sciences Unit at the University of Glasgow; members of the Cochrane and Campbell collaborations; the United Kingdom and Ireland Public Health Evidence Group and the Public Health Evidence Steering Group. The latter acted as overall guide for the HDA's evidence building project.

Colleagues in these institutions and organisations have made a significant contribution to the framework used by the HDA to assess the evidence.

Every effort has been made to ensure this briefing is as accurate and up to date as possible. We welcome readers' comments on the content – including its accuracy – and will make every effort to correct any matters of fact in subsequent editions.

Comments can be made via our website at:
www.nice.org.uk

Professor Michael P Kelly
Director, Centre for Public Health Excellence
National Institute for Health and Clinical Excellence

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Summary

Introduction

This briefing aims to:

- identify all relevant systematic reviews, syntheses, meta-analyses and review-level papers on non-pharmacological interventions to promote positive mental health and prevent mental health disorders in adults aged over 16
- review these papers and highlight effective ways to promote positive mental health and prevent mental health disorders either by reducing the risk factors for adults with no diagnosed mental disorder (primary prevention) or by preventing relapse (secondary prevention) in people previously diagnosed with a mental disorder, particularly those in disadvantaged and vulnerable groups
- identify cost-effectiveness data for non-pharmacological interventions that aim to promote positive mental health and prevent mental health disorders in adults
- highlight any gaps in the evidence and make recommendations for future research.

This briefing is intended to inform policy and decision makers, NHS providers, public health physicians and other public health practitioners in the widest sense. It is designed to be accessed by a variety of users including those simply looking for headline findings, those wanting complete and detailed syntheses, and those who need to track back to the original primary and secondary sources.

Adult mental health

A survey carried out by the Office for National Statistics in 2000 found that, at any given time, one in six adults (aged 16 to 74) suffered from a mental health problem of varying severity. Eighty five per cent of those with a probable psychotic disorder were having treatment at the time of interview and over four-fifths of this group (84%) were receiving medication. In comparison, just under a quarter (24%) of those assessed as having one or more neurotic disorders were receiving treatment at the time of interview and a fifth (20%) were taking psychoactive medication, while 9% were having counselling or therapy (Office for National Statistics 2000).

Other research suggests that one person in four will experience some kind of mental health problem in the course of a year (Mental Health Foundation 1999). Researchers have also found that some population sub-groups have an increased risk of developing mental health problems. Singleton et al. (2002), for example, found that common mental health problems (anxiety, depression, phobias, obsessive-compulsive and panic disorders) are more prevalent among women. High rates of schizophrenia and other psychoses have been reported among African-Caribbean people (Sproston and Nazroo 2002).

Fryers et al. (2003) identified an inverse relationship between social position and common mental disorders, with those less privileged – with poor education, employment and material circumstances – at increased risk of poor mental health. Other research has also identified that people living in deprived areas and remote rural districts have the highest levels of mental health problems (Melzer et al. 2004; Office for National Statistics 2001).

Certain occupational groups are vulnerable to stress-related mental health problems. These include teachers,

nurses, managers, doctors, farmers and service/ex-service men and women. Other particularly vulnerable groups include victims of abuse or domestic violence, drug and alcohol misusers, prisoners, homeless people, refugees and people with disabilities (Social Exclusion Unit 2004a).

Ageing is also associated with an increased prevalence of mental disorders. Estimates from the Department of Health suggest that 40% of older people seeing their GP, 50% of older people staying in general hospitals and 60% of care home residents may have a mental health problem (National Institute for Mental Health in England 2005). Common mental disorders are also strongly associated with physical disability; over a third (37%) of people interviewed in this age group had difficulty with one or more common daily tasks, such as personal care, housework and getting out and about (Office for National Statistics 2003b).

Carers who provide someone with substantial support are twice as likely to have mental health problems as those they are caring for (Singleton et al. 2002).

It is estimated that the annual cost of mental illness in England is £77.4 billion (Sainsbury Centre for Mental Health 2003a). This comprises:

- £12.5 billion for care provided by the NHS, local authorities, privately funded services, family and friends
- £23.1 billion in lost output to the economy caused by people being unable to work (paid and unpaid)
- £41.8 billion in the human costs of reduced quality of life (and loss of life) among those experiencing a mental health problem.

It is clear that mental health problems place a considerable burden on public health, the economy, and individual and social relationships.

Policy context – England

Mental health is either the subject or a key feature of recent policy and guidance documents in England:

- *Saving Lives: Our Healthier Nation* (Department of Health 1999a)
- *National Service Framework (NSF) for Mental Health* (Department of Health 1999b)

- *Making it happen: a guide to developing mental health promotion* (Department of Health 2001a)
- *The mental health policy implementation guide* (Department of Health 2001b)
- *National Service Framework for Older People* (Department of Health 2001c)
- *All Our Tomorrows* (Association of Directors of Social Services, Local Government Association 2003)
- *Mainstreaming gender and women's mental health. Implementation guidance* (Department of Health 2003)
- *Mental health and social exclusion* (Social Exclusion Unit 2004a)
- *Action on mental health. A guide to promoting social inclusion* (Social Exclusion Unit 2004b)
- *Celebrating our cultures: guidelines for mental health promotion with black and minority ethnic communities* (Department of Health 2004a)
- *Choosing Health: making healthy choices easier.* (Department of Health 2004b)
- *The National Framework for Mental Health – five years on* (Department of Health 2004c)
- *From here to equality. A strategic plan to tackle stigma and discrimination on mental health grounds, 2004–2009.* (National Institute for Mental Health in England 2004)
- Disability Discrimination Act 2005.

Methods

This briefing seeks to answer the following research question:

'What non pharmacological interventions are effective at promoting positive mental health and preventing mental health disorders among adults?'

All non-pharmacological interventions were included, regardless of whether or not they were routinely made available by the NHS. The interventions had to target adults (aged over 16) either from the general population or those deemed to be predisposed to mental health disorders. Interventions had to aim to promote positive mental health or prevent mental health disorders (as defined by the American Psychiatric Association (1994) in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).

Mental health outcomes could include, but were not limited to:

- impact on carer/family functioning
- compliance with non-drug treatments
- death (any cause and sudden unexpected death or suicide)
- hospital admission
- mental state:
 - criterion-based improvement (as defined in individual studies)
 - continuous measures of mental state
- occupational status and functioning
- patient satisfaction
- psychological wellbeing:
 - criterion-based improvement (as defined in individual studies) with respect to general psychological wellbeing (such as self-esteem or distress). This would include depression and anxiety scores
 - continuous measures of psychological wellbeing
- quality of life
- relapse (as defined in the individual studies)
- social functioning
- any unexpected or unwanted effect
- cost effectiveness.

The following process was applied:

- systematic searching of all English language literature from January 1995 to October 2004
- selection of relevant abstracts for full paper retrieval
- critical appraisal of the 158 papers retrieved (transparency, systematicity, quality and relevance)
- analysis and synthesis of the evidence for different topic areas and population groups.

A total of 20 review-level papers passed the critical appraisal process. Papers were compared and top-level findings were collated and summarised into core themes. A series of evidence statements were derived from each paper based on the following categories.

- **Evidence of effectiveness:** derived from the review-level literature where the interpretation and/or conclusions of primary studies (> 1 controlled trial) presented in the review/s consistently indicate that an intervention is effective.
- **Evidence of ineffectiveness:** derived from the review-level literature where the interpretation and/or conclusions of primary studies (> 1 controlled trial) presented in the review/s consistently indicates an intervention is ineffective.

- **Conflicting evidence:** derived from the review-level literature where the conclusions of the review papers and/or interpretation of the primary studies within review paper/s were not consistent.
- **Insufficient evidence of effectiveness:** derived from the review-level literature where there is currently insufficient evidence from primary studies to confirm effectiveness or ineffectiveness of an intervention. The review/s may have identified evidence of effectiveness from only one primary study. Further investigation in good quality controlled trials is required.

Findings

Listed below are all the review-level evidence of effectiveness statements for the five core themes.

Additional conflicting, insufficient or ineffective evidence statements were also produced for a number of the themes covered and these can be found in the 'Findings' sections.

SETTINGS

Primary care

- There is review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems is associated with modest improvements in psychological symptoms in the short term (1–6 months), compared with usual GP care (Bower et al. 2002, 2003).
- There is review-level evidence from the UK that people presenting with broad psychological and psychosocial problems are highly satisfied with counselling interventions delivered in primary care (Bower et al. 2002, 2003).

Workplace

- There is review-level evidence from the USA and UK to suggest that workplace interventions involving either early referral (triggered after 2–3 months of sickness absence) to occupational health services, or group-based information and role play sessions, can be effective in reducing sickness absence (Michie and Williams 2003).
- There is review-level evidence to suggest that, overall, stress-reducing interventions focused either on the

individual (such as cognitive behavioural counselling, relaxation techniques and multi-modal programmes) or the organisation can help reduce work-related stress (van der Klink et al. 2001).

- There is review-level evidence that interventions aimed at individuals are more effective in improving people's skills for coping with work-related stress and/or reducing overall levels of work-related stress than interventions delivered to organisations (van der Klink et al. 2001).
- There is review-level evidence that cognitive behavioural interventions are more effective than relaxation techniques in improving people's skills for coping with work-related stress and/or reducing overall levels of work-related stress. Cognitive behavioural interventions that are shorter in duration and frequency are also more effective than longer programmes (van der Klink et al. 2001).
- There is review-level evidence that occupational stress-reducing interventions significantly improve measures relating to quality of work, 'psychologic' responses and resources, and physiological complaints (van der Klink et al. 2001).
- There is review-level evidence that remedial interventions (addressing existing problems) are more effective than preventive approaches in reducing levels of work-related stress (van der Klink et al. 2001).
- There is review-level evidence that cognitive behavioural interventions are significantly more effective than relaxation techniques and multi-modal interventions for employees with high control jobs (van der Klink et al. 2001).

POPULATION GROUPS

Older adults (> 55)

- There is review-level evidence that psychosocial and psychotherapeutic interventions (particularly control-enhancing interventions and cognitive behavioural therapy) in older adults significantly improves measures of self-reported psychological wellbeing (Pinquart and Sorensen 2001).
- There is review-level evidence that psychosocial and psychotherapeutic interventions for older adults are more effective if they are delivered to nursing home residents (compared with adults living in the community) on an individual basis (compared with group interventions) by therapists with advanced

degrees and specialist experience (compared with therapists with advanced degrees and no special geriatric training) (Pinquart and Sorensen 2001).

- There is review-level evidence based on one study from Canada, one from the USA and one from an unspecified country that interventions offering 'buddying', self-help network or group-based emotional, educational, social, or practical support to at-risk (widowed) older people can help to improve self-reported measures of health perceptions, adjusting to widowhood, stress, self-esteem and social functioning (Tilford et al. 1997).

Carers of people who are mentally ill

- There is review-level evidence that family interventions in families of people with schizophrenia and related disorders can have 'limited' positive effects on variables relating to the family unit such as reduction in family distress and quality of interpersonal relationships (Barbato and D'Avanzo 2000; Cuijpers, 1999). However, in meta-analyses of more than eight trials, Cuijpers (1999) noted significant heterogeneity across studies so these results should be interpreted with caution.
- There is review-level evidence that family interventions in families of people with psychiatric disorders can have a modest positive effect on variables relating to the relatives' burden of care (Barbato and D'Avanzo 2000; Cuijpers 1999; Pharoah et al. 2003).
- There is review-level evidence that family interventions in families of people with schizophrenia and related disorders did not significantly improve measures of carer's ability to cope (Pharoah et al. 2003).
- There is review-level evidence to suggest that family interventions for carers of those diagnosed with schizophrenia or schizophrenia-like illnesses can improve general understanding of patients' needs (Pharoah et al. 2003).

Carers of people with disabilities/chronic disabilities

- There is review-level evidence to suggest that community-based individual and group counselling sessions for carers of people with disabilities may be effective in reducing self-reported rating of psychiatric symptoms and improvements in social networks/support, coping and dealing with pressing problems (Tilford et al. 1997).

Behavioural parenting programmes

- There is review-level evidence to suggest that behavioural parenting programmes are effective in improving a range of measures relating to parental efficacy and satisfaction (self-esteem) (Barlow et al. 2003).

Cognitive behavioural parenting programmes

- There is review-level evidence to suggest that cognitive-behavioural parenting programmes are effective in improving a range of measures relating to parental psychological health, including parental guilt and self-blame, parental sense of competence (self-esteem) and frequency of automatic negative thoughts (Barlow et al. 2003).

Behavioural-humanistic parenting programmes

- There is review-level evidence to suggest that the Parent and Children Series (behavioural-humanistic) parenting programme does not significantly improve measures of parental stress (Barlow et al. 2003).

Rational emotive therapy parenting programmes

- There is review-level evidence to suggest that rational emotive therapy parenting programmes are effective in improving measures of parental guilt (Barlow et al. 2003).
- There is review-level evidence to suggest that rational emotive therapy parenting programmes are ineffective in improving measures of parental anger (Barlow et al. 2003).

Volunteers

- There is review-level evidence from the USA and Canada to suggest that volunteering undertaken by older people improves the quality of life of those who volunteer, with those participating in face to face/direct volunteering achieving the greatest benefit compared with those involved in indirect, less formal helping roles (Wheeler et al. 1998).

LIFE EVENTS AND TRANSITIONS

No evidence of effectiveness was found for this theme.

TOPICS

Mass media

- There is review-level evidence derived from the UK, Norway and the USA to suggest that mass media campaigns, particularly those that include community activities, can have a beneficial effect on attitudes towards – and knowledge of – mental health issues. They can also impact on an individual's behavioural intentions and support enhancing behaviours to improve their own mental wellbeing (Tilford et al. 1997).

Physical activity

- There is review-level evidence from Britain, USA and other countries (not specified) to suggest that participation in physical activity, sport and exercise is positively associated with mood, emotion and psychological wellbeing (Biddle 2000; Fox 2000; McAuley and Rudolph 1995) and can produce positive changes in wellbeing through improved physical self-perception (Fox 2000).
- There is review-level evidence from Britain to suggest that those who are highly active experience more positive affects of physical activity compared with those who are less active. The most negative affect is reported for high-intensity exercise by those who are less active (Biddle 2000).
- There is review-level evidence from Britain to suggest that low-intensity exercise compared with moderate-intensity exercise results in favourable mood states (such as increased vigour and exhilaration) and lower mental fatigue (Biddle 2000).
- There is review-level evidence to suggest that the length of exercise programmes appears to have a positive effect on psychological wellbeing, with exercise programmes lasting 20 weeks or more, compared with 10–20 weeks or less than 10 weeks, having the greatest association (McAuley and Rudolph 1995).
- There is review-level evidence to suggest that there is no association between age, physical activity and psychological wellbeing (McAuley and Rudolph 1995).

Prevention of eating disorders

- There is review-level evidence that selective eating disorder prevention programmes (those delivered to 'at

risk' groups) are effective in reducing the risk factors that predispose to eating pathology (such as body dissatisfaction, thin ideal internalisation or body mass and negative affect) (Stice and Shaw 2004).

Prevention of pathological gambling

- There is review-level evidence to suggest that cognitive behavioural therapy, including 'imaginal desensitisation', may help reduce the frequency of further pathological gambling episodes (or urges). It may also help increase the gambler's perceived control over gambling (Petry and Armentano 1999).
- There is review-level evidence to suggest that partner/spouse involvement in Gamblers Anonymous sessions are successful in the secondary prevention of pathological gambling, by encouraging abstinence or reducing pathological gambling episodes (Petry and Armentano 1999).

COST EFFECTIVENESS OF MENTAL HEALTH SERVICE INTERVENTIONS

Cost effectiveness of counselling in primary care

- There is review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems may cost a similar amount to usual GP care (Bower et al. 2002, 2003). However, the review authors note that the cost analysis is likely to be underpowered and susceptible to type II errors.*

Cost effectiveness of family interventions for schizophrenia

- There is review-level evidence from the UK, the US and China that the economic costs of family-based interventions is lower than those of standard or usual care (Pharoah et al. 2003).

Gaps in the evidence base

Although a systematic search for gaps in the primary research was not undertaken, a number of gaps in the review-level evidence were identified either from our observations or those made by the authors of the Evidence Base papers.

Overall, limited review-level evidence was found on the promotion of positive mental health among adults in the general population. Similarly, few good quality reviews of interventions for the primary prevention of mental health disorders were identified. This may be due, in part, to the paucity of primary-level research in the field or that existing or more recently published primary level research has not yet been incorporated within high quality systematic reviews.

Settings

Little review-level evidence was identified on the effectiveness of interventions delivered in or across different settings, or of interventions that aimed to influence a person's environment in a way that may positively affect their mental health. Two reviews were identified that examined the effectiveness of primary care interventions and three reviews examined the effectiveness of workplace interventions. Other areas where no review-level evidence was found include community care settings, universities and further education.

Population groups

The majority of included reviews focused on interventions delivered to individuals or small groups at risk of developing mental health disorders. It has been proposed, however, that a focus on general population levels has the potential for more 'significant and lasting improvements' (see Bronfenbrenner 1979). Reviews of mental health promotion interventions for all adults, not just those who are already using mental health services, are vital to develop a credible evidence base that will support the implementation of broad policy goals for improving the mental health of populations.

Life events and transition

Only two reviews included an assessment of interventions for people at a vulnerable stage or transition in their lives

* Type II errors are 'false positives' – accepting something that should have been rejected.

(Papworth and Milne, 2001; Tilford et al. 1997). Again, this may reflect a lack of primary research. Given the elevated levels of psychiatric morbidity among, for example, people undergoing divorce or bereavement, and the long-term unemployed, this gap could be usefully filled. Similarly, no reviews specifically addressed gender issues at different stages of the lifecycle, despite well-documented gender differences in psychiatric morbidity (Tilford et al. 1997).

Inequalities and vulnerable groups

Overall, evidence from review-level literature has found a general lack of research on the effectiveness of mental health promotion interventions in reducing health inequalities. The reviews described tend not to target people from low socio-economic, low education, high risk, vulnerable or minority ethnic groups and/or address the differential effectiveness of interventions between comparatively advantaged and disadvantaged groups.

Where reviews did include primary studies with an inequalities dimension (such as reporting a population group's socio-economic status), the analysis of effectiveness generally did not present data broken down by socio-economic variables.

Cost effectiveness

Little review-level evidence was found on the cost effectiveness of mental health promotion interventions. Only four papers explicitly aimed to determine the cost effectiveness of an intervention/approach (Bower et al. 2002, 2003; Jepson et al. 2001; Pharoah et al. 2003). Otherwise, the majority of papers do not include any costing data and so only minimal review-level data for this aspect of the briefing was identified.

Review-level recommendations

Although a systematic search for recommendations in the primary research was not undertaken, a number of recommendations in the review-level evidence were identified either from our observations or those made by the authors of the Evidence Base papers.

Further review work is recommended in the areas identified to clarify the extent of the gaps in primary research, and to provide information on the effectiveness

of interventions where evidence does exist. In addition, there is a need for:

- new theoretical frameworks so that a broad range of data from experimental – as well as qualitative – research can be included in systematic reviews and to enable reliable conclusions about mental health promotion to be drawn from a wider data pool
- further systematic reviews of mental health promotion interventions in primary care, particularly those targeting patients who are not receiving pharmacological treatment
- systematic reviews of workplace interventions such as counselling or employee assistance schemes that have the potential to impact on employee mental health
- systematic reviews of complex social interventions that aim to reduce inequalities and include measures of mental health for individuals and communities.

Based predominantly on the findings of the reviews, a number of gaps in primary research and recommendations for further work – both methodological and topic specific issues – were also identified. Details of these can be found in the section 'Gaps in the evidence base and recommendations for research', p87.

Introduction

Aims of this briefing

This briefing aims to:

- identify all relevant systematic reviews, syntheses, meta-analyses and review-level papers on non-pharmacological interventions to promote positive mental health and prevent mental health disorders in adults aged over 16
- review these papers and highlight effective ways to promote positive mental health and prevent mental health disorders either by reducing the risk factors for adults with no diagnosed mental disorder (primary prevention) or by preventing relapse (secondary prevention) in people previously diagnosed with a mental disorder, particularly those in disadvantaged and vulnerable groups
- identify cost-effectiveness data for non-pharmacological interventions that aim to promote positive mental health and prevent mental health disorders in adults
- highlight any gaps in the evidence and make recommendations for future research.

Who is this briefing for?

This briefing is intended to inform policy and decision makers, NHS providers, public health physicians and other public health practitioners in the widest sense. It is designed to be accessed by a variety of users including those simply looking for headline findings, those wanting complete and detailed syntheses, and those who need to track back to the original primary and secondary sources.

Adult mental health

Mental illness in the adult population

A survey among adults aged 16 to 74 living in private households was carried out by the Office for National Statistics in 2000 to estimate the prevalence of mental health disorders. It found that, at any given time, one in six adults has a mental health problem of varying severity. Eighty five per cent of those with a probable psychotic disorder were having treatment at the time of interview and over four-fifths of this group (84%) were receiving medication (Office for National Statistics 2000). In comparison, just under a quarter (24%) of those assessed as having one or more neurotic disorders were receiving treatment at the time of interview and a fifth (20%) were taking psychoactive medication, while 9% were having counselling or therapy.

Other research suggests that one person in four will experience some kind of mental health problem in the course of a year (Mental Health Foundation 1999). Researchers have also found that some population sub-groups have an increased risk of developing mental health problems. Singleton et al. (2002), for example, found that common mental health problems (anxiety, depression, phobias, obsessive-compulsive and panic disorders) are more prevalent among women. High rates of schizophrenia and other psychoses have been reported among African-Caribbean people, whereas south Asians generally experience low rates of mental illness (Sproston and Nazroo 2002).

Fryers et al. (2003) identified an inverse relationship between social position and common mental disorders, with those less privileged – with poor education, employment and material circumstances – at increased risk of poor mental health. Other research has identified that

people living in deprived areas and remote rural districts have the highest levels of mental health problems (Melzer et al. 2004; Office for National Statistics 2001).

Certain occupational groups are vulnerable to stress-related mental health problems. These include teachers, nurses, managers, doctors, farmers and service/ex-service men and women. Other particularly vulnerable groups include victims of abuse or domestic violence, drug and alcohol misusers, prisoners, homeless people, refugees and people with disabilities (Social Exclusion Unit 2004a).

Ageing is also associated with an increased prevalence of mental disorders. According to a survey carried out in 2000, one in 10 people aged 60 to 74, living in private households in Great Britain, had a common mental disorder such as anxiety, depression or a phobia (Office for National Statistics 2003b). Common mental disorders were also strongly associated with physical disability; over a third (37%) of people interviewed in this age group had difficulty with one or more common daily tasks, such as personal care, housework and getting out and about (Office for National Statistics 2003b).

In addition, 20% of people in the UK over the age of 80 – and 6% over 65 – are affected by dementia (health authorities in the UK report 650,000 cases, with over two-thirds diagnosed with Alzheimer's disease – MIND 2005). Estimates from the Department of Health suggest that 40% of older people seeing their GP, 50% of older people staying in general hospitals and 60% of care home residents may have a mental health problem (National Institute for Mental Health in England 2005).

Carers who provide someone with substantial support are twice as likely to have mental health problems as those they are caring for (Singleton et al. 2002). In this survey, 59 of the carers in the sample (6%) were aged 75 or over. There was a higher prevalence of neurotic symptoms among carers living in urban areas than those living in semi-rural areas, and female carers were more likely than males to have neurotic symptoms. Most commonly, carers were looking after their parents or a parent-in-law (38% and 10% respectively), spouse or partner (16%) or another relative (15%). Only 9% were looking after their own child. Thirteen per cent of carers had consulted a GP about anxiety, depression or another nervous or emotional problem in the last year – 1% had done so within the last 2 weeks.

It is estimated that the annual cost of mental illness in England is £77.4 billion (Sainsbury Centre for Mental Health 2003a). This comprises:

- £12.5 billion for care provided by the NHS, local authorities, privately funded services, family and friends
- £23.1 billion in lost output to the economy caused by people being unable to work (paid and unpaid)
- £41.8 billion in the human costs of reduced quality of life (and loss of life) among those experiencing a mental health problem.

Only 24% of adults with a long-term mental health problem are in work: this is the lowest employment rate for any of the main groups of disabled people (Office for National Statistics 2003a). State benefits for adults with mental health problems add an estimated £9.5 billion to the costs outlined above (Sainsbury Centre for Mental Health 2003a).

It is clear that mental health problems place a considerable burden on public health, the economy, and individual and social relationships.

Policy context – England

The promotion of mental health formed an important part of the white paper *Saving Lives: Our Healthier Nation* (Department of Health 1999a), which identified mental health problems as 'a major cause of ill-health, disability and mortality' (p95). The white paper set a target to:

'Reduce the death rate from suicide and undetermined injury by at least a fifth by 2010 – saving up to 4000 lives in total.'

Following the white paper, the government further highlighted mental health as a priority issue by publishing the *National Service Framework for Mental Health* (Department of Health 1999b). Mental health promotion forms Standard One of the NSF. This states that health and social services should:

- promote mental health for all, working with individuals and communities
- combat discrimination against individuals and groups with mental health problems, and promote their social inclusion.

National guidance to support implementation of Standard One was also issued (Department of Health 2001a/b). In

addition, Standard Six of the NSF states that local health and social care communities should help ensure that individuals caring for someone with a severe mental illness receive the support they need to continue to provide this service.

In 2004, the Department of Health updated the NSF, set out what had been achieved during the last five years and recommended areas for further action (Department of Health 2004c). The results, for Standards One and Six are outlined below.

Standard One – Mental health promotion

Progress

- Health promotion strategies are now being implemented almost everywhere, supported by national campaign and development work.
- Expenditure on mental health promotion remains relatively low.
- There has been an increase in the number and range of services to promote social inclusion of people with serious illnesses.

Areas for action

- Adequate financial investment is needed.
- A long-term challenge to change attitudes towards people with mental illness; to adopt a far more tolerant attitude towards people with mental illness
- Better information and research, better appropriate services and community engagement for black and minority ethnic groups. This is the largest programme of work of the National Institute for Mental Health in England.

Standard Six – Support for carers

Progress

- Approximately half of services now undertake assessment of the needs of most carers of people on the enhanced Care Programme Approach (Department of Health 2004c, p30).
- More services are now available to support carers, but carers remain less involved than service users in the planning and development of services.

Areas for action

- Increase carers' involvement in service planning and development.
- More carers need to have their own written care plans, implemented in discussion with them.

In 2004, the *Choosing Health* white paper was published (Department of Health 2004b). It suggested there is a need to do more to promote a joined-up approach to NHS support for people with poor mental health. Chapter six focuses on a health-promoting NHS and describes a new, coherent approach to mental health promotion, working at three levels.

- **Strengthening individuals:** increasing emotional resilience through acting to promote self-esteem, and developing life skills such as communicating, negotiating and relationship and parenting skills.
- **Strengthening communities:** increasing social support, inclusion and participation helps to protect mental wellbeing. Tackling the stigma and discrimination associated with mental health will be critical to promoting this increased participation.
- **Reducing structural barriers to good mental health:** increasing access to opportunities such as employment that protect mental wellbeing.

The white paper also stated that the Department of Health would work, through the National Institute for Mental Health in England, to ensure that day services for people with severe mental health problems offer support for employment and mainstream social contact beyond the mental health system. It also stated that the physical health inequalities experienced by people with mental health problems will be an early priority for the National Institute for Mental Health in England's stigma and discrimination programme.

To combat discrimination against disabled people with a mental illness, the requirement of the 1995 Disability Discrimination Act – that a mental illness should be clinically well-recognised – was removed in the Disability Discrimination Act of 2005.

In relation to older people, Standard 7 of the *National Service Framework for Older People* stipulates that:

'Older people who have mental health problems have access to integrated mental health services, provided by

the NHS and councils to ensure effective diagnosis, treatment and support for them and their carers.' (Department of Health 2001c)

In addition, the Association of Directors of Social Services (ADSS) and the Local Government Association (LGA), in their joint publication *All Our Tomorrows* (2003), state their commitment to improve the quality of life of older people and to engage them in the development of services as part of their statutory duty. The Local Government Act of 2000 aims to promote or improve 'economic, social and environmental wellbeing' of an area (which will, in turn, improve community mental health and quality of life).

A number of policy initiatives have also been launched in England:

- to ensure those with mental health problems are not excluded from society (Social Exclusion Unit 2004a/b)
- to improve mental health promotion services for black and minority ethnic communities (Department of Health 2004a) and for women (Department of Health 2003)
- to tackle stigma and discrimination (National Institute for Mental Health in England 2004).

In Europe, the European Commission's green paper *Promoting the mental health of the population. Towards a strategy on mental health for the European Union* outlines the relevance of mental health for some of the European Union's strategic policy objectives (prosperity, solidarity and social justice; quality of life of citizens) (European Commission 2005). Its proposals for a community-level mental health strategy were out for consultation until 31 May 2006.

Defining mental health

The most common definition of good mental health is a state characterised by the absence of mental disorder. Mental disorder is clearly defined by the American Psychiatric Association as:

'A clinically significant behavioural or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (eg a painful symptom) or disability (ie impairment in one or more important areas of functioning) or with a significantly increased risk of suffering, death, pain, disability or an important loss of freedom.' (American Psychiatric Association 1994)

Other definitions have emphasised the more positive attributes of mental health. The Mental Health Foundation's definition of good mental health refers to individuals who:

- develop emotionally, creatively, intellectually and spiritually
- initiate, develop and sustain mutually satisfying personal relationships
- face problems, resolve them and learn from them
- are confident and assertive
- are aware of others and empathise with them
- use and enjoy solitude
- play and have fun
- laugh, both at themselves and at the world. (Mental Health Foundation 2005)

Government guidance defines mental health as:

'The emotional and spiritual resilience which enables enjoyment of life, and the ability to survive pain, disappointment and sadness; and as a positive sense of wellbeing and an underlying belief in our own and other's dignity and worth.' (Department of Health 2001a)

Holistic approaches have moved away from a focus solely on individual attributes, such as coping skills or resilience, to one that also incorporates environmental and social conditions (MacDonald and O'Hara 1998; Rutter 1985; Secker 1998). Lack of access to education, healthcare or environmental resources – or, at a more basic level, lack of food, water or shelter – contribute to mental health strain in populations around the world (Jane-Llopis et al. 2005).

The reviews included in this briefing describe mental health in a variety of different but complementary ways. The terminologies include:

- psychological wellbeing
- psychosocial health
- psychosocial wellbeing
- wellness
- wellbeing
- positive mental health
- emotional health.

Figure 1: Ten elements of mental health (from MacDonald and O'Hara 1998)

Environmental quality	+	Self-esteem	+	Emotional processing	+	Self-management	+	Social skills participation
Environmental deprivation	+	Emotional abuse	+	Emotional negligence	+	Stress	+	Social exclusion

The determinants of mental health

The determinants of mental health range from individual to environmental factors. This is represented, for example, in MacDonald and O'Hara's model (1998)

(see Figure 1), which pairs risk and protective factors to inform the design of appropriate interventions.

Protective psychological characteristics can be influenced, at the widest level, by factors such as employment – unemployed people are twice as likely to suffer from depression as people in work (Department of Health 1999b) – and housing and poverty (Pollock and Williams 1998; Williams and Pollock 2001).

Public health experts have also placed much emphasis on the role of the social environment and on 'social capital' (which consists of both social and economic resources) (Cooper et al. 1999). The Health Education Authority (1997) identified 'healthy social support' and 'strong social networks and social inclusion' as key factors influencing mental health. Recent research supports the theory that the levels of trust, tolerance and participation in a community is a critical factor in determining health (Cooper et al. 1999; Kawachi et al. 1997; Kawachi and Kennedy 1999; Wilkinson 1996, 2000). One study found that, of trust in friends, family and community, only lack of trust in the community predicted psychological distress (Berry and Rickwood 2000).

Gender also appears to play a part in determining mental health. Women are at greatly increased risk of depression, anxiety, eating disorders, self-harm, phobias, obsessive-compulsive and panic disorders (Piccinelli and Wilkinson 2000; Singleton et al. 2002). However, men are four times as likely to commit suicide (Meltzer et al. 1996).

Other key determinants are experiences at school and in the workplace. Poor achievement at school is a risk factor for problems while still at school and later in life; these problems include substance misuse, unwanted teenage pregnancy, conduct problems and involvement in crime. In

turn, educational achievement increases self-esteem and confidence, employment opportunities, life opportunities and social support (Department for Education and Employment 2001; Rutter and Smith 1995; Wells et al. 2003).

In the workplace, social support (especially from managers), good lines of communication and action on bullying appear to have a positive effect on mental health (Cooper and Cartwright 1996; Ferrie et al. 2001; Holloway et al. 2000; Quine 1999; Stansfield et al. 2000). Risks to mental health include low levels of control, high job demands, role conflict, effort/reward imbalance and uncertainties surrounding organisational change (Borrill and Haynes 2000; Cheng et al. 2000; Ferrie et al. 2001; Niedhammer and Goldberg 1998; Stansfield et al. 2000).

Protective factors at the individual level for mental health include feeling respected, valued and supported, together with a sense of hopefulness about the future (Pollock and Williams 1998; Williams and Pollock 2001). Risk factors include lack of emotional resilience (Health Education Authority 1997), genetic predisposition, family history of psychiatric disorder, childhood neglect or abuse, bereavement and being a long-term carer (Milne et al. 2001).

Models of mental health promotion

Hosman (2001) has commented that, while care and treatment was the dominant response to mental health issues in the 20th century, in this century the emphasis will be on prevention and mental health promotion. In the government's guidance *Making it happen: a guide to mental health promotion* (Department of Health 2001a, p27), mental health promotion is defined as 'any action to enhance the mental wellbeing of individuals, families, organisations or communities'.

As this definition would suggest (along with the range of determinants of mental health outlined above), mental

health promotion is generally recommended on a number of different levels. Both *Making it happen* and the *Choosing Health* white paper describe it as working to strengthen individuals, strengthen communities and reduce structural barriers to good mental health (Department of Health 2001a, 2004b).

This echoes MacDonald and O'Hara's (1998) proposed micro, meso and macro levels for mental health promotion: at the micro level individuals are targeted; the meso level refers to groupings such as the family and peers; and at the macro level, wider systems that can impact on people's lives, such as governments, formal religions and large companies, are targeted. At each level – individual, family or community – interventions may focus either on strengthening the factors known to protect mental health (for example, social support and job control) or on reducing factors that are known to increase the risk of poor mental health (for example, unemployment and violence).

Mental health interventions can be further categorised according to the perceived level of risk faced by the target population (Stice and Shaw 2004). For example, primary-level interventions are generally universal in nature (that is, delivered to a representative sample of the population such as health promoting schools); selective (that is, delivered to those groups deemed to be at higher risk – for example, people divorcing/separating); or indicated (that is, delivered to participants who present with risk factors in addition to early symptoms of a mental health disorder).

These models of mental health promotion highlight the range of possible interventions and provide a framework for developing them. They also suggest that mental health promotion may take place in a number of different domains, such as the family, schools, the workplace and primary care.

Measuring mental health

Identifying indicators of positive mental health poses a predicament for mental health promotion. Generally, practitioners have tended to focus on measures to detect mental illness and negative symptoms such as sadness, anxiety or pessimism.

There are a number of validated instruments designed to measure positive aspects of mental health. These include

the Psychological Wellbeing Scale, the Sense of Coherence Scale, the Affect Balance Scale and the Affectometer.

Key elements of these tools include:

- agency (locus of control)
- capacity to learn, grow and develop
- feeling loved, trusted, understood and valued
- interest in life
- autonomy
- self-acceptance and self-esteem
- optimism and hopefulness
- resilience.

(Stewart-Brown 2002)

Individual quality of life indicators have also been developed by the Audit Commission. These include:

- satisfaction with neighbourhood as a place to live
- quality and amount of natural environment
- availability of cultural, recreational and leisure services
- opportunities to participate in local planning and decision making
- concern that a neighbourhood is getting worse
- concern about noise
- area of parks and green open spaces per 1000 of population.

(Audit Commission 2003)

Finally, indicators are emerging that explore the relationship between social capital and health. These include formal and informal social networks, group membership, generalised trust, reciprocity and civic engagement (www.statistics.gov.uk/socialcapital).

In areas where neighbourhood renewal programmes are well developed, or where community strategies are being implemented, some of the following indicators are also coming into more common usage:

- feeling safe
- trusting unfamiliar others
- participation
- influencing local decisions
- believing the local neighbourhood is improving
- access to social support
- employment
- meaningful activity
- support for parents.

Outcome measures for interventions that promote mental health can be drawn from some of these indicators. For example, interventions that facilitate the capacity to learn – an individual indicator – may also include measures of participation – a social capital indicator.

Methodological issues

The following methodological issues have been identified as pertinent to the evidence briefings series.

The term ‘effectiveness’ is typically used to describe demonstrable, intended effects of an intervention on (usually quantitative) outcomes. At present, a well-conducted systematic review (and/or meta-analysis) is generally perceived to present the most robust and reliable assessment of intervention effectiveness. Systematic reviews are used by clinical scientists to inform practice and are generally well regarded. While this briefing pulls together available evidence from any review-level literature (systematic reviews, meta-analyses and narrative or literature reviews), defining effectiveness in this way – and relying on this type and level of evidence to inform conclusions about the promotion of positive mental health and prevention of mental health disorders – has limitations that need to be considered.

First, definitions of what constitutes ‘good’ quality evidence in the mainstream public health world have been inherited from medical and scientific paradigms, where the experimental evaluation of clinical efficacy is commonplace and often appropriate. However, approaches that rely on traditional evidence hierarchies may not always be the most appropriate method of assessing interventions to improve public health, nor – in particular – to assess the impact of interventions on health inequalities.

At review level (rather than single study), meta-analyses and systematic reviews of effectiveness can be very powerful tools for demonstrating the impact (or lack of it) of an intervention. However, they rely heavily on controlled evaluation studies and statistically measurable outcome variables. In contrast, the promotion of positive mental health is highly complex and relational – and almost impossible to capture in terms of quantitative outcomes alone. In addition, mental health promotion and prevention of mental health disorders often do not ‘fit’ easily into these types of study designs.

Likewise, randomised controlled trials (RCTs) can be difficult to design for all public health interventions and may not be appropriate. This is particularly the case for ‘upstream interventions’ that try to influence national/regional strategies or policies, or the wider environment. We therefore acknowledge the value of evidence collected using a wider range of methods. As Brunner et al. (2001) comment:

‘What is important is that the evidence is collated systematically, with transparent inclusion and exclusion criteria, with attention paid to the methodological quality of the work, and without prior assumptions about the findings being allowed to influence what evidence is considered.’

A second issue is that, while meta-analyses and systematic reviews (and sometimes, to a lesser extent, literature reviews) make judgements about the strength of impact of an intervention, and the quality of the evaluation design, they tend not to examine the appropriateness or the practical implementation of the intervention in a robust or systematic manner. This can be a source of bias – an inappropriate intervention might have a strong impact on one quantifiable outcome measure, and therefore influence review conclusions, even though that outcome measure might not be the most appropriate or useful to the topic area and/or the target population. In other words, there is a risk that inappropriate or ill-designed interventions can be given more weight than more suitable (and often more complex or long-term) approaches, because they may be simpler and quicker to evaluate – or because they can prove some effect relatively easily.

A third issue is that reviews tend to rely on data from certain types of evaluation – most often experimental and quasi-experimental trials – so excluding a substantive amount of literature. The appraisal system that has been developed for the evidence briefing series (see Methods section) favours reviews that have a transparent and replicable data search, methodology and analysis. This means that meta-analyses and systematic reviews of effectiveness are more likely to pass the critical appraisal threshold (if they are well conducted), relative to literature or other types of reviews, because of their clear methodology and analysis. This is not to say that literature or narrative reviews cannot be counted as review-level evidence – where review rationale, methodology and analytic techniques are clear, they would pass the critical appraisal threshold.

Furthermore, a number of authors who have appraised systematic review methodology question many of its underlying assumptions (Hammersley 2001). One common criticism is publication bias: papers that demonstrate effective outcomes are more likely to be submitted to journals and are more likely to be published by journal editors than those reporting negative impact, hence they are more likely to appear in systematic reviews and, in turn, reviews of reviews.

However, in spite of these limitations, systematic reviews are still a powerful tool in certain circumstances: they aim to identify effective, ineffective or harmful interventions in public health and can facilitate public accountability.

There is also a recognised methodological problem when undertaking a review of reviews – that different reviews frequently include some of the same primary evidence. This biases findings in favour of study results that occur more often in the individual reviews.

Incorporating other types of evidence into the evidence briefings is also problematic. In some areas, such as qualitative research, the definition of what constitutes ‘good’ quality work is contested by different researchers and there is no agreed method for systematically synthesising or reviewing such work (although a number of national and international projects are working to develop an appropriate methodology). In addition, there is no clear or agreed method for combining non-traditional forms of evidence – such as qualitative research, action research and expert opinion – with traditional studies to provide a more comprehensive assessment of the effectiveness of different interventions.

A final issue is that of time lag. Inevitably, a reliance on review-level data means that time – usually one or more years – will elapse between publication of single studies, the subsequent examination of these studies by reviewers and the publication of their reviews. The processes involved in carrying out meaningful, high-quality research means that this is, to some extent, inevitable. The reviews covered by this briefing tend to include single studies published at least one year prior to publication of the review. If, in the meantime, a study has been published that alters common conceptions or consensus, it will take a while for these findings to filter into this forum.

The HDA pulled together evidence from systematic reviews, meta-analyses and good quality narrative reviews,

while acknowledging that this limited the data pool and may provide only partial answers to the research questions.

It is also important to note that if this evidence briefing has not uncovered any evidence to support a certain intervention or programme, it does not mean there is no evidence out there; rather, there was no such evidence in the reviews included in this briefing. Similarly, where studies conclude that an intervention has not been effective, this does not necessarily mean that the intervention, per se, is ineffective. It might mean, for example, that the study did not have adequate statistical power to detect a small positive difference. Simply ruling it as ineffective is too judgemental, as future studies using the intervention, perhaps delivered by different individuals, may turn out to be effective. Certainly, ‘closing doors’ on interventions and labelling them as ineffective simply because of a small number of studies does not seem useful. In such situations, an evidence statement points out the current lack of review-level evidence.

In summary, the data presented in this evidence briefing are only a partial answer to ‘what works’ with respect to the promotion of positive mental health and the prevention of mental health disorders. Other sources of information and evidence that could usefully be taken into account include:

- information from practice studies (for example, practice databases detailing ‘promising practice’ case studies)
- research studies that are often or usually excluded from systematic reviews and meta-analyses (for example, definitive studies, non-controlled case studies, observational studies and action research)
- local data and project evaluations (in relation to the area of interest and local, geographic area)
- expert and practitioner opinion
- client opinion and experience.

Methods

The methods used for this briefing are in line with the HDA's Evidence Base methodology (Swann et al. 2005), and are described in detail below. This briefing seeks to answer the following research question:

'What non-pharmacological interventions are effective at promoting positive mental health and preventing mental health disorders among adults?'

Literature search

An extensive and systematic search of the literature was conducted by the HDA's Health Intelligence team. A full list of the search terms and strategy is given in Appendix 1. The following electronic databases and websites were searched from January 1995 to October 2004.

Electronic databases

- AMED, ASSIA, CINAHL, Current Contents, DARE, EMBASE, HMIC, HTA Database, MEDLINE, National Research Register, PsychINFO, ReFeR, SIGLE, Sociological Abstracts, The Cochrane Collaboration reviews databases, TRIP

Websites

- Health Evidence Bulletins Wales, <http://heb.w.cf.ac.uk>
- National Guideline Clearinghouse, www.guideline.gov
- National Institute for Clinical Excellence (now the National Institute for Health and Clinical Excellence), www.nice.org.uk
- Scottish Intercollegiate Guidelines Network, www.sign.ac.uk

All citations were imported directly into Reference Manager and duplicates were removed. The Mental

Health Reference Group and key experts were consulted and reference lists of any retrieved papers were also checked to identify any other potentially relevant citations.

Data-handling process

A total of 1175 citation titles and abstracts (1171 from the search and four additional references suggested by the reference group or identified as potentially relevant via another evidence briefing) were identified by the above methods. All citations were independently assessed for inclusion/exclusion by two of three reviewers (see below for inclusion/exclusion criteria). If two reviewers did not agree on a citation's inclusion, or if no clear decision could be made on the basis of the title and abstract, the full paper was retrieved.

Reference lists of all retrieved papers were also checked for potentially relevant titles. A total of 47 potentially relevant titles were identified in this way, with abstracts requested for assessment. An additional two titles were also suggested by the peer reviewers and abstracts ordered. Eight of these additional 49 abstracts did not arrive and these are listed in Appendix 3.

Of the 1216 citations received and appraised using the inclusion/exclusion criteria, 166 were considered potentially relevant and therefore full papers requested for retrieval, and 1050 were rejected.

Inclusion criteria

Abstracts and papers were included if they were:

- published between January 1995 and October 2004
- published in English

- reviews of human studies only
- systematic reviews, meta-analyses, syntheses and review-level papers
- reviews of non-pharmacological interventions to promote positive mental health in adults (aged over 16) who had had no previous mental health disorders (primary prevention), or who had previously presented with or been diagnosed with a mental health disorder (secondary prevention), but were not suffering an acute episode at the time of the intervention.

This evidence briefing adopts the diagnostic definition of mental health disorders prescribed by the American Psychiatric Association (1994). As described in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (p. xxi), a mental disorder is:

'...conceptualised as a clinically significant behavioural or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (eg a painful symptom) or disability (ie impairment in one or more important areas of functioning) or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom.'

Primary prevention is defined as the prevention of mental health disorders in people who had never previously been affected or diagnosed with such a disorder (according to DSM-IV diagnostic criteria). Secondary prevention is defined as prevention activity aimed at people who had either previously presented with – or had been previously diagnosed with – a mental health disorder, but who were not suffering an acute episode at the time (that is, the intervention was not delivered to treat the disorder).

The interventions had to target adults (aged over 16) either from the general population or those deemed to be predisposed to mental health disorders, such as:

- people who had recently undergone a significant life event (for example, bereavement, job loss or divorce); or been exposed to significant traumatic events
- people who were at a particularly vulnerable point in their life (for example, older age groups)
- people who exhibited at risk behaviour (eg those with a history of substance misuse or a history of eating disorders)
- people who had a family history of mental illness
- carers of people with a significant clinical illness.

All non-pharmacological interventions were included,

regardless of whether or not they were routinely made available by the NHS, such as:

- psychological interventions (for example, behaviour therapy, cognitive behaviour therapy, counselling, interpersonal psychotherapy and psychodynamic psychotherapy)
- social interventions (for example, home visiting, voluntary support groups and self-help groups)
- self-care interventions (such as diet and exercise)
- rehabilitation interventions (for example, pre-vocational or psycho-educational training).

Interventions had to aim to promote positive mental health or prevent mental health disorders, and outcomes could include, but were not limited to:

- impact on carer/family functioning
- compliance with non-drug treatments
- death (any cause and sudden unexpected death or suicide)
- hospital admission
- mental state:
 - criterion-based improvement (as defined in individual studies)
 - continuous measures of mental state
- occupational status and functioning
- patient satisfaction
- psychological wellbeing:
 - criterion-based improvement (as defined in individual studies) with respect to general psychological wellbeing (such as self-esteem or distress). This would include depression and anxiety scores
 - continuous measures of psychological wellbeing
- quality of life
- relapse (as defined in the individual studies)
- social functioning
- any other unexpected or unwanted effect
- cost effectiveness.

Exclusion criteria

Abstracts and papers were excluded if they:

- were reviews of reviews
- reviewed evidence of the causal links between predisposing risk factors for mental health disorders or the links between protective or health promoting factors and positive mental health, rather than reviewing interventions seeking to modify these factors.

Abstracts and papers were excluded if the intervention:

- involved pharmacological or surgical treatments (either alone or in combination with non-pharmacological interventions)
- involved the treatment of a mental health disorder
- was delivered to people aged under 16
- focused on the prevention of suicide, alcohol misuse and hazardous drinking and drugs misuse as these are covered by previous HDA reviews (Canning et al. 2004; Crowley et al. 2004; Mulvihill et al. 2005)
- had the primary outcome of prevention of generalised anxiety disorder (with or without depression) including post-traumatic stress disorder, self-harm and major depressive disorders, including post-natal depression, as these were either proposed for a future HDA evidence briefing and/or were currently being undertaken by NICE (National Institute for Clinical Excellence 2004a/b/c 2005).

Abstracts and papers were also excluded if they involved people with:

- substance-related disorders (for example, alcohol induced psychotic disorder, caffeine induced anxiety disorder)
- significant learning, developmental or behavioural disorders (for example, autistic disorder, attention deficit and disruptive behaviour disorders)
- significant clinical co-morbidities, including physical disabilities and physical illnesses (for example, cancer, stroke, HIV, dementia or other neurological disorders).

It is recognised that people in these groups have particular mental health needs and the effectiveness of mental health promotion interventions aimed at these groups is worthy of a separate review.

Critical appraisal process

The critical appraisal process identified the extent to which papers addressed the briefing's research question and met its inclusion criteria, using the following rules:

- systematic approach
- transparency – is the review clear about the processes involved?
- quality – are the appropriate methods and analyses undertaken?
- relevance – is the review relevant to the UK?

A two-stage critical appraisal form (see Appendix 2) was used to guide reviewers in their identification of relevant papers. If a paper passed the initial inclusion criteria (stage 1 – transparency and use of systematic review methodology) then the reviewer assessed the quality and relevance of the review paper's findings. Only those papers passing both stages of the critical appraisal process were accepted for inclusion in the briefing. It was decided that, given the subject of this briefing, it would be appropriate to accept reviews that included non-UK studies.

A total of 158 of the 166 requested papers were retrieved within the timeframe allocated for this briefing. The eight papers that did not arrive in time are listed in Appendix 3. All retrieved papers were critically appraised independently by two reviewers. There was no blinding of authorship of critically appraised papers. The critical appraisal form (see Appendix 2) was completed by each reviewer and a joint decision was made about:

- accepting the paper for the 'Findings' section
- using the paper to inform the 'Introduction' section
- discarding it altogether.

Disagreements were resolved through discussion or, if necessary, by recourse to a third reviewer.

Presentation of findings

The critical appraisal process identified 20 papers for inclusion in the 'Findings' section (138 papers were rejected). A summary of the critical appraisal findings for papers that were rejected are shown in Appendix 4.

All accepted papers (now referred to as Evidence Base papers) were compared and core themes identified. A narrative synthesis was produced and papers grouped by the identified themes. Details of the target population, intervention, outcomes and the measures used to determine the outcomes (for example, self-report) and any supporting statistical results are provided, where possible, using the authors' own words. Where a review paper was found to only partially meet inclusion criteria (eg reviewed interventions delivered to both children and adults), only data meeting this briefing's inclusion criteria were extracted. Given resource constraints, review authors were not contacted for additional study details or data, although a small number were contacted to help

clarify if a review should be included (eg Stice and Shaw 2004, p62).

Key findings from the Evidence Base papers are presented in the 'Findings' section (p22) under the following headings.

Settings

- Primary care, workplace

Population groups

- All adults, older adults (aged over 55), carers and helpers (professional carers, family carers, parenting, volunteers), minority ethnic populations, disadvantaged groups

Life events and transitions

- Coping with negative life changes, bereavement, divorce and separation, organisational change, re-housing

Topics

- Mass media, physical activity, eating disorders, pathological gambling, marital distress

Cost effectiveness

- Mental health promotion, caring for carers, counselling in primary care, family interventions for schizophrenia

In summarising the findings of the Evidence Base papers, a series of succinct evidence statements were derived. It should be stressed that the evidence statements are not those of the review authors but are based on our interpretation of their review findings and have been referenced accordingly. A summary table of the evidence statements categorised by theme is presented at the end of the 'Discussion' section.

Each evidence statement categorises the evidence as follows.

- **Evidence of effectiveness:** derived from the review-level literature where the interpretation and/or conclusions of primary studies (> 1 controlled trial) presented in the review/s consistently indicate that an intervention is effective.

- **Evidence of ineffectiveness:** derived from the review-level literature where the interpretation and/or conclusions of primary studies (> 1 controlled trial) presented in the review/s consistently indicates an intervention is ineffective.
- **Conflicting evidence:** derived from the review-level literature where the conclusions of the review papers and/or interpretation of the primary studies within review paper/s were not consistent.
- **Insufficient evidence of effectiveness:** derived from the review-level literature where there is currently insufficient evidence from primary studies to confirm effectiveness or ineffectiveness of an intervention. The review/s may have identified evidence of effectiveness from only one primary study. Further investigation in good quality controlled trials is required.

Each evidence statement indicates the country of origin where possible. However, if a review draws together findings of primary studies from a number of countries (for example, as in a meta-analysis) or if the country of origin is not clear from the review, then country of origin is not included in the evidence statement.

If more than one review-level paper addresses a single core theme, the primary studies included within each review are identified and compared. If the same primary study is then present in more than one review, review findings are checked for consistency and evidence statements are modified so that the intervention effect is not unduly inflated.

A key remit of this briefing is to scrutinise the reviews for details on the effect on inequalities in health and on the cost effectiveness of the interventions. Where this information is available, it is described under the relevant headings and is also reflected in the evidence statements. A number of gaps in the review-level evidence and associated research recommendations were also identified and these are summarised in the section 'Gaps in the evidence base and recommendations for research'.

Peer review

A first draft of this briefing was sent to three peer reviewers and circulated to the members of the Mental Health Reference Group in September 2005 for comment. A number of changes were made in light of the feedback received.

Evidence Base papers

The following 20 review-level papers passed the critical appraisal process and are included in the Evidence Base, The full public health Evidence Base can be viewed at: www.nice.org.uk

Barbato A, D'Avanzo B (2000) Family interventions in schizophrenia and related disorders: a critical review of clinical trials. *Acta Psychiatrica Scandinavica* 102 (2):81–97.

Barlow J, Coren E, Stewart-Brown SSB (2003) Parent-training programmes for improving maternal psychosocial health. *The Cochrane Database of Systematic Reviews*, 2003 Issue 4.

Biddle S (2000) Emotion, mood and physical activity. In: Biddle S, Fox K, Boutcher S, editors. *Physical activity and psychological well-being*. London: Routledge.

Bower P, Garralda E, Kramer T et al. (2001) The treatment of child and adolescent mental health problems in primary care: a systematic review. *Family Practitioner* 18 (4):373–82.

Bower P, Rowland N, Mellor Clark J et al. (2002) Effectiveness and cost effectiveness of counselling in primary care. *The Cochrane Database of Systematic Reviews*, 2002 Issue 1.

Bower P, Rowland N, Hardy R (2003) The clinical effectiveness of counselling in primary care: a systematic review and meta-analysis. *Psychological Medicine* 33:203–15.

Cuijpers P (1999) The effects of family interventions on relatives' burden: a meta-analysis. *Journal of Mental Health* 8 (3):275–85.

Fox K (2000) The effects of exercise on self-perceptions and self-esteem. In: Biddle S, Fox K, Boutcher S, editors. *Physical activity and psychological well-being*. London: Routledge.

Jepson R, Di Blasi Z, Ter Riet G (2001) *Scoping review of the effectiveness of mental health services*. York: Centre for Reviews and Dissemination.

McAuley E, Rudolph D (1995) Physical activity, aging and psychological well-being. *Journal of Aging and Physical Activity* 3:67–96.

Michie S, Williams S (2003) Reducing work-related psychological ill health and sickness absence: a systematic literature review. *Occupational and Environmental Medicine* 60:3–9.

Papworth MA, Milne DL (2001) Qualitative systematic review: an example from primary prevention in adult mental health. *Journal of Community and Applied Social Psychology* 11 (3):193–210.

- Petry NM, Armentano C (1999) Prevalence, assessment, and treatment of pathological gambling: a review. *Psychiatric Services* 50 (8):1021–7.
- Pharoah FM, Rathbone JM, Mari JJ et al. (2003) Family intervention for schizophrenia. *The Cochrane Database of Systematic Reviews*, 2003 Issue 3.
- Pinquart M, Sorensen S (2001) How effective are psychotherapeutic and other psychosocial interventions with older adults? *Journal of Mental Health and Aging* 7 (2):207–43.
- Stice E, Shaw H (2004) Eating disorder prevention programs: a meta-analytic review. *Psychological Bulletin* 130 (2):206–27.
- Tilford S, Delaney F, Vogels M (1997) *Effectiveness of mental health promotion interventions: a review*. London: Health Education Authority.
- van der Klink JJJ, Blank RWB, Schene AH et al. (2001) The benefits of interventions for work-related stress. *American Journal of Public Health* 91 (2):270–76.
- van Haastregt JCM, Diederika JPM, van Rossum E et al. (2000) Effects of preventive home visits to elderly people living in the community: systematic review. *British Medical Journal* 320:754–8.
- Wheeler J, Gorey K, Greenblatt B (1998) The beneficial effects of volunteering for older volunteers and the people they serve: a meta-analysis. *International Journal of Aging and Human Development* 47 (1):69–79.

Findings

SETTINGS

Five Evidence Base papers were identified that address mental health promotion in particular settings (Bower et al. 2002, 2003; Michie and Williams 2003; Papworth and Milne 2001; van de Klink et al. 2001).

The following settings are covered in this section: primary care; workplace.

Primary care

Effectiveness and cost effectiveness of counselling in primary care (Bower et al. 2002); The clinical effectiveness of counselling in primary care: a systematic review and meta-analysis (Bower et al. 2003)

These two systematic reviews use similar search strategies and inclusion criteria. The later review assessed the clinical effectiveness of counselling in primary care to manage common mental disorders. The earlier review included an assessment of the cost effectiveness of such interventions (these findings are presented in the cost-effectiveness section (see p79).

To be included in these reviews, primary studies had to be controlled trials that compared counselling in primary care with other treatments (such as GP care, cognitive behaviour therapy and anti-depressant medication) for people presenting with broad psychological and psychosocial problems considered suitable for counselling.

The review authors note that as counselling interventions in primary care can be delivered by a range of professionals (for example, counsellors, community psychiatric nurses, practice nurses, social workers, clinical psychologists, health visitors and GPs), interventions delivered by a range of professional practitioners were considered eligible for inclusion. However, while professional background was not considered critical for the review, counselling training was

essential. Trials were only included if they involved practitioners trained to British Association of Counselling Practitioners (BACP) accreditation levels (or equivalent), and if they were compatible with the BACP definition of counselling. (BACP's definition is a broad person-centred approach that involves reflective listening (not advising) to enable the client to resolve their own difficulties.)

Both reviews identified the same seven UK trials, reported in 12 publications. Five studies used a randomised controlled design and two a controlled patient preference design (where patients with a strong preference for a particular treatment are not randomised) in addition to the main randomised comparison.*

The methodological quality of each trial was assessed using an adapted Cochrane Collaboration Depression, Anxiety and Neurosis (CCDAN) quality rating scale (QRS). The QRS comprises questions on 23 aspects, including sample size, allocation, use of diagnostic criteria, compliance, attrition and statistical analysis. The review authors excluded items on blinding of subjects (which is not possible in counselling interventions) and assessors (all these primary studies used self-reported outcome measures which made blinding of assessors less applicable). Each study received a quality score of between 0–40 for the revised scale with the seven studies scoring an average of 31 (range 23–37).

* Allocation by patient preference circumvents the ethical problems of true randomisation to avoid patients being allocated treatments they would not normally accept.

The types of patient included in the trials varied, although they were predominantly described as having emotional problems resulting from stress, anxiety, relationship or family problems, bereavement, sexual difficulties, distress, employment and financial problems. Three trials restricted entry to patients with mild to moderate depression (two trials required a minimum score on the Beck Depression Inventory of ≥ 14). Findings related to the treatment of existing mental health disorders, such as depression, are outside the remit of this evidence briefing and are not presented here.

All trials described face-to-face counselling as opposed to, for example, telephone or computer-assisted counselling. Although different therapeutic models were used (for example, non-directive, psychodynamic and cognitive behavioural counselling), the interventions were otherwise homogeneous ($p > 0.05$ in tests of heterogeneity). All trials compared the intervention with 'usual GP care', which is described in various ways. The review authors note that although the absence of a no-treatment group makes it difficult to assess how many patients would have improved spontaneously over time, a no-treatment group in primary care would be ethically inappropriate.

The four trials of relevance to this briefing reported on short-term (1–6 month) mental health outcomes. Although all four trials found that patients who received counselling had lower psychological symptom scores in the short term than patients receiving 'usual GP care', only two reported statistically significant differences between the two groups.

- Trial 1: (n = 108) weighted mean difference -4.35 , 95% CI -7.56 to -1.14 .
- Trial 2: (n = 110) weighted mean difference -3.90 , 95% CI -7.39 to -0.41 .

Two trials also reported on longer term (> 6 months) mental health outcomes and found conflicting results.

- In one trial, patients receiving counselling had significantly improved psychological symptom scores compared with patients receiving the usual care after 9 months: (n = 117) weighted mean difference -3.80 , 95% CI -7.33 to -0.27 .
- The second trial found no significant difference in psychological symptom scores between the two groups after 8 months: (n = 100) weighted mean difference 0.00 , 95% CI -0.36 to 0.36 .

One trial also reported on social function outcomes (not further described). It found no significant difference between patients who had received counselling and those who received usual GP care in either the short or long term.

- Short term (n = 110) standardised mean difference -0.18 , 95% CI -0.56 to 0.19 .
- Long term (n = 117) standardised mean difference -0.40 , 95% CI -0.76 to -0.03 .

Three trials also reported on patient satisfaction outcomes. Two found that patients were generally highly satisfied with counselling, but no comparison was made with patients receiving 'usual GP care'. One trial used a multi-item questionnaire to compare patient satisfaction with counselling and 'usual care'. It found higher levels of satisfaction in the counselling group at both short- and long-term follow-up. The review authors note, however, that satisfaction measures are open to social approbation errors (that is, a desire to please the therapist or to appear as a polite and courteous person). The increased satisfaction observed with counselling as compared with usual GP care may also reflect the additional time spent with counselling professionals.

EVIDENCE STATEMENTS – PRIMARY CARE

There is review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems is associated with modest improvements in psychological symptoms in the short term (1–6 months), compared with usual GP care (Bower et al. 2002, 2003).

There is review-level evidence from the UK that people presenting with broad psychological and psychosocial problems are highly satisfied with counselling interventions delivered in primary care (Bower et al. 2002, 2003).

There is conflicting review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems is associated with modest improvements in psychological symptoms in the longer term (> 6 months), compared with usual GP care (Bower et al. 2002, 2003).

There is insufficient review-level evidence to demonstrate that counselling in primary care for people presenting with broad psychological and psychosocial problems can improve social function compared with usual GP care (Bower et al. 2002, 2003). The reviews identified one study from the UK that found no effect of intervention on either short- or long-term social function outcomes; further investigation in high-quality trials is warranted.

Workplace

Reducing work related psychological ill health and sickness absence: a systematic literature review (Michie and Williams 2003)

The aims of this paper were to:

- review the association between work factors and psychological ill health among healthcare staff
- review successful interventions that prevent or reduce psychological ill health and sickness absence.

The findings relating to the association between work factors and psychological ill health are outside the remit of this evidence briefing (see inclusion/exclusion criteria, p16–17) and are not presented here.

Six studies met the author's inclusion criteria. Three were conducted in the USA, one in the UK and two in Scandinavia. Three studies reported on anxiety and depression outcomes, and so are outside the remit of this evidence briefing.

Of the remaining three studies, the first was an RCT from Sweden involving 26 geriatric hospital ward workers during a period of organisational change. The intervention group received support, advice and feedback from a psychologist, while the control group received the 'passive presence' (not further defined) of the same psychologists at staff meetings. Workers in the intervention group were taught stress management skills and how to participate in – and control – their work. The intervention was delivered for 1 hour every fortnight for a 10 week period pre- and post-organisational change.

- A significant decrease in stress hormone levels was found in the intervention group compared with the

control group (–0.58 with intervention vs 1.85 in the control group; $F = 7.3$, $p < 0.01$).

The second, an observational study from the UK with 604 long term sick local government workers, involved an early referral to occupational health services. Referral was triggered after 2 or 3 months sickness absence – rather than the usual 6 months for such action to be triggered.

- Average sickness absence reduced from 40 weeks in the control period to 25 weeks in the intervention period, and from 72 to 53 weeks for those staff who then left employment for medical reasons.

Michie and Williams (2003) comment that the authors of this study also reported large financial savings, although no further details were provided.

The third, a study carried out in the USA, described a matched controlled trial with 65 psychiatric hospital workers. Eight 1 hour, weekly group sessions involving information, videos, modelling and role play were delivered to groups of six to eight people for a period of 4 weeks.

- The amount of sick leave taken (hours) by the intervention group went down 6 months after the intervention (–28.2% change) – compared to 6 months before. A –6.4% change was found in the control group.

The authors note that no statistical tests were reported.

Michie and Williams (2003) conclude that interventions that aim to change the workplace factors affecting people's mental health (such as long hours, workload, pressure, lack of control over work and poor support from managers) can help reduce psychological problems.

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

This qualitative review sought to assess primary prevention efforts in relation to adult mental health. Only primary studies aiming to prevent mental health problems and delivered to more than one adult at a time were included. The methodological quality of each study was appraised according to a number of factors (for example,

presence of a comparison group, pre-treatment assessment, randomisation, length of follow-up and reliance on self-reported outcomes).

A total of 17 primary studies were identified, none of which were from the UK. Thirteen of the studies included a comparison condition. The review authors report that all but one study contained threats to validity; the most common were a reliance on self-reported data (n = 13 studies) and a lack of follow-up assessment (n = 9). Two particularly poor quality studies were excluded from further consideration. One further study, which described an indicated intervention delivered to mothers deemed at particular risk of developing postnatal depression, is not presented here (see inclusion/exclusion criteria p16–17).

Of the 14 remaining studies, two described universal primary prevention strategies directed at a representative sample of the general population (see 'All adults' in the population groups section, p28. The majority (n = 12) described selective primary prevention strategies (directed at relatively large subgroups of people who were at a higher risk of becoming unwell):

- one study described a workplace intervention (see below)
- three described interventions for people experiencing significant or negative life events (see section on exposure to traumatic life events p52)
- eight studies addressed particular population subgroups including: older adults (four), carers and helpers (four) minority ethnic groups (two) and disadvantaged groups (one) – see population section, p28.

The review authors identified one Canadian study that assessed a workplace intervention to reduce stress. This study did not appear in the Michie and Williams (2003) review. This 11 week group stress management programme comprised either cognitive behaviour therapy or aerobic exercise training for male business managers and supervisors. There were no sustained improvements, in terms of coping with stress or general wellbeing as a result of either approach, compared with an information only, placebo control. The review authors note, however, that the intervention was delivered to a group of participants who, prior to the intervention, reported experiencing significantly less stress than an average sample.

The benefits of interventions for work-related stress (van der Klink et al. 2001)

This systematic review sought to determine the effectiveness of interventions aimed at reducing occupational stress, and to identify the population groups that could benefit most. Additional analyses were conducted to determine the predictive influence of a baseline stress level and occupational status on intervention effectiveness.

To be included, primary studies had to be controlled trials of interventions designed to prevent or reduce 'psychologic' complaints related to occupational stress. Studies were not formally graded according to methodological quality or rigour. However, studies were only included in the review if:

- participants in both the experimental and control groups had been recruited from identical working populations and were balanced at baseline in terms of dependent variables
- outcome variables were well defined and of sufficient reliability (not further defined).

A total of 48 experimental studies, conducted between 1977 and 1996, were included in the analysis (none were identified in Michie and Williams 2003 or Papworth and Milne 2001).

Although tests of heterogeneity were not reported, variation between studies was apparent in terms of intervention characteristics (described above), drop-out rates and population characteristics. Results were combined in a meta-analysis. However, the authors comment that because studies with large numbers of outcome measures can disproportionately affect meta-analytic results, 'intercorrelation' of outcome measures was allowed for and outcomes were pooled into five broad categories:

- quality of work life (including job demands, pressure, control, working conditions and so on)
- psychological resources and responses (including self-esteem, mastery, beliefs and coping skills)
- physiological response (including tension, electro-myographic activity, adrenaline and cholesterol levels)
- complaints (including burnout rates, somatic symptoms, mental health status)
- absenteeism.

The reviewers identified four intervention types:

- cognitive behavioural (aimed at changing cognitions and reinforcing active coping skills) – 18 studies
- relaxation techniques (focusing on mental and physical relaxation as a means of coping with stress) – 17 studies
- multi-modal programmes (which emphasise the acquisition of passive and active coping skills for dealing with stress) – eight studies
- organisation-focused approaches (which seek to deal with the organisational causes of stress) – five studies.

Results

- A combined analysis of overall effect sizes across all 48 studies found that stress-reducing interventions had a small but significant effect compared with the control ($n = 3736$; Cohen's $d = 0.34$, 95% CI 0.27 to 0.41).
- Closer examination of the data revealed that 17 studies yielded a significant overall effect in favour of the intervention. Of these, two studies (both focused on relaxation techniques) revealed a small effect of intervention ($d < 0.5$), four (one organisation focused, two relaxation and one multi-modal) revealed a medium effect ($0.5 < d < 0.8$), and 11 (eight cognitive behavioural, one relaxation and two multi-modal) revealed a large effect ($d > 0.8$).

In the remaining 31 studies, although overall effects were non-significant there were a number of specific outcomes that did improve significantly as a result of the intervention (not further discussed).

Subgroup analysis, according to the type of intervention (described above), revealed that:

- stress-reducing interventions focused on individuals were significantly more effective than a control ($d = 0.44$; 95% CI 0.36 to 0.52), although the effect was heterogeneous
- interventions aimed at individuals (both combined and separate) were significantly more effective than those aimed at organisations ($p < 0.05$)
- cognitive behavioural interventions were significantly more effective than relaxation techniques ($p < 0.005$). (Cognitive behavioural interventions also yielded heterogeneous effects, indicating variation in levels of effectiveness across studies)

- there was no significant difference in effect between cognitive behavioural and multi-modal interventions ($p = 0.06$)
- there was no significant difference in effect between relaxation and multi-modal interventions.

Effect sizes were also calculated for the five categories of outcomes measures described above – either across all intervention types or across interventions focused on individuals.

- Across all intervention types, the effect sizes found for quality of work, 'psychologic' responses and resources, physiology, complaints and absenteeism were: 0.17, 0.28, 0.30, 0.27 and -0.03 respectively. The corresponding effect sizes for interventions focused on individuals were: 0.41, 0.48, 0.30, 0.42 and -0.12 . With the exception of absenteeism, all effect sizes were significant at $p < 0.05$.

Analysis by outcome category and intervention type revealed that interventions involving a cognitive behavioural approach appeared to be most effective in reducing employees' stress. However, the authors note that results were heterogeneous (p value not stated) for two outcome categories – psychological resources and responses, and stress-related complaints. They also note that psychophysiological outcomes, by their nature, were only assessed in studies that focused on individuals. Of these, relaxation techniques and multi-modal interventions appeared to reduce psychophysiological stress.

- Exploratory analysis of the effect of different intervention characteristics revealed that the duration of the intervention, length of individual sessions or frequency of sessions had no significant predictive influence on overall effect size. However, for cognitive behavioural interventions there appeared to be an inverse relationship between number of sessions and effect size ($r = -0.27$, $p > 0.05$). This indicated that shorter programmes were more effective.
- Furthermore, as organisation-based programmes were significantly longer than cognitive-behavioural programmes (16.4 vs 6.8 weeks, $p < 0.05$), this may have compounded observed differences in effectiveness between individual and organisational interventions. Larger effect sizes were found for remedial interventions (addressing existing problems) compared with preventive approaches ($n = 4$, $d = 0.59$, $p < 0.1$ vs $n = 44$, $d = 0.32$, $p < 0.001$).

Exploratory analysis of the effect of job type revealed that stress reducing interventions resulted in larger effect sizes for employees with 'high-control' jobs (not further described) compared with 'low control jobs'. However, this finding may have resulted from selection bias, as the majority of cognitive behavioural and multi-modal interventions were delivered to this group of employees. (The only cognitive behavioural study involving employees with low-control jobs found no significant effect on their levels of occupational stress.) For high-control employees, cognitive behavioural interventions were significantly more effective than relaxation techniques ($p < 0.001$) and multi-modal interventions ($p < 0.05$). Only relaxation techniques were used with employees in both job types and effect sizes were not significantly different.

EVIDENCE STATEMENTS – WORKPLACE

There is review-level evidence from the USA and UK to suggest that workplace interventions involving either early referral (triggered after 2–3 months of sickness absence) to occupational health services, or group-based information and role play sessions, can be effective in reducing sickness absence (Michie and Williams 2003).

There is review-level evidence to suggest that, overall, stress-reducing interventions focused either on the individual (such as cognitive behavioural counselling, relaxation techniques and multi-modal programmes) or the organisation can help reduce work-related stress (van der Klink et al. 2001).

There is review-level evidence that interventions aimed at individuals are more effective in improving people's skills for coping with work-related stress and/or reducing overall levels of work-related stress than interventions delivered to organisations (van der Klink et al. 2001).

There is review-level evidence that cognitive behavioural interventions are more effective than relaxation techniques in improving people's skills for coping with work-related stress and/or reducing overall levels of work-related stress. Cognitive behavioural interventions that are shorter in duration and frequency are also more effective than longer programmes (van der Klink et al. 2001).

There is review-level evidence that occupational stress-reducing interventions significantly improve measures relating to quality of work, 'psychologic' responses and resources, and physiological complaints (van der Klink et al. 2001).

There is review-level evidence that remedial interventions (addressing existing problems) are more effective than preventive approaches in reducing levels of work-related stress (van der Klink et al. 2001).

There is review-level evidence that cognitive behavioural interventions are significantly more effective than relaxation techniques and multi-modal interventions for employees with high control jobs (van der Klink et al. 2001).

There is insufficient review-level evidence to demonstrate that support, advice and stress management sessions delivered by a psychologist to hospital ward workers during a period of organisational change are effective in reducing stress hormone levels (Michie and Williams 2003). The review identified one study from Sweden that suggested a positive effect on stress hormone levels. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that cognitive behavioural therapy or aerobic exercise training are effective in reducing levels of occupational stress for male business managers and supervisors (Papworth and Milne 2001). The review identified one study from Canada that found no significant effect of either intervention compared with the control. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that cognitive behavioural interventions are effective in reducing levels of occupational stress for employees with low-control jobs (Van der Klink et al. 2001). The review identified one study that found no significant effect of intervention on levels of occupational stress. Further investigation in high-quality trials is warranted.

POPULATION GROUPS

Nine evidence base papers were identified that addressed mental health promotion in particular population groups (Barbato and D'Avanzo 2000; Barlow et al. 2003; Bower et al. 2001; Cuijpers 1999; Papworth and Milne 2001; Pharoah et al. 2003; Piquart and Sorensen 2001; Tilford et al. 1997; van Haastregt et al. 2000).

The following population groups are covered in this section: all adults, older adults (aged over 55), carers and helpers (professional carers, family carers, parenting, volunteers), minority ethnic populations, disadvantaged groups.

All adults

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24.

Papworth and Milne identified two universal primary prevention studies (by the same authors) that described a cognitive behavioural video intervention delivered to a 'relatively' representative sample of the general adult population.

- The earlier of these two studies (before-and-after design) reported an improvement in self-reported behaviour, but no significant differences in mood.

The later study was an RCT of a cognitive behavioural video intervention delivered to regular health clinic attendees who agreed to attend group sessions.

- The study reported an improvement that was 'close to significant' on one measure of symptomatology at 1 year follow-up, in addition to changes in a cognitive 'mediating' factor (not further defined).

However, the review authors note that the prevention strategy (delivered to 'well' individuals) was initially developed as a treatment option for people who were ill. While the study authors suggest that a treatment intervention could help prevent the development of clinical problems, they failed to include this sort of analysis in their follow-up assessment. The study did, however, monitor mediating variables (not further defined), which the review authors conclude would be an important and relevant focus for outcome measurement.

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

This review sought to address all aspects of practice in mental health promotion, assessing available research on the effectiveness of a full range of interventions and identifying those interventions most likely to have an impact. The review was guided by an initial consultation with purchasers of mental health promotion initiatives, and potential users of the review findings. It covered general mental health promotion in all settings and with all populations, with the following exclusions:

- psychiatric inpatients
- patients in secondary treatment settings or with major psychiatric disorders
- mental health problems related to alcohol or substance misuse
- post-referral interventions
- interventions related to the psychological sequelae of physiological disease or hospitalisation
- workplace settings
- interventions where mental health promotion was not a primary outcome.

Analysis and discussion focused on the effectiveness of interventions to prevent mental illness or its causes and promote mental health, the effectiveness of interventions aimed at single or multiple factors, the effectiveness of broad life-skills interventions, and a comparison between broad, development-type interventions and specific preventive initiatives. Literature searches were carried out from 1980–1995 and hand-searching and grey literature provided further evidence. After critical appraisal, 72 studies were included in the review.

Findings and conclusions were categorised according to the life-stage of the population group under study.

Because of the review's broad focus, a number of areas and conclusions are relevant to this evidence briefing:

- one study described an intervention for all adults (see below)
- a further seven studies focused on older adults (see p31)
- 12 studies were on family carers (see p38)
- six studies were on parenting (see p46)
- one study were on minority ethnic groups (see p51).

Tilford et al. also identified 12 studies on life events and transitions (bereavement, p52; divorce and separation, p53; re-housing p54) and six topic-specific studies (mass media, p56; physical activity, p60; preventing marital distress, p65).

The review authors identified one study describing a community-based general health promotion programme for adults from New Zealand that focused on three moderators of optimal health: coping skills, social support and social and health skills. This study did not appear in review by Papworth and Milne (2001).

Participants set themselves targets to make three personal lifestyle changes and also took part in sessions on healthy eating, exercise and relaxation and stress management skills. The evaluation compared an information-based approach to delivering the programme with a behavioural approach. Participants were randomised to either intervention group (information approach, n = 59, vs behavioural approach, n = 49) and the results were compared with a non-randomised controlled group (n defined as 'not clear' by Tilford et al.). A variety of outcomes were assessed; however, only those relevant to this evidence briefing are presented below.

- Positive changes were reported for both approaches, compared to the control, in relation to stress management/coping, wellbeing and happiness (not described further).
- The behavioural approach led to changes that were twice as large and significant (0.05% level) for physical health, symptoms and happiness.
- Furthermore, the behavioural group was significantly (not defined) better over a 6 week period in terms of physical health, mental health, happiness and stress management.
- Significant changes (not defined) in the way the information group participants managed stress and physical health were also reported.

Tilford et al. note that no long-term follow-up was reported. They conclude that this study provides evidence that community-wide interventions can improve mental health.

EVIDENCE STATEMENTS – ALL ADULTS

There is insufficient review-level evidence that universal primary prevention programmes (delivered to a representative sample of the general adult population) comprising a cognitive behavioural approach can improve mental health and behavioural outcomes (Papworth and Milne 2001). The review identified a cognitive behavioural video intervention that suggested some positive effects of an intervention; further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to suggest that a community-wide health promotion programme which adopts an information or behavioural-based approach can improve measures of stress management/coping, wellbeing and happiness for adults (Tilford et al. 1997). The review identified one primary study from New Zealand that suggested a positive intervention effect; further investigation in high-quality trials is warranted.

Older adults (aged over 55)

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, one targeted older adults.

The study was a before-and-after trial from the USA that aimed to provide additional support for isolated older adults through a training programme in which older people were trained as community workers to support other older residents. The study authors reported improvements in self-rated life satisfaction scores and community knowledge. However, Papworth and Milne note a number of methodological limitations with this study, such as lack of a comparison group and lack of follow-up, which may limit the reliability of the findings.

How effective are psychotherapeutic and other psychosocial interventions with older adults? A meta-analysis (Pinquart and Sorensen 2001)

This systematic review had three research aims:

- to examine and quantify the effects of psychosocial and psychotherapeutic interventions in older adults (median age ≥ 55)
- to assess the influence of moderator variables such as mode of delivery (that is, group vs individual sessions), delivery setting (that is, community dwelling vs nursing home), intensity and duration of intervention, timing of outcome measurement, and quality of intervention
- to examine whether the effectiveness of psychosocial and psychotherapeutic interventions varies according to the age of the participants.

A total of 122 primary studies that compared an intervention group with an untreated control group were identified from a comprehensive literature search. Studies were published in English, French or German and none of these studies were included in the review by Papworth and Milne (2001). The following interventions were evaluated in older adults:

- cognitive behavioural therapy
- reminiscence
- psychodynamic approaches
- relaxation
- supportive interventions
- control enhancement
- psycho-educational treatments
- activity treatments
- training in cognitive skills.

Of the 122 primary studies identified, 57 reported on effects for self-rated depression, 12 on clinician-rated depression and 84 on other self-rated measures of subjective wellbeing (for example, life-satisfaction, morale, self-esteem). Outcomes relating to the prevention of depression are outside the remit of this evidence briefing and are not presented here.

Meta-analyses were used to generate mean effect sizes by calculating, for each study, the difference in the post-treatment measure between the experimental and control groups, and dividing by the pooled standard deviation of both groups. The effect size estimates were adjusted for

differences in pre-test measures between experimental and control groups.

- Across all studies ($n = 3718$ participants), psychosocial and psychotherapeutic interventions in older adults significantly improved measures of self-reported psychological wellbeing (mean effect size = 0.45, 95% CI 0.40 to 0.50; $t = 19.53$; $p < 0.001$).
- In comparing the efficacy of interventions it was found that both control-enhancing interventions and cognitive behavioural therapy had an above average impact on self-reported measures of psychological wellbeing compared with reminiscence, miscellaneous therapies, supportive interventions, psycho-educational interventions, activity promotion and cognitive training. Furthermore, relaxation had greater impact than supportive treatments, psycho-educational interventions, activity promotion and cognitive training.

The review authors suggest that the high efficacy of cognitive behavioural therapy may stem from the considerable effort invested in adapting this approach for older adults. In addition, its techniques focus on patients' actual problems, clarifying factors that cause or maintain psychological symptoms, developing their coping skills and giving them access to resources – all of which have been described as basic mechanisms of change in psychotherapy.

Multiple linear regression analyses were then used to investigate the effect of different moderator variables on the efficacy of interventions.

- Individual interventions were associated with significantly greater improvements in self-reported measures of psychological wellbeing compared with group interventions (mean effect size: 0.55 with individual condition vs 0.42 with group conditions; p value not stated).
- Interventions with residents of nursing homes were associated with significantly greater improvements in measures of self-reported psychological wellbeing compared with interventions in the community (mean effect size: 0.58 with nursing home residents vs 0.40 with community-dwelling adults; p value not stated).

The therapist's professional qualifications also had an influence on self-reported measures of psychological wellbeing.

- Therapists with advanced degrees and either professional experience or special geriatric experience were found to be more effective than those with advanced degrees but no special geriatric training, or those who did not have an advanced degree (mean effect size: 0.69 with professional degree plus geriatric experience vs 0.39 with professional degrees alone vs 0.37 with no professional degree; p value not stated).

Finally, analyses of the influence of participants' age revealed no significant correlation with any change in self-reported measures of psychological wellbeing ($r = -0.05$, $k = 147$).

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The review authors included three studies that assessed the impact of interventions applicable to all older adults, and four that focused on at-risk or vulnerable older adults.

Of the older adult population interventions, two examined the impact of an employment-related approach on measures of mental health and wellbeing, and one assessed the benefits of physical activity for older adults. However, only two (one employment and one physical activity intervention) reported on mental health outcomes relevant to this evidence briefing. The employment study is reported below, while the physical activity study is reported in the physical activity section – p57.

The employment study, based in the USA, was a non-randomised matched concurrent control design and targeted older job seekers (55–70 year olds) with a subsidised employment programme. This study does not appear in the reviews by Papworth and Milne (2001) or Pinquart and Sorensen (2001). The aim was to increase their job seeking, communication, relationship and problem-solving skills.

- Some impact was observed between the pre- and post-test for the intervention group ($p = 0.003$) and between the intervention and control groups ($p = 0.003$) on job-seeking behaviour and motivation, following 15 sessions.
- There was no significant impact on psychological outcomes such as anomie and powerlessness.

However, the sample size was small (11 intervention group members, 11 controls).

Of the four interventions with at-risk or vulnerable older adults, one focused on day centre attendees who displayed early evidence of decline in overall functioning, and three targeted widows and widowers. However, the day centre study involved participants who were depressed or suffering from dementia, neither of which fall within the scope of this briefing and therefore is not reported here. Of the remaining three studies one appeared in Pinquart and Sorensen (2001) and none appeared in Papworth and Milne (2001).

A variety of outcomes were reported in the three studies targeting widows and widowers. However, only those relevant to this briefing are described here. One Canadian RCT used a 'buddying' intervention that paired 68 widows with other recently widowed people, compared with 94 controls who received no intervention. The buddies provided one-to-one emotional support and practical assistance in locating community resources and small group meetings were also made available.

- At 6 and 12 month follow-ups, those who received a buddy were significantly more likely to perceive their health as better than average and more likely to feel better than at the time of their husband's death (significance not stated).
- Those in the intervention also anticipated less difficulty in adjusting to widowhood ($p < 0.01$) at 6 month follow-up.
- At 12 months, participants were also significantly more likely to have engaged in new activities and made new friends (significance not defined).
- At 2 year follow-up, substantially more women in the intervention group showed a drop in General Health Questionnaire (GHQ) scores from the high to the low distress range.

Attrition rates were observed and it is noted that this may bias the results.

The second study, a before-and-after non-randomised controlled trial, reported the effects of a national (country not specified) self-help network for widowed people ($n = 394$) compared with controls ($n = 108$). The intervention group attended monthly, self-help group meetings with educational, social and supportive elements. The review authors report that this study

contained little information about the intervention itself, and was methodologically weak, since the intervention group was self-selected, although this was taken into consideration in the analysis.

- At 1 year follow-up the study found positive changes among those who actively participated in the groups, with improved mental health status reported by the intervention groups compared with the controls.
- Those who made social links with others in the group also felt increased wellbeing and self-esteem compared with members who only attended the meetings ($p < 0.05$).

The third study, an RCT based in the USA, involved a support group for widows ($n = 42$) of frail older veterans that was compared with a control group ($n = 47$). The intervention comprised eight weekly support group meetings offering support, education, discussion, problem solving and stress reduction. No intervention was delivered to the control group; however, requests for help and information were referred to an appropriate agency. Post-test results were collected within 2 weeks of receiving the intervention.

- The results suggested there were some short-term benefits from participation in terms of relieving people's subjective burdens (the severity of pressing problems and stress) for the intervention group ($p = 0.002$).
- The intervention group also reported higher satisfaction with their 'service' than the control group ($p < 0.01$).
- There were also positive reports from the controls, suggesting that a brief minimal intervention by telephone and practical advice may have potential for those unable to attend groups.

Tilford et al. (1997) summarise their findings for older adults (over-65) as follows.

- Only a small number of studies dealt explicitly with older people.
- Some older people would prefer to access interventions designed for the general adult population and are reluctant to accept labelling associated with separate provision. However, in some cases – when working with the very old, or in care settings – separate provision may be beneficial or necessary.
- Intervening at key life transitions – death of a partner, for example – may be beneficial.

Effects of preventive home visits to elderly people living in the community: systematic review (van Haastregt et al. 2000)

This systematic review investigated whether home visiting improved the health of people aged 65 and over living in the community. Literature was searched from 1966–1999, and 15 RCTs meeting the authors' inclusion criteria were identified.

Six of the 15 trials focused on populations aged 75 or over; the remainder covered the over-65s. One trial focused on a population at specific risk of falling, the remainder targeted a range of health, social and mental health outcomes. In nine trials, the interventions lasted more than 2 years and in seven trials the intervention consisted of at least two visits a year. In nine trials, the intervention was specially tailored to the needs and contexts of participants.

A total of 94 outcome measures were investigated by the 15 trials, grouped into five categories: psychosocial functioning, physical function, falls, admission to institutions, and mortality. Only psychosocial functioning meets the inclusion criteria for this evidence briefing and the relevant details are reported below.

Eight trials assessing psychosocial functioning were identified. None of them appeared in the reviews by Papworth and Milne (2001), Pinguart and Sorensen (2001) and Tilford et al. (1997). The studies carried out:

- standardised assessments of loneliness, happiness, health locus of control, social readjustment, life satisfaction, quality of life, anxiety and depression
- other assessments of attitude to own ageing, isolation, emotional reaction, agitation and social contacts.

Outcomes related to anxiety and depression are outside the remit of this briefing.

- Only one of the eight trials reported that the intervention had a 'favourable' effect. This UK study found that the intervention had a positive impact on attitude to own ageing, loneliness, isolation and emotional reaction (no further details provided). The trial was a non-targeted intervention that involved a home visit from a nurse who undertook a 45 minute assessment of a number of factors that aimed to improve health and related problems, including quality of life (not further defined).

The remaining seven trials (four from the UK and one each from the Netherlands, Denmark and Canada) reported no significant effects on a range of outcomes relevant to this briefing – happiness, loneliness, health locus of control, life satisfaction, wellbeing and social contacts. The review authors note, however, that a number of the primary studies were underpowered, which may have influenced the findings.

None of the trials in the review reported any negative effects as a result of the intervention. The review authors also report that the trials generally failed to provide intervention details, including mode of delivery, population selection and compliance. In addition, they comment that the wide range and multidimensional nature of intervention types may have further weakened the strength of their findings. They point out that the observed effects of home visits appear to be modest and inconsistent between trials, and that home visits may be costly and time consuming.

EVIDENCE STATEMENTS – OLDER ADULTS (> 55)

There is review-level evidence that psychosocial and psychotherapeutic interventions (particularly control-enhancing interventions and cognitive behavioural therapy) in older adults significantly improves measures of self-reported psychological wellbeing (Pinquart and Sorensen 2001).

There is review-level evidence that psychosocial and psychotherapeutic interventions for older adults are more effective if they are delivered to nursing home residents (compared with adults living in the community) on an individual basis (compared with group interventions) by therapists with advanced degrees and specialist experience (compared with therapists with advanced degrees and no special geriatric training) (Pinquart and Sorensen 2001).

There is review-level evidence based on one study from Canada, one from the USA and one from an unspecified country that interventions offering 'buddying', self-help network or group-based emotional, educational, social, or practical support to at-risk (widowed) older people can help to improve self-reported measures of health perceptions, adjusting to widowhood, stress, self-esteem and social functioning (Tilford et al. 1997).

There is conflicting review-level evidence that home visiting can be effective in improving the psychosocial functioning of older people living in the community (van Haastregt et al. 2000).

There is insufficient review-level evidence to demonstrate that social support training for older people can improve self-rated life satisfaction and community knowledge (Papworth and Milne 2001). The review identified one study from the USA that suggested a positive effect of an intervention; further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to confirm that subsidised employment programmes for older job seekers (aged 55–70) improves job-seeking behaviour, motivation or psychological outcomes (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect on job-seeking behaviour and motivation and no intervention effect on psychological outcomes; further investigation in high-quality trials is warranted.

Carers and helpers

Professional carers

The treatment of child and adolescent mental health problems in primary care: a systematic review (Bower et al. 2001)

This paper aimed to review effective interventions for children and adolescents in primary care. The paper presents data in two sections:

- treatment by primary care or specialist staff or consultation-liaison (defined as a specialist acting to support management by primary care rather than taking responsibility for individual patients themselves) on children or adolescents aged 18 or under
- education of the primary care team or the effect of consultation-liaison on primary care staff.

Findings related to children and adolescents fall outside the remit of this briefing, so discussion here is restricted to consideration of the education of the primary care team or the effect of consultation-liaison on primary care staff.

The review authors identified eight studies that reported on interventions for primary care staff or the effects of consultation-liaison on primary care staff. Only one of these studies described a mental health outcome (self-esteem) relevant to this briefing's inclusion/exclusion criteria and is therefore described below.

The one relevant study, a controlled before-and-after programme without randomisation, evaluated the effectiveness of counselling training vs no training for six health visitors and three paediatric community medical officers. The training aimed to prepare staff to work in a 'parent adviser' role, for example developing a respectful partnership with parents as a way of supporting them and enhancing their self-esteem. The training course consisted of 15 sessions (no further details provided).

- Significant changes (not further defined) in perceptions of self as counsellor, self-esteem, knowledge and overall counselling ability were found in the intervention group compared with the control group (who were matched for profession and experience).

The authors identified a number of methodological issues (for example, publication bias), which may have adversely impacted on their conclusions. They conclude that there is preliminary support for 'parent adviser' training for primary care and community professionals.

EVIDENCE STATEMENT – PROFESSIONAL CARERS

There is insufficient review-level evidence to demonstrate that 'parent-adviser' training for primary care staff helps to improve trainer's self-esteem (Bower et al. 2001). The review identified one study that suggested a positive effect of an intervention on self-esteem; further investigation in high-quality trials is warranted.

Family carers

Family interventions in schizophrenia and related disorders: a critical review of clinical trials (Barbato and D'Avanzo 2000)

This systematic review reviewed clinical trials of psychosocial treatment delivered to families of people with schizophrenia and related disorders, including schizo-affective disorder or other non-affective functional

psychotic disorders. To be included in the review, primary studies had to be published in English and participants had to be randomly assigned to two or more intervention groups, at least one of which involved family treatment. The review authors did not exclude studies on the basis of poor quality, relying on randomisation as the minimum quality threshold for inclusion.

The review assessed effectiveness from four outcome measures:

- patient's relapse or readmission
- patient's mental state
- patient's social and work functioning
- family's wellbeing and other family-related variables.

Findings relating to the treatment of existing mental health disorders are outside the remit of this evidence briefing and are not presented here. Likewise, findings relating to the prevention of relapse in patients who were also receiving maintenance medication at the time of the intervention are also excluded. Consequently, discussion of the findings of this review are restricted to mental health outcomes in family members, including distress, emotional wellbeing and family burden.

The review authors identified 25 studies (1744 participants) that met their inclusion criteria. Studies were conducted in the USA (13 studies), UK (three), Canada (two), Australia (two), China (two), and one each from Germany, the Netherlands and Italy. The authors note that although there was considerable variation across the different family intervention programmes reviewed, the following elements were common to most effective interventions:

- inclusion of the patient in at least some of the treatment phases
- long duration
- information and education about the illness provided within a supportive framework.

Of the 25 studies identified, 14 assessed family-related outcomes and are reported below.

Three studies assessed family burden through a variety of indicators.

- The first study found a very strong association between the intervention (behavioural family management) and

a reduction in family distress related to the patient's behaviour and social performance deficits (effect size [ES] 1.58). However, few changes were observed in family members' psychological wellbeing and social impairment.

- A second study, by the same authors, reported that intervention (behavioural family therapy) was more effective in improving measures relating to community tenure (not further defined) than for family burden, compared with a control (individual supportive therapy). The study also reported lower overall costs for the intervention than the control.
- The third study found a decrease in the level of overall burden (ES 0.69) felt by families receiving the intervention (family sessions on education, illness management, problem-solving and stigma reduction), particularly concerning relatives' emotional wellbeing (ES 0.59) and quality of interpersonal relationships (ES 0.47).

Previous research on expressed emotion (EE), (that is, emotion expressed by close relatives towards a family member with schizophrenia or a related disorder) has shown that family attitudes and interactions can influence the course of schizophrenia. For instance, there is strong evidence to suggest that high EE in relatives significantly predicts clinical exacerbation in patients in remission after an acute schizophrenic episode.

Four studies that assessed change in levels of EE within families found mixed results.

- One found that EE status changed in the 'expected direction' in 50% of the intervention group (the intervention comprised information meetings with relatives in parallel with family therapy) compared with 17% of the control group (receiving standard treatment).
- Conflicting findings were found in a second trial by the same authors, where EE status changed in 25% of the family therapy group compared with 36% of the relatives' group. The review authors also note that high EE was an inclusion criteria for families involved in both of these studies, limiting the extent to which these results could be generalised.
- The third study reported a non-significant increase of 'low EE relatives' associated with a family intervention ('psycho-education' – comprising information and problem-solving).
- The fourth reported no effect on EE status using a behavioural family intervention.

The review authors conclude that, while findings on the relationship between family EE and treatment outcome are conflicting, further research is required before the issue can be resolved.

Finally, seven studies examined several ill-defined aspects of family attitude or behaviour. The review authors report that limited effects, if any, were shown and that the variety of measures used – and their questionable validity – seriously limited both the strength and comparability of findings.

The review authors conclude that there is weak evidence to suggest family interventions have a positive impact on any variable relating to the family unit or to the patient's relatives. They further state that the failure to relate treatment outcome to family mediating variables poses a serious challenge to the rationale underlying current family intervention strategies.

The effects of family interventions on relatives' burden: a meta-analysis (Cuijpers 1999)

This systematic review sought to test the hypothesis that family interventions have a positive effect on the burden felt by relatives of psychiatric patients. To be included in the review, studies had to assess one or more outcome measures that could be classified as an element of the relatives' burden of care. These could be interpreted as a subjective burden (for example, 'psychological distress' or 'mental health') or as an objective burden (for example, family relations, relationship with patient, social support). Measures of patient characteristics or the relatives' attitude towards treatment were not sufficient for inclusion. Studies also had to report, as a minimum, pre- and post-test data and the data or statistics used to calculate standardised effect sizes.

Sixteen studies were identified, three of which also appeared in the review by Barbato and D'Avanzo (2000). The country of origin of each study was not stated. Fourteen studies compared the intervention either with a control or another intervention. A range of interventions were studied, from single education sessions to intensive family interventions. The majority of studies were targeted at relatives of schizophrenic patients although some included relatives of patients with other mental disorders.

A total of 40 measures were used across the 16 studies to measure the burden on relatives. The review author

hypothesised that, in light of this heterogeneity, family interventions may be seen to have differential effects on relatives' burden, with interventions having large effects on some aspects of burden and less on others. To test this, 27 outcome measures were grouped into three categories, each defined when five or more studies reported outcome data on that aspect of family burden (13 measures either did not fit or fitted incompletely into one of the these categories):

- psychological distress (described in 12 studies) – personal distress, subjective distress, feelings of strain, psychological distress and stress
- relationship with the patient (described in seven studies) – negative feelings towards person, annoyance with person's behaviour, attitude towards person, person rejection, intimacy and reciprocity in relation with person and negative attitude towards person
- family functioning (described in eight studies) – family conflict, sense of family disruption, interference with family life, family satisfaction and family distress.

For each category of family burden, several meta-analyses were conducted including:

- meta-analyses of the improvement from pre-test to post-test (with the pre-test score functioning as a control group)
- meta-analyses in which the mean effect size at post-test was calculated (in which the experimental and control groups were compared at post-test)
- meta-analyses of effect sizes at follow-up (in which the experimental and control groups were compared at follow-up).

Cluster analysis was also used to aggregate the range of effect sizes into smaller subsets. This resulted in identification of two groups of studies whose effect sizes differed significantly from each other. Six studies had large effect sizes (defined as ranging from 0.56 to 1.2) compared with the remaining 10 studies, which had small effect sizes (defined as ranging from 0 to 0.32). Separate meta-analyses were then conducted for the two groups of studies.

- Across all studies, family interventions did not significantly improve relatives' psychological distress – either when looking at change from pre-test to post-test (nine studies [n = 572]; mean effect size 0.32, 95% CI 0.02 to –0.61) or at the mean effect size at post-test (11 studies [n = 712]; mean effect size 0.31, 95% CI 0.04 to –0.58).

- There was, however, a significant improvement in psychological distress across all studies at follow-up (eight studies [n = 394]; mean effect size 0.22, 95% CI –0.08 to –0.53).

However, each of these results should be interpreted with caution as there was also significant heterogeneity across studies.

- Across all studies, family interventions significantly improved the relationship with the patient compared with the control, both when looking at change from pre-test to post-test (six studies [n = 492]; mean effect size 0.22, 95% CI –0.19 to –0.63) and at the mean effect size at follow-up (two studies [n = 81]; mean effect size 0.51, 95% CI –0.44 to –1.45).

However, both of these results should be interpreted with caution as there was also significant heterogeneity across studies. Also, there was no significant effect of family intervention on the relationship with the patient at post-test (four studies [n = 319]; mean effect size 0.32, 95% CI 0.01 to –0.63).

- Across all studies, family interventions significantly improved family functioning compared with control from pre-test to post-test (seven studies [n = 418]; mean effect size 0.39, 95% CI –0.07 to –0.85).

However, this result should be interpreted with caution as there was also significant heterogeneity across these studies. There was no significant effect of family intervention, compared with control, on family functioning either at post-test or follow-up (post-test: six studies [n = 407]; mean effect size 0.21, 95% CI 0.02 to –0.41; follow-up: four studies [n = 191]; mean effect size 0.35, 95% CI 0.07 to –0.64).

The review author notes a number of methodological limitations to using meta-analysis to assess the effects of family interventions on the burden experienced by relatives of psychiatric patients. Overall, few studies met the review's inclusion criteria and they generally used small sample sizes with only six studies including 60 or more participants.

The review author concludes that the effects of family interventions on relatives' psychological distress, relationship with the patient and family functioning were small.

Family intervention for schizophrenia (Pharoah et al. 2003)

This systematic review investigated the effects of psychosocial, family interventions on the care of people with schizophrenia or schizophrenia-like illness. It aimed to assess the impact on family atmosphere and relationships and rate of relapse, compared with standard care.

A total of 28 randomised controlled studies met the authors' inclusion criteria (18 of which also appeared in the review by Barbato and D'Avanzo (2000) and five in Cuijpers (1999)). Studies were conducted in the USA (nine studies), the UK (five), China (five), Australia (two), and one each in Germany, Italy, Spain, the Netherlands, Denmark, Hong Kong and Canada.

Participants in 27 studies were families in which a member had been diagnosed with schizophrenia or a schizo-affective disorder. In the remaining (unpublished) study, more than 80% of families included someone with a schizophrenia-like illness, with the remainder including a member who had experienced bipolar disorder or psychotic depression. Most studies included families of both men and women patients, although one study focused exclusively on the families of male patients.

Findings related to the treatment of existing mental health disorders are outside the remit of this evidence briefing and are not presented here. Likewise, findings related to the prevention of relapse in patients who were also receiving maintenance medication at the time of the intervention are excluded.

Ten RCTs reporting on the effect of interventions on family members (such as family atmosphere and relationships) are reported below. The interventions included education about schizophrenia and stress management, motivational interviewing, cognitive behavioural counselling, role play and crisis-oriented relaxation training.

The meta-analysis carried out by the review made two comparisons:

- any family intervention vs standard care
- behavioural-based family intervention vs supportive family-based intervention.

Any family intervention (more than five sessions) vs standard care

- Ability to cope (assessed in three studies). The intervention provided carers with no significant benefits compared with standard care (study one: $n = 63$, RR 0.79, 95% CI 0.6 to 1.0; study two: $n = 39$, relative risk [RR] 1.11, 95% CI 0.5 to 2.7; study three: $n = 49$, mean difference [MD] for effective coping -0.5 , 95% CI -1.9 to 0.9).
- Ability to understand the patient's needs (one study). Family intervention significantly improved understanding of the patient's needs ($n = 63$, RR 0.58; 95% CI 0.4 to 0.9).
- Burden of care (one study). Psycho-educational family counselling significantly reduced the burden felt by family members ($n = 60$, MD -0.4 ; 95% CI -0.7 to -0.1).
- Expressed emotion within the family (three studies). Meta-analysis found that family interventions significantly reduced levels of high expressed emotion ($n = 164$, RR 0.68; 95% CI 0.5 to 0.9).
- Psychological morbidity of carers (one study). There was no significant difference between family intervention and standard care (results not provided).
- Family's experience of caregiving (one study). No 'clear differences' were found between those families receiving intervention compared with those receiving usual care (results not provided).
- Social support (one study). No significant differences were found in the support given to carers by close confidants and the attitudes of people in the wider community between those receiving intervention compared with those receiving usual care (results not provided).
- Satisfaction (one study). No significant difference was found in the satisfaction levels of carers between those receiving intervention compared with those receiving usual care (results not provided). The review authors do report a 'consistent impression that carers in the family intervention group are more satisfied with care services than those allocated to standard care'.
- Quality of life (one study). People receiving family intervention (comprising mental health education, 'family atmosphere correction' and crisis support) reported a significantly higher quality of life after 2 years than family members allocated standard care ($n = 213$, MD 19.18; 95% CI 9.8 to 28.6).

Group family-based versus individual family-based interventions (> five sessions)

One study compared the effectiveness of a family intervention (education sessions and fortnightly meetings) delivered in a group format with sessions delivered to individual families at home. There was no significant difference between groups in the amount of expressed emotion by relatives ($n = 23$, RR 0.94, 95% CI 0.5 to 1.9), although the study authors reported a significant ($p < 0.05$) reduction in expressed emotion between baseline and 2 year follow-up.

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28.

The review identified 12 studies of interventions for improving the mental health of people caring for older people, those with dementia/Alzheimer's disease or those with mental illness, none of which appeared in the reviews by Barbato and D'Avanzo (2000), Cuijpers (1999) and Pharoah et al. (2003). Tilford et al. note considerable variation across studies, both in the type of intervention delivered and in the outcomes measured (for example, burden experienced by the carer, anxiety and depression, stress, a variety of coping skills, access to – and use of – social support, and satisfaction with the intervention). However, only outcomes relevant to this briefing are reported below.

Carers of people with Alzheimer's disease or dementia

Four studies covered carers of people with Alzheimer's disease or dementia. The first, a 'before and after' study from the USA with non-randomised controls, targeted people who were members of established support groups for people with Alzheimer's and other conditions. The study assessed the impact of group discussions designed to increase coping skills and reduce stress, delivered by a nurse practitioner, compared with usual support group activity supplemented with a stress management booklet.

- The study found significant differences at post-test between the intervention ($n = 39$) and control groups ($n = 36$) in terms of their enhanced coping styles

($p < 0.05$), but no difference between the groups in their perception of burden.

The second study, an RCT ($n = 54$), compared the effectiveness of two support groups (support group vs support/skills group) for carers of people with dementia. The support group was offered 7 x 1.5 hour information sessions, emotional support and assistance in problem solving, delivered by clinical psychologists. The support/skills group also received additional training in managing stress, negative emotions and relaxation. Both involved a further two sessions at 2 weekly intervals and a final follow-up session after a month.

- The study found that the training had no significant effect on a variety of objective measures including network satisfaction (not defined further), life satisfaction and negative feelings toward the care-receiver. However, participants did report high levels of satisfaction with the intervention and this was maintained at 2 year follow-up.

Another study (described in two publications) targeted carers who had been looking after someone with dementia for 6 months or longer. The impact of a stress management programme was assessed by comparing community-based individual/family counselling ($n = 36$) and support group formats ($n = 44$) with a control group ($n = 39$).

- Both interventions resulted in reports of lower burden and psychiatric symptoms at the post-test stage and this reduction was also found in the waiting list control group (results not further described). More positive results were found at 1 year follow-up, but no controls were available at this point.

The fourth, an Australian before-and-after control study ($n = 101$), aimed to reduce stress and improve coping skills and quality of life. Group-based interventions comprising either sessions on assertiveness, problem management and family therapy, or 10 days respite care, were delivered to carers of people with dementia. The control group was on the waiting list for the programme.

- No significant difference was found between the groups at 6 month follow-up, but at 12 month follow-up carers' stress significantly reduced in participants receiving the sessions compared with those receiving respite care ($p < 0.05$). The study also reported some

evidence of cost effectiveness, although it was noted that opportunities for applying such findings in a UK context were likely to be limited (no further details provided).

Carers of people who are chronically mentally ill

One before-and-after study from the USA with no controls (n = 20) was identified that addressed family carers of people who were chronically mentally ill. The intervention, which sought to reduce stress levels in family members and improve their quality of life, comprised nine weekly 2 hour information sessions delivered in a hospital setting.

- The study found some evidence of an impact on stress levels, with pre-post analysis indicating significantly lower stress rating at the final session compared with the last session ($p < 0.025$). However, no association between participation in the programme and improved quality of life was found (results not further described).

Carers of older and frail older people

Four studies covered carers of older or frail older people.

The first, a before-and-after study in the USA with non-randomised controls was carried out with carers experiencing substantial stress and who were significantly at risk of placing the person receiving care (frail older person) into an institution. This study assessed the impact of a multi-component, weekly intervention (n = 208) comprising group discussions guided by social workers and community health nurses, education and relaxation training for 8 weeks, compared with a control group who were on a waiting list for the intervention (n = 81).

- The study found a marginally significant intervention effect on caregiver burden in the short-term but not in the longer term (results not further described).

The second, an RCT (n = 62) from the USA compared the effects of two community-based psycho-educational skills-building sessions on the stress of carers of frail older people. Both interventions involved 10 weekly 2 hour sessions. In the first, participants were taught how to increase pleasant activities and events to enhance mood. The second aimed to increase problem-solving skills.

- Participants in both interventions demonstrated increases in morale when compared with waiting list controls ($p < 0.05$). However, there were no significant effects on self-efficacy measures.

Another RCT (n = 78), carried out in the UK, assessed the effects of carers of older people receiving respite care for a few hours a week. The controls were a self-selected comparison group who elected not to receive respite care.

- At 3 month follow-up no significant impact on carers' stress levels, coping ability and strain was reported by the users of the scheme.

The fourth, an Australian before-and-after' study with non-randomised controls (n = 64), examined the long-term impact of small group discussions (comprising nine sessions of 2.5 hours of psychosocial and emotional support) on people providing care for an older, dependent friend or relative. Carers were also provided with respite care so they could attend the group. Outcomes measures relevant to this briefing included positive and negative feelings.

- No significant differences between the groups were found at 12 month follow-up, but significant changes to positive and negative feelings were reported among members of the intervention group from pre-test to follow-up ($p < 0.05$). This was supported by qualitative data – the majority of respondents reported increased understanding and self-esteem.

Carers of people with disabilities/chronic disabilities

Two RCTs evaluated the Caregiver Support Project (country/area not specified), which is designed to improve carers' psychological functioning and wellbeing, social support and ability to cope with stress. In both studies, carers were adult daughters/daughters-in-law for people with two or more disabilities or chronic disabilities.

The first study compared the relative impact of eight community-based weekly 1 hour individual counselling sessions (n = 51) and eight weekly 2 hour group sessions (n = 67) with a control group (n = 36).

- No significant difference in terms of emotional response to caregiving was found between the three groups. Both formats resulted in significantly reduced

self-reported rating of psychiatric symptoms compared with the control group ($p < 0.05$). The group format participants, compared with participants from the individual and control groups, also experienced significantly greater increases in size of informal support and satisfaction with 'networks' (not further described) ($p = 0.05$).

The second study ($n = 116$) used the same eight community-based weekly 2 hour group format and compared the impact of delivery by peers with delivery by professional facilitators.

- The study found no significant difference between the peer-led and professional-led groups in any of the pre- and post-test outcome measures evaluated – caring situation, burden or psychological status – although all the pre-post differences favoured either intervention compared with the control (results not further described). Significant increases for both intervention groups were, however, found in size of social network ($p < 0.05$) and increased knowledge of community resources ($p < 0.05$) at post-test. At 1 year follow-up participants from both interventions had significantly greater long-term improvements in social support, coping, satisfaction with groups and dealing with pressing problems than the control group.

General carers

The final study covered general carers. This randomised before-and-after study from the USA, with no independent controls ($n = 131$), compared the effectiveness of delivering an intervention in groups with delivery at home. The intervention comprised family participation (not further defined) and individual meetings that aimed to enhance the carer's coping skills and reduce their sense of burden. Both involved six 2 hour, weekly meetings for general discussion, relaxation and communication exercises.

- The study found a significant improvement in the carer's ability to cope and small improvements in objective and subjective burden, with the individual approach producing the greatest improvement ($F < 0.001$). The impact was less effective in the home setting.

EVIDENCE STATEMENTS – CARERS AND HELPERS

Carers of people with Alzheimer's disease or dementia

There is insufficient review-level evidence to demonstrate that support group sessions that focus on assertiveness, problem management and family therapy, or provision of 10 days respite care, are effective in reducing stress levels of carers of people with dementia (Tilford et al. 1997). The review identified one study from Australia which suggested that stress levels are reduced for those carers who participated in the group sessions compared with those receiving respite care. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that discussions delivered by nurse practitioner with support groups for carers of people with Alzheimer's are effective in enhancing the carer's coping skills or reducing their stress levels (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect for coping styles but not for perceptions of burden. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that support groups offering information sessions, emotional support and assistance in problem solving delivered by clinical psychologists alone, or combined with stress management and relaxation training, are effective for carers of people with dementia (Tilford et al. 1997). The review identified one study that suggested that an intervention had no effect on life satisfaction, negative feelings towards the care-receiver or network satisfaction. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that individual/family counselling or support groups for carers who have been looking after someone with dementia for 6 months or longer are effective in lowering burden and psychiatric symptoms (Tilford et al. 1997). The review identified one study which suggested that the intervention had no effect. Further investigation in high-quality trials is warranted.

Carers of people who are mentally ill

There is review-level evidence that family interventions in families of people with schizophrenia and related disorders can have 'limited' positive effects on variables relating to the family unit such as reduction in family distress and quality of interpersonal relationships (Barbato and D'Avanzo 2000; Cuijpers, 1999). However, in meta-analyses of more than eight trials, Cuijpers (1999) noted significant heterogeneity across studies so these results should be interpreted with caution.

There is review-level evidence that family interventions in families of people with psychiatric disorders can have a modest positive effect on variables relating to the relatives' burden of care (Barbato and D'Avanzo 2000; Cuijpers 1999; Pharoah et al. 2003).

There is review-level evidence that family interventions in families of people with schizophrenia and related disorders did not significantly improve measures of carer's ability to cope (Pharoah et al. 2003).

There is review-level evidence to suggest that family interventions for carers of those diagnosed with schizophrenia or schizophrenia-like illnesses can improve general understanding of patients' needs (Pharoah et al. 2003).

There is conflicting review-level evidence on the effectiveness of family interventions for influencing the levels of expressed emotion within the family. One review concluded from a meta-analysis that family interventions significantly reduced levels of high expressed emotion (Pharoah et al. 2003), whereas another review identified four studies that found conflicting results (Barbato and D'Avanzo 2000). One further study was identified by one review (Pharoah et al. 2003) that found no significant difference in the amount of expressed emotion by relatives between an intervention delivered in a group format compared with one delivered to individual families.

There is insufficient review-level evidence to demonstrate that family interventions in families of people with schizophrenia and related disorders are effective in improving measures of carer's psychological morbidity, family's experience of caregiving, support given to carers, carer's satisfaction or carer's quality of life (Pharoah et al. 2003). The review identified only one study assessing each of the above outcomes, so further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that information sessions delivered in a hospital are effective in reducing stress levels for carers of people who are chronically mentally ill (Tilford et al. 1997). The review identified one study from the USA that suggested a positive effect; further investigation in high-quality trials is warranted.

Carers of older or frail older people

There is insufficient review-level evidence to demonstrate that weekly groups guided by a professional and offering discussion, education and relaxation training can be effective for carers of frail older people (Tilford et al. 1997). The review identified one study from the USA that suggested a positive effect on caregiver burden in the short term, but not in the long term. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that community-based psycho-educational skill building sessions that aim to increase pleasant activities and events to enhance mood, or to increase problem-solving skills, can result in increases in the morale of carers of frail older people (Tilford et al. 1997). The review identified a study from the USA that suggested a positive effect on carer's morale and no significant effects on self-efficacy measures. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that providing respite care for a few hours a week has any significant impact on stress, coping and strain for carers of older people (Tilford et al. 1997). The review identified one UK study which suggested that provision of respite care was ineffective. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that small-group discussions comprising psychosocial and emotional support, together with respite care, for people providing care for an older, dependent friend or relative are effective in changing positive and negative feelings (Tilford et al. 1997). The review identified one Australian study that suggested the intervention was ineffective at 12 month follow-up. Further investigation in high-quality trials is warranted.

Carers of people with disabilities/chronic disabilities

There is review-level evidence to suggest that community-based individual and group counselling sessions for carers of people with disabilities may be effective in reducing self-reported rating of psychiatric symptoms and improvements in social networks/support, coping and dealing with pressing problems (Tilford et al. 1997).

General carers

There is insufficient review-level evidence to demonstrate that family participation and individual meetings offering general information, relaxation and communication exercises are effective in improving general carer's ability to cope and in reducing the sense of burden (Tilford et al. 1997). The review identified one study from the USA that suggested positive effects of this intervention; further investigation in high-quality trials is warranted.

Parenting

Parent-training programmes for improving maternal psychosocial health (Barlow et al. 2003)

This systematic review addressed whether group-based parenting programmes can improve maternal psychosocial health, including levels of anxiety, depression, self-esteem and aspects of maternal health directly related to the maternal role (for example, parenting stress and self-esteem). Interventions addressing anxiety and depression are outside the remit of this evidence briefing and findings related to these outcomes alone are not included here.

The review appraised and collated evidence from existing studies that used rigorous methodological designs and a range of standardised outcome measures. It included studies published between 1970–2002, selected through a process of critical appraisal by two independent reviewers. As a result of this process, RCTs of group-based parenting interventions were included. These were categorised into five groups that reflected the basic theory and rationale underpinning each programme:

- behavioural programmes – based on social learning principles (n = 8)
- cognitive-behavioural programmes – combining behavioural intervention with strategies to restructure parents' thinking (n = 6)
- multi-modal programmes – combinations of several components (n = 5)
- behavioural-humanistic programmes – all of which evaluated the effectiveness of the Webster Stratton Parent and Children Series programme and used a videotape modelling approach (n = 5)
- rational emotive therapy programmes – techniques to reinforce rational beliefs (n = 2).

The authors report few 'between-study' differences in outcome despite the differences in the type of parenting programme assessed (eg many studies reported results favouring the intervention group in approximately one-third to one-half of the outcomes measured).

Statistical tests of homogeneity confirmed that between-study differences were insufficient to preclude the possibility of combining data in meta-analyses using a fixed-effect model. Missing data and drop-outs from each study were assessed, and the review reports the number

of participants who were included in the final analysis as a proportion of all participants in each study. Assessment was also made of the extent to which studies had conformed to the principles of intention-to-treat analyses.

The studies that were included in the review used a range of scales to assess similar outcomes. To produce a measure of effect size, the treatment effect for each outcome in each study was standardised by dividing the mean difference in post-intervention scores for the intervention and control group by the pooled standard deviation. Where appropriate (depending on the level of homogeneity present in the population, intervention and outcome measures in primary studies) these results were combined in a meta-analysis. Where results could not be combined, effect sizes and 95% confidence intervals for individual outcomes in individual studies were presented.

A number of methodological issues were identified by the review authors.

- None of the studies stated the specific method of allocation concealment used in the process of randomisation. A total of 22 studies used 'rigorous' methods of randomisation, one used block randomisation and the remaining three used a range of quasi-randomisation methods (eg availability of places on the programme, sequential assignment from a waiting list). Sensitivity analysis on the effects of including quasi-randomised studies in the review showed an impact on three of the meta-analyses conducted: depression, stress/anxiety and relationship with spouse, only one of which (relationship with spouse) is within the scope of this evidence briefing. When the relevant studies were excluded from analysis the review authors note that the results remained significant, but became slightly more conservative as would be expected from lower quality studies as they tend to increase effect estimates.
- Eight studies did not account for the number of parents who dropped out of the evaluation or who were lost to follow-up. Of those studies that did provide this data, the drop-out rate ranged from 6% to 44%. Only two provided reasons for parents dropping out of programmes (eg depression, life stress, moved away from area, work commitments), or details of those parents' demographic characteristics.
- Only one study analysed participants according to the principles of intention-to-treat.

- Although it was not possible to 'blind' facilitators or parents to the type of treatment being implemented or received, given the nature of the intervention, studies also failed to adopt outcome measures that required independent (and possibly blinded) assessment. Instead they relied on self-reported measures.
- Finally, small group numbers in many studies meant that confounding factors may not have been equally distributed between groups, despite randomisation.

Results of the review were reported in two ways.

- Results were grouped by one of the five types of parenting programmes identified and described above (behavioural, cognitive-behavioural, multi-modal, behavioural-humanistic, rational-emotive).
- Results of meta-analyses were grouped by five outcomes where there were sufficient data to justify this approach: depression, anxiety, self-esteem, social support, marital adjustment/relationship with spouse.

As the primary aim of this briefing is to determine which interventions are effective in improving overall mental health, only those meta-analytical results grouped by programme characteristics are presented here.

Behavioural parenting programmes

- One study examined the impact of a behavioural parenting programme on levels of irritability in a group of high-risk mothers with children between the ages of 2–14, as measured by the Irritability, Depression and Anxiety scale. Results showed a significant difference in 'inward' (that is, self-directed) irritability, in favour of the intervention group (effect size [ES] -0.6 ; 95% CI -1.1 to -0.01).
- Another study found a significant improvement in 'marital adjustment' (as assessed by the Marital Adjustment Test) among participants in the intervention group (ES -0.9 , 95% -1.6 to -0.2).

Two studies reported an improvement in parental efficacy and satisfaction (self-esteem), as measured by the 'skills' and 'valuing' subscales of the Parenting Sense of Competence (PSOC) scale.

- One found a significant positive effect on the valuing subscale, in which feelings of satisfaction, frustration and interest associated with parenting are assessed (ES -0.6 , 95% CI -1.1 to -0.2), and a non-significant

difference for the skills subscale, in which parental self-perceptions of skill and knowledge regarding parental functions are assessed.

- The second study looked at the effects of a behavioural intervention in low income parents of boys with Attention Deficit Hyperactivity Disorder (ADHD). The study found non-significant but positive effects of the intervention on the total score of the PSOC and the valuing and skills subscales.

A further study used the Hassles and Uplifts scale to measure parental adjustment to life stressors and positive experiences.

- The study found a significant positive effect in favour of the intervention (ES -0.6, 95% CI -1.1 to -0.01) for a group of middle class first time parents.
- Another study found a similar impact on parent health (ES -0.6, 95% CI -1.0 to -0.2). The same study found significant positive effects on role restriction (ES -0.5, 95% CI -0.9 to -0.04), sense of competence (ES -0.5, 95% CI -0.9 to -0.1) and the mother's relationship with her partner (ES -0.4, 95% CI -0.9 to -0.02).

One other study found no significant effect of behavioural parenting programmes on measures of social isolation and attachment (as assessed by the parenting domain of the Parenting Stress Index).

Cognitive behavioural parenting programmes

Two studies reported non-significant changes with cognitive behavioural parenting programmes compared with controls on measures of parental guilt and self-blame, parental sense of competence (self-esteem) and frequency of automatic negative thoughts.

One RCT assessed the effectiveness of a coping-skills parenting programme (ten 2 hourly cognitive-behavioural parenting sessions) on mood states of parents of children with developmental disabilities.

- The authors report a non-significant difference for seven domains of the Profile of Mood States (POMS): tension-anxiety, depression-dejection, anger-hostility, vigour-activity, fatigue-inertia, confusion-bewilderment and the total score, suggesting little evidence of the programme's effectiveness as measured by the POMS.

Multi-modal parenting programmes

One RCT assessed the effectiveness of a multi-modal parenting programme on levels of stress in the relationship with the spouse and child as measured by the parent domain of the Parenting Stress Index (PSI).

- The study found a significant improvement in relationship with the child with the intervention (ES -0.7, 95% CI -1.2 to -0.04). There was a small, but non-significant difference in relationship with the spouse with the intervention.

A second RCT examined the effects of 12 weekly parenting sessions combining the use of behavioural and affective components with parents of children with ADHD.

- This study found improvements of approximately 5 points in the percentile mean score on the Parenting Stress Index with the intervention, compared with an improvement of approximately 1 point with the control (significance not stated).

Three RCTs found positive but non-significant effects of multi-modal programmes.

- One RCT found no significant effect (ES -0.2, 95% CI -0.4 to 0.8) on levels of social support (as defined by the Inventory of Socially Supportive Behaviours) with a programme combining affective, cognitive and behavioural components.
- A second RCT found a non-significant effect favouring the intervention group on measures of attachment (ES -0.6, 95% CI -1.2 to 0.04).
- The final RCT found no significant differences in measures of parental role restriction and competence (assessed using the parent domain of the Parenting Stress Index).

One RCT assessed a combined behavioural and parental self-management programme.

- The study found a significant improvement in levels of parental self-esteem as measured in post-intervention scores ($p < 0.04$).
- The same study also reported a significant change in levels of social competence among the intervention group ($p < 0.002$ compared with the control group, $p < 0.762$), although there was no significant

difference between the intervention and control at post-intervention ($p < 0.202$).

One RCT examined the effectiveness of an eclectic parenting programme (combining elements of a number of theoretical approaches) delivered to Afrikaaner parents of children aged 8–12.

- This study found a significant effect of the intervention on interpersonal traits (measured by the Group Assessment of Interpersonal Traits scale (ES -1.0 , 95% CI -1.8 to -0.2) and measures of self-actualisation (assessed using the Personal Orientation Inventory (POI); ES -1.0 , 95% CI -1.8 to -0.2), although there were non-significant effects on a number of other dimensions of the POI including existentiality, feeling reactivity, spontaneity, self-acceptance, self-regard, time management, and inner-other directedness.

Behavioural-humanistic parenting programmes

All five studies in this area evaluated elements of the Parent and Children Series (PACS) parenting programme, which is based on the use of videotape modelling.

Three RCTs examined the effectiveness of the PACS programme on improving parental stress levels.

- One RCT did not provide sufficient data to enable calculation of an effect size.
- Two RCTs found non-significant differences favouring the intervention group in levels of post-intervention stress levels. One of these RCTs also reported a non-significant difference favouring the intervention in improving parental self-efficacy.

One further RCT assessed parental stress using the Parenting Stress Index (PSI) and found no difference between the intervention and control for parent and child domains, parent-child interaction or PSI total score.

One RCT reported non-significant but positive effects in favour of an intervention addressing four aspects of dyadic adjustment relating to parental relationships (satisfaction, cohesion, consensus and affectional expression). This study also found no significant effect of the PACS programme in improving levels of social support or levels of parental anger and aggression.

One RCT examined the effectiveness of a PACS programme with a problem-solving component vs a PACS programme with extra discussion vs a control group with parents of children with behaviour problems.

- This study found that stress levels were significantly lower among the problem-solving intervention group ($p < 0.004$), but there was no significant difference between the extra discussion and control groups ($p < 0.08$).

Rational emotive therapy parenting programmes

Non-significant but positive effects in favour of rational emotive therapy (RET) parenting programmes were found by studies assessing measures of relationship with spouse (one RCT), social isolation (one RCT), and parental anger (two RCTs).

One further RCT assessed effectiveness of RET in improving parental mood, measured using the Profile of Mood State (POMS) questionnaire.

- Although this study reported a significant difference favouring the intervention group for the total POMS score (ES -0.7 , 95% CI -1.4 to -0.04), no significant differences were reported for five domains of the POMS: vigour-activity, anger-hostility, tension-anxiety, confusion-bewilderment and fatigue-inertia.

Finally, two RCTs reported significant effects of RET programmes in improving levels of parental guilt (assessed using the Berger's Feeling Scale).

- RCT 1: ES -0.7 , 95% CI -1.4 to -0.1 .
- RCT 2: ES -1.1 , 95% CI -1.7 to -0.4 .

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, three addressed mental health promotion in parents. None of these studies were identified in the review by Barlow et al. (2003). All three studies reported some improvements in mental health outcomes.

- The first programme used peer 'parent volunteers' to support new parents, and found that parents' level of expectation (not further defined) improved beyond that seen in a comparison group. However, the review authors note a number of methodological limitations with this study, such as lack of follow-up, reliance on self-reported outcome measures and lack of pre-treatment assessment, which may limit the reliability of the findings.
- The second study described a support programme for single parents. It found no evidence of improvement in mood, self-esteem and levels of activity. However, the study did have a high drop-out rate (61%), possibly because there was an entry fee and free child care was not provided. As a result, the project was unable to establish the support systems that were planned after completion of the formal group programme.
- The third study described a group intervention for single mothers. Although beneficial effects were observed after 12 months in independently rated videos of parent-child interactions, and in self-rated parental attitudes and a locus of control questionnaire, improvements were not sustained in self-reported depression and 'instrumental support' measures used to determine mental health outcomes.

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The review authors report on the findings of six studies of interventions aimed at parents, none of which appear in the review by Barlow et al. (2003); one study appears in Papworth and Milne (2001):

- a Canadian community-based competency programme for single, low-income mothers
- a UK 'link family scheme' for parents caring for children with disabilities
- two support service programmes in the USA for parents of children with development disabilities/acquired brain injury
- a community parenting programme in the USA for mothers identified at high-risk of child abuse
- a study in the USA with mothers in a disadvantaged area.

The two studies from the USA on support services programmes reported on depression and anxiety

outcomes, which are not relevant to this briefing and therefore are not described below.

The Canadian community-based competency programme comprised weekly 2.5 hour sessions for a period of 14 weeks. This was a before-and-after study with no controls and aimed to increase self-esteem and reduce isolation in the short-term, and reduce stress levels in the longer term.

- All participants (n = 90, divided into two groups, ex-psychiatric and no psychiatric background) showed evidence of increased self-esteem (p = 0.001) in the short term. In the longer term (1 year post-completion of the programme) there was a significant decrease in the number of participants reporting emotional difficulties over the previous year (p = 0.004). There was also an increase in the number of participants reporting participation in community activities (p = 0.001). The ex-psychiatric group also showed the greatest reduction in continuing life stress over time (p = 0.001). The lack of control group is acknowledged as a methodological weakness.

The home-based family link UK study, a before-and-after study (non-randomised controls), involved 66 families of children with learning disabilities. Each family involved in the intervention (n = 48) was linked with another family that did not have a child with a learning disability. The control group (n = 18) were those on a waiting list for the intervention.

- Positive findings for parents in terms of social support (mean scores: 25.08 intervention vs 16.89 control, p < 0.003) and a significantly higher score for morale among the intervention group (p < 0.01) were reported. However, methodological weaknesses (small samples and lack of randomisation) were noted.

Another before-and-after (non-randomised matched control) study in the USA aimed to assess the effectiveness of a community-based parenting programme for first-time mothers identified at high risk of child abuse (n = 30). Mother and infants met for 3 days a week in a 'home-like' setting, for a 12 week period, with a nurse who taught a range of skills (parenting, basic infant care, nutrition, stress management). The control group received two traditional home visits from a nurse. A variety of outcome measures were assessed, but only self-esteem is relevant to this briefing.

- Significant changes were reported by the intervention group over time (16 weeks post-birth and 6 months later) for self-esteem ($p < 0.004$). Mothers in the control group also reported an improvement in self-esteem, but this was not significant.

The final study was a before-and-after design with non-randomised matched controls from the USA, and compared the effectiveness of two different forms of delivery (intensive vs less intensive) of a support programme for families of children with developmental disabilities. The interventions sought to increase parents' coping skills, improve their social support systems and reduce stress ($n = 49$).

The first intervention comprised a mother's self-help discussion group 2 days a week for a 3 month period. The second was a weekly 2.5 hour parent education evening for mothers and fathers for a 3 month period. A combination of lectures, parent readings, group discussion and role play were used. No intervention was delivered to the control group. A range of outcome measures were reported, but only social support and 'parenting role stress' are within the remit of this briefing.

- At 3 month follow-up, the sense of social isolation felt by mothers in the intervention group significantly decreased compared with the control group ($p = 0.02$). Those participating in the self-help discussion group felt even less isolated ($p = 0.057$). The number of sources of social support in an 'informal' network also significantly decreased in both intervention groups compared with the control ($p = 0.03$). The intervention groups also reported significantly reduced child-related stress compared with the control group ($p = 0.007$).

The authors of this review highlight a number of methodological weaknesses (small sample size, no randomisation, lack of long-term follow-up), but also note the importance of social network support for mothers, which is linked with mental health.

EVIDENCE STATEMENTS – PARENTING

Behavioural parenting programmes

There is review-level evidence to suggest that behavioural parenting programmes are effective in improving a range of measures relating to parental efficacy and satisfaction (self-esteem) (Barlow et al. 2003).

There is insufficient review-level evidence to demonstrate that behavioural parenting programmes are effective in improving measures of irritability, social isolation and attachment, and marital adjustment (Barlow et al. 2003). The review identified one study assessing each outcome; further investigation in high-quality trials is warranted.

Cognitive behavioural parenting programmes

There is review-level evidence to suggest that cognitive-behavioural parenting programmes are effective in improving a range of measures relating to parental psychological health, including parental guilt and self-blame, parental sense of competence (self-esteem) and frequency of automatic negative thoughts (Barlow et al. 2003).

There is insufficient review-level evidence to suggest that cognitive behavioural parenting programmes may improve measures relating to the 'mood states' of parents of children with developmental disabilities (Barlow et al. 2003). The review identified one RCT assessing the effectiveness of an intervention on measures of the seven domains of the Profile of Mood States and found a non-significant difference; further investigation of these programmes in high-quality trials is warranted.

Multi-modal parenting programmes

There is insufficient review-level evidence to demonstrate that multi-modal parenting programmes may reduce levels of stress in the relationships with the spouse and child (Barlow et al. 2003). The review identified one RCT that found a significant improvement in the relationship with the child and a small but non-significant improvement in the relationship with the spouse. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that multi-modal parenting programmes may improve overall levels of stress in parents of children with ADHD (Barlow et al. 2003). The review identified one RCT that found improvements in stress levels. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that multi-modal parenting programmes may improve parent's social support, attachment, feelings of parental role restriction and competence, parental self-esteem, interpersonal traits and measures of self-actualisation (Barlow et al. 2003). The review identified one RCT assessing each of these outcomes. Further investigation in high-quality trials is warranted.

Behavioural-humanistic parenting programmes

There is review-level evidence to suggest that the Parent and Children Series (behavioural-humanistic) parenting programme does not significantly improve measures of parental stress (Barlow et al. 2003).

There is insufficient review-level evidence to demonstrate that the Parent and Children Series (behavioural-humanistic) parenting programme enhanced with either a problem-solving component or further discussion can improve measures of parental stress (Barlow et al. 2003). The review identified one RCT that found significant improvements in the problem-solving group compared with the control. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that the Parent and Children Series (behavioural-humanistic) parenting programme improves measures of dyadic adjustment relating to parental relationships (satisfaction, cohesion, consensus and affectional expression), levels of social support, parental self-efficacy, parental anger or aggression (Barlow et al. 2003). The review identified one RCT that assessed each of these outcomes and suggested improvements with the intervention. Further investigation in high-quality trials is warranted.

Rational emotive therapy parenting programmes

There is review-level evidence to suggest that rational emotive therapy parenting programmes are effective in improving measures of parental guilt (Barlow et al. 2003).

There is review-level evidence to suggest that rational emotive therapy parenting programmes are ineffective in improving measures of parental anger (Barlow et al. 2003).

There is insufficient review-level evidence to demonstrate that rational emotive therapy parenting programmes improve measures of relationship with spouse, social isolation and parental mood (Barlow et al. 2003). The review identified one RCT assessing each of these outcomes that suggested improvements with the intervention; further investigation in high-quality trials is warranted.

Parental support programmes

There is insufficient review-level evidence to demonstrate that peer parent volunteers for new parents, support programmes for single parents or group interventions for single mothers are effective (Papworth and Milne 2001). The review identified one study that suggested improvements in new parent's levels of expectation with an intervention; one that found no improvement with intervention in measures of mood, self-esteem or levels of activity in single parents; and one that found beneficial effects on parent-child interactions, self-rated parental attitudes and

locus of control, and no sustained effect on measures of self-reported depression and instrumental support for mental health outcomes. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that community-based competency programme for single, low income, mothers increases their self-esteem, or reduces their isolation and stress (Tilford et al. 1997). The review identified one Canadian study that suggested a positive effect on self-esteem and participation in community activities and a decrease in emotional difficulties and stress. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that a community-based parenting programme delivered to first-time mothers identified at high risk of child abuse increases their self-esteem (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that support programmes involving self-help discussion groups or parent education evening for parents of children with developmental disabilities improves their social support systems and decreases their stress levels (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that linking families with another family that does not have a child with a learning disability increases levels of social support and morale in parents with children with learning disabilities (Tilford et al. 1997). The review identified one UK study with a positive intervention effect. Further investigation in high-quality trials is warranted.

Volunteers

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, one targeted older adult volunteers.

The study was a before-and-after controlled trial from the USA that compared outcomes in three groups: a 6 week 'stress inoculation' group approach (not further described), an information/attention control group, and a no-treatment control group.

- The study reported greater improvements in anxiety symptomatology (as an indicator of mental health) in the 'stress inoculation' group than in the no treatment and information/attention placebo control conditions. However, the review authors note that no follow-up assessment was undertaken, which may limit the reliability of the findings.

The beneficial effects of volunteering for older volunteers and the people they serve: a meta-analysis (Wheeler et al. 1998)

This meta-analysis aimed to assess the benefits of volunteering for both the older volunteers and the people they serve. A total of 37 studies were identified that met the authors' criteria: 29 focused on the effects on the volunteers, nine on the people they serve and one reported on the effects for both. None of these studies appeared in Papworth and Milne (2001).

Thirty-four of the studies were conducted in the USA and the remaining three in Canada. The number of volunteers in each study ranged from 15 to 2164, with a mean age of 71. The majority (90%) were white, female (72%) and not married (54% widowed, 10% separated, divorced or never married). Minimal demographic data were provided for the client component of the studies, with the number of clients ranging from 54 to 739 across the studies. The majority of the studies were of a before-and-after design.

The majority (54%) of studies involved volunteers who worked face-to-face or provided direct help to a client;

24% included those offering more indirect help (defined as some support function). Participation in volunteering activities had taken place, on average, for 12 months, (ranging from 2 to 48 months across the 17 studies where information was available). Participants spent an average 4 hours a week volunteering (ranging from 1 to 20 hours a week across the nine studies where data were available).

Quality of life outcomes were reported for the studies that focused on the older volunteers (29 studies). However, those studies looking exclusively at the clients refer only to depression outcomes, which are not within the scope of this evidence briefing.

- A significant association between volunteering and quality of life was observed for the older volunteers, when the relevant results from the 29 studies were combined (mean r-index of 0.252, combined $p < 0.001$). Those who provided direct help ($n = 12$ studies) appeared to derive the greatest benefit from volunteering (mean r-index = 0.358, SD = 0.134) compared with older volunteers ($n = 17$ studies) engaged in more indirect/less formal helping roles (mean r-index = 0.173, SD = 0.132), $t(27) = 3.70$, $p < 0.01$).
- Furthermore, the majority (nearly eight of ten) of the older volunteers scored higher than their non-volunteer counterparts in terms of quality of life measures ($U_3 = 0.779$, combined $p < 0.01$), although it is important to note that this is based on the total 37 studies rather than the 29 studies applicable to volunteer-effects only. The findings from the meta-analysis suggest that there is a beneficial effect for older volunteers ($U_3 = 78\%$) participating in a direct, face-to-face helping relationship.

Wheeler et al. conclude that there is evidence to suggest that 'meaningful' volunteering activity has a positive affect on the majority of older volunteers and that this is not associated with 'healthy participation' effects, as the impact persists once the independent effects of health and socio-economic status are accounted for. The review authors do, however, highlight that the review may be confounded by methodological weaknesses, such as publication bias, although they suggest the likelihood is minimal.

EVIDENCE STATEMENTS – VOLUNTEERS

There is review-level evidence from the USA and Canada to suggest that volunteering undertaken by older people improves the quality of life of those who volunteer, with those participating in face to face/direct volunteering achieving the greatest benefit compared with those involved in indirect, less formal helping roles (Wheeler et al. 1998).

There is insufficient review-level evidence to suggest that a 'stress inoculation' group approach may improve levels of anxiety symptomatology as an indicator of mental health in older adult volunteers (Papworth and Milne 2001). The review identified one before-and-after controlled trial from the USA that suggested improvements with the intervention; further investigation in high-quality trials is warranted.

Minority ethnic populations

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, two targeted minority ethnic groups. The first study was a before-and-after, non-randomised controlled trial from the USA that described a social skills video shown to Mexican immigrants with the aim of improving social and communication skills.

- The review authors note that although self-reported performance improved, objective measures of participants' skills were not included and there was no follow-up assessment.

The second study was a before-and-after, non-RCT from the USA that described delivery of a 13 week intervention comprising social skills training and 'cognitive restructuring' for single, divorced and widowed Jewish people.

- The intervention was found to positively affect one of two measured dimensions of participants' perceived social support (a mediating factor for psychological distress)

compared with control (p value not reported). The review authors note that outcomes were based on self-reported measures and there was no follow-up assessment.

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The review identified one RCT from the USA that assessed the effectiveness of two stress reduction interventions with black college students. This study does not appear in the review by Papworth and Milne (2001). The interventions groups aimed to reduce stress measures either via meditation sessions (seven 10 hour sessions over 6 days, n= 25) or via lessons on the benefits and mechanisms of progressive muscle relaxation (n = 29). The control group was instructed in cognitive/self-improvement techniques. A variety of outcome measures were reported, but only stress is relevant to this briefing.

- Both the meditation and muscle relaxation techniques had significant positive effects on stress responses for the intervention group (meditation and control, $p < 0.020$; muscle relaxation techniques and control, $p < 0.036$).

The review authors note that muscle relaxation techniques may be more transferable to a general health promotion setting. But both interventions were equally effective. They also voice a concern that, while evidence of the positive effects of any intervention to promote mental health are welcome, such initiatives may distract attention from the impact of structural and institutional racism (for example, college students from black, minority or ethnic groups (BMEG) may become more stressed as a result of the experience of being a student and a member of one of these populations – stressors that non-BMEG students do not encounter). No mental health related interventions with these groups were identified by the review at structural or policy level.

EVIDENCE STATEMENTS – MINORITY ETHNIC POPULATIONS

There is insufficient review-level evidence from the USA that selective primary prevention programmes seeking to enhance social and communication skills in minority ethnic populations can improve mental

health and behavioural outcomes (Papworth and Milne 2001). The review identified two poor quality studies that suggested some positive effects of an intervention; further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to suggest that meditation and/or muscle relaxation techniques may be effective in reducing stress levels among black college students (Tilford et al. 1997). The review identified one study from the USA that suggested a positive effect; further investigation in high-quality trials is warranted.

Disadvantaged groups

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, one targeted women in receipt of financial aid. The study was a before-and-after controlled trial from the USA that assessed an 'eclectic' (not further described) 10 week group intervention focusing on self-esteem, positive attitudes and approaches, relationships, life planning, problem solving and stress management.

- The study reported greater improvements in symptomatology in the intervention group compared with the control. However, the review authors note that no follow-up assessment was undertaken, which may limit the reliability of the findings.

EVIDENCE STATEMENT – DISADVANTAGED GROUPS

There is insufficient review-level evidence that group interventions seeking to enhance social and communication skills in women in receipt of financial aid can improve mental health and behavioural outcomes such as self-esteem, positive attitudes and approaches, relationships, life planning, problem solving and stress management (Papworth and Milne 2001). The review identified one study from the USA that suggested some positive effects; further investigation in high-quality trials is warranted.

LIFE EVENTS AND TRANSITIONS

Two review-level papers are relevant to this section – Papworth and Milne (2001) and Tilford et al. (1997).

The following themes are covered in this section: coping with negative life changes, bereavement, divorce and separation, organisational change, re-housing.

Coping with negative life changes

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, three were directed at people who had experienced life events and transitions, and of these one focused on coping with negative life changes.

This study from Israel included a lecture and seminar group focusing on life changes and health, reactions to change, support, confidence, guidance and community involvement, which was delivered to people who had undergone two or more recent negative life changes (not further described). A variety of measures, including anxiety and depression scores, were used to determine the effect of the intervention on mental health outcomes.

- Significant improvements were noted in depression and anxiety scores, although non-significant changes were observed in three further dimensions of the symptom checklist (denoted by the review authors as interpersonal sensitivity, somatic and 'obsess-comp'). However, the review authors note that no follow-up assessment was undertaken, which may limit the reliability of the findings.

EVIDENCE STATEMENT – COPING WITH NEGATIVE LIFE CHANGES

There is insufficient review-level evidence to determine if group-based interventions focusing on reactions to change, support, confidence, guidance and community involvement, delivered to people who have undergone two or more recent negative life changes, is effective in improving mental health outcomes (Papworth and Milne 2001). The review identified one study from

Israel which suggested that an intervention was effective in improving depression and anxiety scores although other mental health symptoms were not improved. Further investigation of this intervention in high-quality trials is warranted.

Bereavement

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The authors identified 12 studies that focused on the mental health consequences of life events and transitions (divorce, critical illness, unemployment, bereavement and re-housing). Five of these, one critical illness study and four unemployment studies (reporting the same study) reported on anxiety or depression outcomes, neither of which are within the scope of this evidence briefing and therefore are not described in this section. Of the remaining seven studies one focuses on bereavement.

The bereavement study, an RCT from the USA, evaluated the effectiveness of home-based bereavement counselling for recently bereaved people. The intervention (n = 10) consisted of weekly counselling (minimum 1 hour) sessions delivered by a nurse for a 5 week period. Two control groups were used. The first (n = 10) received no intervention and was assessed six times during an 18 month follow-up period. The second control group (n = 10) received no intervention and was followed up twice to assess potential learning effect. Outcome measures relating to satisfaction and frustration were reported.

- There was little or no difference between the intervention and control groups in relation to frustration and satisfaction outcomes for the duration of the experiment (no further data presented). Furthermore, no benefit or learning was observed in relation to counselling. The authors conclude that the counselling intervention made no difference.

EVIDENCE STATEMENT – BEREAVEMENT

There is insufficient review-level evidence to determine if home-based counselling interventions are effective for recently bereaved people (Tilford et al. 1997). The review identified one study from the USA which suggested that an intervention was ineffective; further investigation in high-quality trials is warranted.

Divorce and separation

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, one focused on separation.

This before-and after-study from the USA, reported in two publications, described a multi-component intervention delivered to people who had recently separated. The intervention comprised individual support and study groups with a focus on employment, legal and financial aid, parenting, homemaking, self-esteem and socialisation, delivered to newly separated individuals.

- The study reported significant improvements in anxiety and neurasthenia symptoms, quality of life and ratings of loneliness in the intervention group that were not observed in the comparison group. The review authors note that the study was generally robust in design with a large sample size and a substantial 4 year follow-up period, although the study did rely on self-reported outcome measures and unreliable statistical tests.

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background on Tilford et al. (1997) refer to p28. The authors identified five primary studies that focused on divorce or separation (four of which reported the same study, also reported in Papworth and Milne (2001).

The first study, a before-and-after study from the USA, aimed to assess the effectiveness of a community-based

communication skills training course for recently divorced women. Members of the intervention group (n = 13) attended a weekly 3 hour training course on post-divorce adjustment for 5 weeks. The intervention aimed to enhance self-esteem, strengthen social support systems and ease the distress of adjusting to divorce. Members of the control group (n = 15) were asked to continue their usual day-to-day activities.

- After completion of the training course, the intervention group had significantly increased overall levels of post-divorce adjustment ($p < 0.01$), and self-esteem ($p < 0.01$) compared with the control. No significant differences were observed for social support measures. The review authors note that this study had a lack of long-term follow-up and a small number of participants.

The other study, reported in four primary studies, was a larger RCT from the USA that evaluated a preventive programme for newly separated people. This university-based intervention (n = 101) comprised a 6 month programme of individual counselling and five specialised study groups covering a range of topics (for example, career planning and employment opportunities, legal and financial issues, single-parenting problems and child rearing, housing/home making and socialising and self-esteem). It was delivered by female 'para-professionals' (not further defined) with extensive counselling experience. The control group (n = 52) received no intervention. A range of self-report measures were assessed over a 4 year period, but only overall measures of life quality, distress and maladjustment, social functioning, parenting, and career and job-related issues are relevant to this briefing.

- The intervention group reported fewer problems and better psychological adjustment in terms of distress and maladjustment ($p < 0.007$) at the 6 month follow-up. At 18 month follow-up, the intervention group reported improvements in social functioning ($p = 0.04$) and at 30 month follow-up there were significant improvements in life quality ($0.001 < p < 0.01$) and distress and maladjustment ($0.001 < p < 0.01$) measures. At 4 year follow-up significant group differences were reported on dependent measures of adjustment and programme helpfulness (no further details provided). However, it was noted that the intervention would be costly to implement given the staff resources involved.

EVIDENCE STATEMENTS – DIVORCE AND SEPARATION

There is insufficient review-level evidence from the USA that a university based multi-component intervention comprising individual counselling and study groups, delivered to newly separated individuals, is effective in improving self-reported mental health outcomes (Papworth and Milne 2001; Tilford et al. 1997) These two reviews identified a study which suggested positive effects of intervention on anxiety and neurasthenia symptoms of mental health, quality of life, distress, psychological adjustment in terms of distress and maladjustment, social functioning and ratings of loneliness. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to determine if community-based communication skills training courses that focus on post-divorce adjustment are effective for divorced women (Tilford et al. 1997). The review identified one study from the USA that suggested positive effects on divorce adjustment and self-esteem and no effects on social support outcomes for recently divorced women; further investigation in high-quality trials is warranted.

Organisational change

Qualitative systematic review: an example from primary prevention in adult mental health (Papworth and Milne 2001)

For background information on Papworth and Milne (2001) refer to p24. Of the 12 studies that described selective primary prevention efforts in relation to adult mental health, one focused on organisational change.

This before-and-after study from the USA described an intervention directed at members of a religious community who were undergoing a period of organisational change. The intervention comprised a series of consultant-led group sessions primarily for community leaders.

- The study reported significant improvements in two of four dimensions of self-reported outcomes (support

and wellbeing) which appeared to be maintained at 3 year follow-up – no further results provided. However, the review authors note that, in the light of methodological weaknesses (lack of a comparison group, insufficient baseline measurements and reliance on self-report measures), it is possible that the effect may have resulted from extraneous factors unrelated to the intervention.

EVIDENCE STATEMENT – ORGANISATIONAL CHANGE

There is insufficient review-level evidence from the USA that consultant-led group sessions delivered to members of a religious community who were undergoing a period of organisational change are effective in improving self-reported mental health outcomes (Papworth and Milne 2001). The review identified one study that suggested positive effects of intervention on support and wellbeing outcomes; further investigation in high-quality trials is warranted.

Re-housing

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The authors identified one study that aimed to improve people's mental health through re-housing.

This UK RCT assessed 56 participants (council housing tenants) requesting re-housing on the grounds of 'mental ill health' symptoms. Eligible participants in the intervention group (n = 28) were allocated to two groups: medical and non-medical priority. Those judged to be high or low priority on the grounds of problems with their mental health were paired with a control group (n = 28). Anxiety and depression measures were used to determine the effect of re-housing on mental health outcomes over an 18 month period. Reduction in anxiety and depression scores of 50% were taken as measures of mental health improvement.

- At post-test (1–3 months after being re-housed), an improvement was seen in the priority group's mean total score (p < 0.001), and mean changes in depression (p < 0.002) and anxiety (p < 0.005) scores.

At 1 year follow-up, there were significant mean changes on all scores: total ($p < 0.001$), depression ($p < 0.01$) and anxiety ($p < 0.005$). The authors of this study conclude that participants suffering from 'mental ill health' who identified housing as a cause experienced a decline in their 'mental ill health' following re-housing. However, sample sizes were small (17 pairs) and only 11 pairs were available for follow-up.

EVIDENCE STATEMENT – RE-HOUSING

There is insufficient review-level evidence to demonstrate that re-housing individuals who suffer from 'mental ill health' symptoms that they attribute to housing improves 'mental ill health' (Tilford et al. 1997). The review identified one UK study which suggested that re-housing results in a decline in 'mental ill health'; further investigation in high-quality trials is warranted.

TOPICS

Six evidence-based papers are relevant to this section (Biddle 2000; Fox 2000; McAuley and Rudolph 1995; Petry and Armentano 1999; Stice and Shaw 2004; Tilford et al. 1997).

The following topics are covered in this section.

- Specific interventions/approaches to mental health promotion: mass media, physical activity.
- Specific at-risk groups: eating disorders, pathological gambling, marital distress

Specific interventions/approaches to mental health promotion

Mass media

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. Three mass media studies were identified by the authors.

The first study, a before-and-after evaluation with non-randomised controls, involved 1040 UK participants. The intervention consisted of 7–10 minute TV programmes (number not given) advocating mental health coping strategies.

- Forty-five per cent of the viewers reported that they had tried – or intended to try – to tackle their problems on their own, 36% the problems of other people and 22% had talked or intended to talk about problems with new people. However, the programmes had no significant impact on viewers' coping skills or help-seeking behaviour.

The second study, a before-and-after evaluation with a random control group, involved 1191 Norwegians in a nationwide mental health mass media campaign. This comprised months of pre-planned newspaper, TV and radio and various other activities prior to campaign day, a 6 hour TV show and unplanned media coverage.

- A significant increase in the proportion of both male and female participants becoming increasingly tolerant towards mental illness in the family was found, and the percentage who worried about having a mental disorder decreased 1 month after the campaign ($p < 0.01$).

- There was also an increase in the number of individuals reporting that they would openly discuss that someone close to them had been hospitalised with a mental disorder ($p < 0.001$).
- In addition, the thresholds for recommending that people with a minor mental health problem should consult a professional (GP, psychologist or psychiatrist) were lowered ($p < 0.01$) after the campaign, and fewer participants recommended talking to someone close to them ($p < 0.025$).

The last study was based in California, a before-and-after non-randomised controlled study involving 472 participants. It aimed to promote social support among friends via the 'Friends can be good medicine' public education campaign, which comprised mass media and community discussion, plus workbooks and brochures distributed through schools, hospitals, physician's offices, community organisations and social services agencies across 26 counties.

- Those in the media/community campaign areas were significantly more likely to consider support-enhancing activities at 12 month follow-up ($p = 0.01$).
- There were also significant increases in the scores of the exposed group compared to the unexposed group in terms of health beliefs ($p < 0.05$), behavioural intentions ($p < 0.01$) and the value they placed on friendship ($p < 0.05$) at this follow-up period.
- The campaign appeared to be particularly effective with individuals who were under stress, especially those who had experienced bereavement.

EVIDENCE STATEMENT – MASS MEDIA

There is review-level evidence derived from the UK, Norway and the USA to suggest that mass media campaigns, particularly those that include community activities, can have a beneficial effect on attitudes towards – and knowledge of – mental health issues. They can also impact on an individual's behavioural intentions and support enhancing behaviours to improve their own mental wellbeing (Tilford et al. 1997).

Physical activity

Emotion, mood and physical activity (Biddle 2000)

This book chapter reviewed the evidence on the links between exercise and/or physical activity and emotional feelings (or 'affect' - the subjective experience of emotion) and mood. The premise was that how people feel during and after physical activity may be associated with whether or not they do more. In addition, the resulting positive mood and affect may generate other important health outcomes (for example, prevention of mental illness).

Biddle selected studies that investigated exercise and lifestyle but excluded those focusing on competitive sport. Three types were included:

- narrative and meta-analytic reviews of physical activity and mood
- epidemiological surveys on physical activity and psychological wellbeing
- evidence from experimental trials.

The narrative and meta-analytic reviews (that is, reviews of reviews) and epidemiological surveys are outside the scope of this evidence briefing.

Five British-based controlled and experimental trials investigating the effects of physical activity on mood were identified. They reported on a number of mood and affect-related outcomes (tension anxiety, vigour and exhilaration, mental fatigue, confusion and ability to cope). Findings related to tension anxiety outcomes are not within the scope of this briefing and are not presented here.

Two studies (n = 32 female students, n = 40 female students) involved low- or moderate-intensity exercise sessions. One was a single session experiment that involved exercising to music and a metronome for four periods (no further information provided); the other was a replication and extension of this music and metronome intervention by exercising for 15 minutes.

- In the first study, a favourable change in mood (such as increased vigour and exhilaration) was produced by low-intensity exercise, whereas moderate-intensity exercise was associated with more negative mood states.
- In the other study, comparable findings were observed, with higher mental fatigue reported immediately after the moderate-intensity exercise compared with the low-intensity group – both groups experienced a decline in these states during the exercise recovery period.
- No mood effects were found for the music component in one of the studies and the other study did not report any findings related to music.

The third experimental study involved 109 sedentary adults in a 10 week training period. Participants were assigned to either moderate-intensity aerobic exercise, high-intensity aerobic exercise, 'attention placebo' (not defined further) or a waiting list control.

- Only the moderate-intensity exercise group showed a reduction in confusion mood scales (not further defined) and in a measure of coping deficits (disappointed with self, calm, drained, bothered, overwhelmed, under too much pressure, run down, easily irritated, easily upset and distressed).

The fourth study involved an experimental test on affective reactions to exercise as a function of exercise history and intensity. Participants (n = 80) were categorised as either high or low activity; the reported psychological affect was recorded in the last 30 seconds of the exercise and 5 minutes afterwards.

- Participants who were highly active reported a greater positive affect for high-intensity exercise compared with the less active group. No differences were found for participants in the low-intensity exercise group. Overall, a more positive affect was reported by the participants 5 minutes after exercise compared with the last minute of exercising.

In the last study, female participants in their mid-20s were categorised as high active (n = 15) or low active (n = 15). Affective reaction tests were undertaken during and after exercising on a cycle ergometer at three different levels of rating of perceived exertion (RPE): 9, 13 and 17.

- Those who were categorised as high active reported a more positive affect (assessed via a feeling scale) than those from the low active group, and the affect was greater 5 minutes after exercise than the last 20 seconds of exercise. However, the positive affect decreased as the RPE increased.

In summary, Biddle says that physical activity is positively associated with mood, emotion and psychological wellbeing, but it is not possible to determine whether physical activity causes this positive effect. The intensity of physical activity has similar associations. In particular, moderate-intensity exercise has mood-enhancing effects, while more negative feelings are experienced by those who are 'low active' and undertaking high-intensity exercise. However, Biddle does acknowledge a number of methodological flaws (for example, inconsistency in the measurement of psychological wellbeing) and definition difficulties (for example, the distinction between affect and mood), which need to be considered.

The effects of exercise on self-perceptions and self-esteem (Fox 2000)

This review studied the literature on exercise and its impact on self-esteem and self-perceptions. The author argues that self-esteem is relevant to health, quality of life and mental wellbeing on a number of levels. For example, it is seen as an indicator of emotional stability and adjustment to life demands, with high self-esteem related to positive qualities such as life satisfaction and resilience to stress.

Fox identified five potential mechanisms whereby exercise or sport may promote self-esteem:

- an undetermined psychological mechanism that enhances positive self-regard
- enhanced body image, body satisfaction or body acceptance through weight loss or improved muscle tone
- enhanced perceived physical competence through improved abilities, prowess, and aspects of fitness such as strength and cardiorespiratory function

- enhanced sense of autonomy and personal control over the body, its appearance and functioning
- improved sense of belonging and significance through relationships with exercise leaders or others in the exercise class.

To explore these mechanisms further, Fox identified a number of relevant reviews (that is, reviews of reviews) and 36 RCTs. Reviews of reviews are outside the scope of this evidence briefing. Of the 36 RCTs, eight were interventions with children and nine dealt with 'special population' groups with significant co-morbidities. These are also outside of the scope of this evidence briefing.

The remaining 19 trials can be divided into three subgroups: young adults, middle-aged adults and interventions with men and women of various ages. None of the identified studies appeared in the review by Biddle (2000). No RCTs were identified for older adults.

Seven trials involved young adults (n = 567), mostly American male and female college students. The interventions included:

- yoga and progressive relaxation classes in one trial
- aerobics exercise classes and lectures in another
- a combination of weight training and running in a third
- running, stretching and counselling in the fourth
- sports skills training, a variety of exercise classes and/or individualised circuit training in the remaining three studies.

The duration of the interventions varied from 3 to 16 weeks. A variety of self-esteem measurements were used: Tennessee self-concept scale (consists of physical self, moral/ethical, family, personal and social dimensions), Q-Sort technique, RSES or PSES (no further details provided).

- Four trials showed positive changes, with one showing increased self-esteem in the intervention groups, and three showing increased self-concept.
- In three studies no change was reported in self-concept and/or physical self-concept (one of these studies did not define the change outcome).

However, Fox does highlight that these trials are biased towards American college students, who are likely to have high self-esteem and may already be involved in regular exercise.

Seven trials involved middle-aged adults (n = 672 for five trials, with the number of participants not provided for the remaining two). The interventions included: fitness and jogging, relaxation, walking, weight training, an exercise prescription scheme, home-based exercise, high-intensity exercise or low-intensity home exercise and tai chi. The interventions ranged from 10 weeks to a year – four lasted at least 6 months. The frequency of the sessions ranged from 1–2 a week to 5 a week. A variety of self-esteem measurements were used: RSES, SPES, BCS, PIP, PSPP (not further defined), or perceptions of satisfaction with appearance, fitness, weight and rating of health behaviour, or self-perceptions of changes in health, appearance, fitness and weight.

- Overall, a positive improvement in satisfaction levels (not defined further) and physical self-perception, including ratings of fitness appearance, physical self-worth and physical health, was found. Only three studies assessed global self-esteem and no significant improvements were identified.

The remaining five trials focused predominantly on women (n = 181 for three trials; number of participants not provided for the other two). Interventions included: weight training sessions for 12 weeks, arm and leg training for 6 weeks, moderate vs light-intensity exercise for 8 weeks, running (duration not specified), supervised walking for 8 weeks.

- Four trials reported positive improvements: one reported increased physical self-perception and self-satisfaction, another reported increases in self-esteem, a third reported increases in self-acceptance, and a fourth reported positive changes, which were not further described. The one remaining trial found no change in self-concept or physical self-concept.

Fox concludes that there is sound evidence to show that participation in exercise and sport can produce positive changes in wellbeing through improved physical self-perception. However, the relationship between increased physical activity and measures of self-esteem is less consistent. Two trials found that increased self-esteem followed physical activity (one with young adults and the other with various age groups), while at least three trials showed no significant effect on measures of global self-esteem in middle-aged adults. The authors were not able to establish the main mechanisms underpinning changes in wellbeing and self-esteem, primarily because:

- there is no direct evidence to establish the causal link between self-esteem change and sense of control over the body, its appearance and functioning
- there is insufficient evidence to demonstrate that group exercise is more beneficial in terms of self-esteem or self-perception than individual or home-based exercise programmes
- there is evidence to suggest that enhanced self-esteem is not necessarily linked to increased fitness, but rather, improvements in perceptions of health, fitness and body image may occur simply because there is a 'feeling' that the body is improving through exercise.

In summary, the author proposes that enhanced physical self-perception and self-esteem will inevitably contribute to mental wellbeing and 'presumably quality of life'. However, from a review of the literature, Fox was not able to confirm a direct link between increased physical activity and enhanced wellbeing – or that participation in exercise and sport helps prevent mental disorders and ill-health.

Physical activity, ageing, and psychological well-being (McAuley and Rudolph 1995)

This review aimed to assess the utility of exercise and physical activity for enhancing the positive aspects of mental health or psychological wellbeing in older adults (aged over 45). The authors define 'physical activity' as bodily movement involving the skeletal muscles that results in energy expenditure and 'exercise' as a planned, repetitive and structured activity with the goal of improving cardiopulmonary fitness. However, it was felt appropriate to use the terms synonymously as most of the studies cover both types of activity. Psychological wellbeing (PWB) was defined as including some aspect of positive affect.

A total of 38 papers met the authors' inclusion criteria (one of which was reported in Biddle 2000 and two in Fox 2000). These involved 12,169 participants with an average age of 57. Twenty-four studies involved some form of exercise programme and five focused on acute bouts of exercise. The remaining nine studies involved no exercise stimuli; instead, participation in physical activity was based on retrospective recall.

Of the 29 studies that involved some form of exercise stimulus, 19 used a control group, and the remaining 10

did not employ a control group. Four categories of outcome measures were identified:

- positive wellbeing (positive affect, mastery/efficacy, psychological wellbeing)
- generalised mood (mood measures, adjective checklists)
- life satisfaction (life satisfaction, quality of life)
- other (esteem, hardiness, emotional reactivity, personality measures).

Measures of stress-related emotions and positive wellbeing were the most frequently used measures of PWB (appearing in 30 and 27 studies respectively), followed by generalised mood (n = 13), other various measures (n = 9) and life satisfaction (n = 6).

- Combined, the 38 studies suggested an overwhelming positive effect, with 28 studies reporting some evidence of a relationship between levels of physical activity and enhanced wellbeing. Reported changes included enhanced perceptions of mastery, improved life satisfaction, mood and reduced negative affect. No change or relationship was found for the remaining 10 studies.
- The length of exercise programmes appears to have an effect on changes in PWB. Six studies had study protocols lasting 20 weeks or more and five of these reported significant associations between exercise and PWB. Of the 14 studies with study protocols of 10–20 weeks, 11 reported positive effects on PWB with no effect being found for the remaining three studies. Of the four studies with a protocol of less than 10 weeks, two reported a positive effect and two no effect on PWB.
- Five studies examined the association between exercise participation and immediate or acute effects in PWB, and the results were equivocal.
- Little empirical support for PWB differences between older men and women from physical activity was found. Only 11 of the 30 studies that included both genders in their samples attempted to assess whether physical activity differentially affected PWB for one gender vs the other. Six of the studies reported no differential effects by gender and in the remaining five studies men reported greater psychological benefits.
- Only four studies considered the role of age in moderating exercise effects on psychological responses; three did not find an association between age, physical activity and PWB, but one did report age differences (no further details provided).

A total of 23 of the 38 studies investigated whether physical fitness is necessary for an exercise training effect (eg increase in cardiovascular fitness) for changes in PWB to occur.

- The majority – 21 – of these studies reported that exercise training programmes are associated with positive changes in aerobic capacity/physical fitness; no improvements were noted in the remaining two studies.
- However, the concomitant change in PWB is less clear. Only three studies revealed a positive and significant relationship between improved physical fitness and elements of improved PWB. The remaining studies either did not find PWB to improve significantly as a function of exercise training, or their measures of psychological change were unrelated to measures of physiological change.

The authors conclude that positive PWB is related to participation in physical activity and exercise in older people but whether this relationship is casual cannot be verified. The majority of the studies that employed training protocols resulted in significant improvements in fitness and PWB, but these improvements appear unrelated. In the studies that examined differential effects of age and sex the association between physical activity and PWB appears to be fairly consistent. However, the role of physical fitness gain in improved PWB is less clear, with participation in physical activity rather than physical fitness per se being related to improvements in PWB. Finally, the effects of exercise and physical activity on PWB also appear to be characterised by a reduction in negative symptomatology rather than the more positive emotional responses.

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The authors identified two physical activity studies.

The first was an RCT study from the USA (also included in Fox 2000) that reported on the impact of three different exercise formats on a sample of healthy 50–64 year old white participants: group based exercise (n = 75); high-intensity exercise at home (n = 74); and low-intensity exercise at home (n = 77). The controls carried out normal activity (n = 74). The study reports on three

outcomes: stress, anxiety and depression. The latter two are outside the scope of this evidence briefing.

- Members of all three intervention groups reported a significant reduction in stress levels at 12 months ($p < 0.008$), with exercise frequency and sustainability being the strongest predictor for this age group compared with format and intensity. Significantly, lower stress levels were also reported for the lower and higher intensity home-based exercise sessions compared with the control ($p < 0.003$).

The second study was a UK RCT that aimed to assess the impact of a 6 week, low-intensity exercise-to-music programme delivered by an occupational therapist to 12 older women in a day centre (compared with 15 controls).

- Despite the small sample size and other confounding factors present in the design, it led to significant and positive self-reported changes in measures of happiness and wellbeing in the intervention group (pre-test: 1.9 vs post-test 7.9, $p < 0.05$) compared with the control group (pre-test: 1.9 vs post-test 2, not significant).

EVIDENCE STATEMENTS – PHYSICAL ACTIVITY

There is review-level evidence from Britain, USA and other countries (not specified) to suggest that participation in physical activity, sport and exercise is positively associated with mood, emotion and psychological wellbeing (Biddle 2000; Fox 2000; McAuley and Rudolph 1995) and can produce positive changes in wellbeing through improved physical self-perception (Fox 2000).

There is review-level evidence from Britain to suggest that those who are highly active experience more positive affects of physical activity compared with those who are less active. The most negative affect is reported for high-intensity exercise by those who are less active (Biddle 2000).

There is review-level evidence from Britain to suggest that low-intensity exercise compared with moderate-intensity exercise results in favourable mood states (such as increased vigour and exhilaration) and lower mental fatigue (Biddle 2000).

There is review-level evidence to suggest that the length of exercise programmes appears to have a positive effect on psychological wellbeing, with exercise programmes lasting 20 weeks or more, compared with 10–20 weeks or less than 10 weeks, having the greatest association (McAuley and Rudolph 1995).

There is review-level evidence to suggest that there is no association between age, physical activity and psychological wellbeing (McAuley and Rudolph 1995).

There is conflicting review-level evidence to demonstrate that physical activity differentially affects males and females (McAuley and Rudolph 1995).

There is conflicting review-level evidence from the USA and other countries (not specified) to demonstrate that increased physical activity increases self-esteem (Fox 2000).

There is conflicting review-level evidence as to whether there is an association between exercise participation and immediate or acute effects in psychological wellbeing (McAuley and Rudolph 1995).

There is conflicting review-level evidence as to whether there is a positive relationship between improved physical fitness and improved psychological wellbeing (McAuley and Rudolph 1995).

There is insufficient review-level evidence to determine what mechanisms underpin the positive changes in mental wellbeing associated with participation in sports, physical activity and exercise (Biddle 2000; Fox 2000; McAuley and Rudolph 1995). These reviews identified a number of studies from various countries that suggested a positive association between mental wellbeing and participation in sports, physical activity and exercise; however, whether this relationship is causal could not be verified. Further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to demonstrate that low and high intensity home-based and group exercise sessions are associated with lower stress levels (Fox 2000; Tilford et al. 1997). The reviews identified one primary study from the USA that suggested a positive intervention effect; further investigation in high-quality trials is warranted.

There is insufficient review-level evidence to confirm that a 6 week, low intensity, exercise-to-music programme for older women may improve their self-reported measures of happiness and wellbeing (Tilford et al. 1997). The review identified one UK primary study that suggested a positive intervention effect; further investigation in high-quality trials is warranted.

Specific 'at risk' groups

Prevention of eating disorders

Eating disorder prevention programs.

A meta-analytic review (Stice and Shaw 2004)

This systematic review set out to provide a comprehensive summary of eating disorder prevention programmes and to assess their effectiveness using a meta-analytic procedure. The review also examined sample, intervention and design features that are associated with larger intervention effects, and explored the theoretical, methodological and statistical limitations of the literature.

To be included in the review, prevention studies had to test for intervention effects on eating pathology or on risk factors known to predict the onset of eating pathology. Interventions delivered to participants with 'full threshold or full/sub-threshold diagnoses' were deemed to be treatment trials (as opposed to prevention trials) and were excluded from the review (Stice, personal communication 3/8/2005).

Trials were only included if interventions had been assessed in controlled trials where participants were either randomly assigned to intervention or control groups (comprising minimal intervention, placebo, waiting list or assessment only), or some relevant comparison group was used in a quasi-experimental design (for example, matched controls). Studies were only

included if they compared change in outcomes over time in the intervention group vs the control (those studies that only assessed change from baseline were not included).

The prevention programmes included were of the following categories:

- universal (delivered to a representative sample of the population, for example, school interventions)
- selected (delivered to individuals at elevated risk of developing an eating disorder – that is, they presented an established risk factor, such as body dissatisfaction)
- indicated (delivered to participants who presented with a risk factor in addition to early symptoms of an eating disorder, such as sub-diagnostic frequency of binge eating).

The review authors note that the majority of the programmes in the selected category did not distinguish those participants with an elevated risk factor from those who presented with sub-diagnostic eating disorders. As a result, the review is likely to have focused on a blend of selected and indicated programmes (Stice, personal communication 3/8/2005).

The review authors identified 51 published and unpublished studies (countries of origin not specified) involving 38 eating disorder prevention programmes that met their inclusion criteria. They note that the majority of these were selected programmes, because most were delivered exclusively to females (gender is an established risk factor for the development of eating disorders, Stice, personal communication 3/8/2005). Seven studies assessed universal prevention programmes and 13 assessed selected programmes aimed at participants with a mean age over 16. Interventions for individuals aged under 16 are excluded from this briefing.

The review authors calculated effect sizes for all outcomes on eating pathology and risk factors examined in 10 or more trials. They note that, overall, the average effect sizes for outcome measures were small to medium, ranging from 0.11 to 0.38. However, they also observe that findings from more recent prevention trials are showing more promising results, with one selected programme reducing the rate of threshold and sub-threshold eating pathology from 15% in the control to 6% in the intervention group. Although meta-analytic effect sizes were calculated, the results are not be

presented here as data were analysed across all age groups, including the under 16s, who are excluded from this evidence briefing.

Of the seven universal prevention programmes, six adopted a didactic, psycho-educational or information provision approach and one described a cognitive behavioural intervention. Most interventions were delivered to college or school-age women, with one delivered to middle school (young adolescent) boys and girls.

- Five trials found no significant impact of the intervention on outcomes relating to eating pathology (such as eating disorder symptoms, general psychiatric or physical symptoms) or on risk factors known to predict onset of eating pathology (such as body dissatisfaction, negative affect, 'thin ideal' internalisation and body mass).
- Two trials found mixed results. The first found positive effects for bulimic symptoms at post-test, relative to an assessment-only intervention, but no effects for knowledge, body satisfaction or negative affect. The other trial found positive effects for body dissatisfaction at 12 month follow-up, but no effects for body mass, negative affect, perfectionism or eating pathology.

Of the 13 selected prevention programmes identified, five were primarily based on cognitive behavioural therapy, four were information or education based, one involved promotion of a low calorie diet, and three focused on critical evaluation skills (participants discussed the cultural pressures to be thin). All interventions were delivered to college- or school-age women, with one also delivered to college-age men.

- Eleven trials found positive intervention effects on at least one risk factor (such as body dissatisfaction, negative affect, thin ideal internalisation or body mass).
- Intervention effects on outcomes relating to eating pathology (such as bulimic symptoms, general psychiatric symptoms or physical symptoms) were less clear, with three trials reporting positive effects and three reporting no effect.

The review authors note a number of methodological limitations in the eating disorder prevention literature. These include:

- frequent lack of comparison to a control group (more than a quarter of the trials)
- where a control group was used, trials often failed to use a minimal intervention or placebo control (such an approach avoids the possibility that any observed intervention effect is due to demand characteristics or expectancy effects)
- frequent failure to assign participants randomly to an intervention or control group
- frequent failure to conduct appropriate statistical tests of an intervention effect compared to the control
- failure to assess eating pathology (more than 30% of trials in the review), focusing instead on established risk factors
- failure to assess clinically significant eating pathology.

The authors conclude that a number of eating disorder prevention programmes have been developed and evaluated. While some were found to decrease both current eating pathology and the risk of future problems, the majority of trials decreased the risk factors for eating pathology (for example, body dissatisfaction). The authors also suggest that selected programmes delivered to high-risk individuals produced significantly greater intervention effects than universal programmes with unselected samples of the population.

EVIDENCE STATEMENTS – PREVENTION OF EATING DISORDERS

There is review-level evidence that selective eating disorder prevention programmes (those delivered to 'at risk' groups) are effective in reducing the risk factors that predispose to eating pathology (such as body dissatisfaction, thin ideal internalisation or body mass and negative affect) (Stice and Shaw 2004).

There is conflicting review-level evidence that universal eating disorder prevention programmes (delivered to a representative sample of the population) are effective either in reducing symptoms of eating pathology or the risk factors known to predict its onset (Stice and Shaw 2004). The review found five controlled trials that had no significant impact of the interventions on eating pathology or the risk factors, and two trials that found some positive effects, either on eating pathology or on the risk factors. Further investigation in high-quality trials is warranted.

There is conflicting review-level evidence that selective eating disorder prevention programmes (those delivered to 'at risk' groups) are effective in reducing the symptoms of eating pathology (such as bulimic, general psychiatric or physical symptoms) (Stice and Shaw 2004). The review found three controlled trials that reported positive effects of intervention and three that reported no effect. Further investigation of in high-quality trials is warranted.

Prevention of pathological gambling

Prevalence, assessment, and treatment of pathological gambling: a review (Petry and Armentano 1999)

This paper reviewed the literature on the prevalence, assessment and treatment of pathological gambling, which is a recognised psychological disorder in DSM-IV (American Psychiatric Association 1994). The prevalence and assessment of pathological gambling are outside of the scope of this briefing.

Petry and Armentano identified eight studies describing treatment approaches (these include the prevention of relapse and/or encouragement of abstinence – that is, secondary prevention). However, two involved pharmacotherapy and are therefore excluded here. Two of the remaining six studies consisted of family and marital therapy interventions and four were based on cognitive behavioural therapy. A variety of outcomes were reported, but only those relevant to the briefing's inclusion criteria are reported below.

Family and marital therapy

Both these studies compared attendance of partner/spouses at Gamblers Anonymous (GA) sessions with non-attendance of partners/spouses (no further study details provided).

- In one study (n = 90) where 49% of GA members' partners participated in GA sessions, GA members retrospectively rated that they were more likely to achieve abstinence from gambling compared with those whose spouses did not participate. However, this was not statistically significant.

- In the other study (n = 40), a non-significant reduction in gambling was reported among gamblers who attended sessions with their partner/spouse compared with those whose partners did not take part.

Both studies involved volunteers (that is, they were self-selecting) and the authors note that this may obscure the interpretation of the results.

Cognitive behavioural therapy

- One controlled study comparing two therapies randomly assigned 20 gamblers to aversion therapy or intensive 'imaginal desensitisation' (not further defined). Participants involved in the 'intensive imaginal desensitisation' group reported significantly less urge to gamble and were gambling less, 1 month following treatment.
- Another study compared individual cognitive behaviour therapy (cognitive restructuring, problem solving, social skills training and relapse prevention) provided on a weekly basis for three gamblers with pre-treatment (not further defined). It found that their gambling decreased during treatment phases and their perceived control over the habit increased.
- In the third controlled study, 29 gamblers were randomly assigned to either cognitive behavioural therapy or a waiting-list control group. Members of the therapy group gambled less frequently, spent less money on gambling and had increased perceived control over gambling. However, the review authors note that data were not provided for 36% of study participants who did not complete the therapy.
- The final study randomly assigned 29 participants either to use of a self-help manual designed to equip them with the skills to help them reduce their gambling, or to a self-help manual plus a single, in-depth motivational interview. The amount of money spent on gambling and the frequency of gambling episodes decreased for both groups.

The authors highlight the poor methodological quality of the included studies. For example, the lack of randomisation or controls, lack of clearly defined interventions and the use of a very small number of participants. Despite this they conclude that cognitive behavioural therapies and self-help manuals may help reduce pathological gambling. In addition, referral to GA may assist some gamblers and their families.

EVIDENCE STATEMENTS – PREVENTION OF PATHOLOGICAL GAMBLING

There is review-level evidence to suggest that cognitive behavioural therapy, including 'imaginal desensitisation', may help reduce the frequency of further pathological gambling episodes (or urges). It may also help increase the gambler's perceived control over gambling (Petry and Armentano 1999).

There is review-level evidence to suggest that partner/spouse involvement in Gamblers Anonymous sessions are successful in the secondary prevention of pathological gambling, by encouraging abstinence or reducing pathological gambling episodes (Petry and Armentano 1999).

There is insufficient review-level evidence to suggest that self-help manuals either alone, or in conjunction with a single, in-depth motivational interview, helps reduce the frequency of further pathological gambling episodes or money spent on gambling (Petry and Armentano 1999). The review identified one study which suggested a positive intervention effect; further investigation in high-quality trials is warranted.

- The intervention group reported significantly greater relationship satisfaction at 1.5 ($p < 0.0006$) and 3 year follow-up ($p < 0.003$) than the control. A decrease in problem intensity ($p < 0.01$) was also found at the 3 year follow-up.
- Trend data also indicated that the intervention couples appeared to maintain their positive scores over time compared with the controls, whose scores declined in the direction of relationship dysfunction or dissolution.

However, Tilford and colleagues note that the acceptability of these interventions among the wider community requires further assessment.

EVIDENCE STATEMENT – PREVENTION OF MARITAL DISTRESS

There is insufficient review-level evidence to confirm that community-based, pre-marital relationship enhancement training for pre-marital couples is effective (Tilford et al. 1997). The review identified one study from the USA that suggested positive intervention effects on relationship satisfaction levels and reduced intensity of problems. Further investigation in high-quality trials is warranted.

Prevention of marital distress

Effectiveness of mental health promotion interventions: a review (Tilford et al. 1997)

For background information on Tilford et al. (1997) refer to p28. The authors identified one study focusing on marital distress. This was an evaluation in the USA that used a before-and-after design with randomised pre-marital couples ($n = 42$) in a community-based, pre-marital relationship enhancement programme delivered by trained consultants. The intervention consisted of five, 3 hour sessions with couples, aimed at improving communication, problem solving, sharing experience and sexual enhancement. A range of outcomes were reported over 3 years: impact on communication skills, problem-solving skills, relationship quality and satisfaction, and sensual/sexual enhancement. Only relationship quality and satisfaction, and problem solving skills, are applicable to this briefing and are reported here.

COST EFFECTIVENESS OF MENTAL HEALTH SERVICE INTERVENTIONS

Four Evidence Base papers were identified that addressed the cost effectiveness of mental health service interventions (Bower et al. 2002, 2003; Jepson et al. 2001; Pharoah et al. 2003).

The following interventions are covered in this section: mental health promotion, caring for carers, counselling in primary care, family interventions for schizophrenia.

Mental health promotion

Scoping review of the effectiveness of mental health services (Jepson et al. 2001)

This paper reports on both a scoping review of effectiveness (essentially, a review of reviews) and a literature review of economic evaluations of mental health service interventions. Only the cost effectiveness component is relevant to this evidence briefing and is reported below.

The review authors aimed to identify and assess the cost-effectiveness evidence for a variety of mental health services. A total of 28 studies were identified that met the authors' inclusion criteria. These were grouped using the objectives of the National Service Framework (NSF) for Mental Health (Department of Health 1999b):

- Standard one – mental health promotion
- Standards two and three – primary care and access to services
- Standards four and five – effective services for people with severe mental illness
- Standard six – caring for carers
- Standard seven – preventing suicide.

Only the sections covering mental health promotion (see below) and caring for carers (see this page) meet the inclusion criteria for this evidence briefing.

Jepson et al. defined mental health promotion as any intervention that actively fosters good mental health by increasing health promoting factors and decreasing factors that may damage or reduce the mental health of both individuals and communities. However, no economic evaluations of mental health promotion interventions were identified in this study.

EVIDENCE STATEMENT – COST EFFECTIVENESS OF MENTAL HEALTH PROMOTION

There is insufficient review-level evidence on the cost effectiveness of mental health promotion interventions (Jepson et al. 2001). No studies were identified by the review; further investigation in high-quality trials is warranted.

Caring for carers

Scoping review of the effectiveness of mental health services (Jepson et al. 2001)

For background information on Jepson et al. (2001) see above. One RCT that examined the cost effectiveness of supporting carers of a relative who has moderate or severe dementia compared with conventional community care was identified. A total of 60 participants were involved in this Canadian trial, which had a 6 month follow-up period. Quality adjusted life years (QALYs) and the caregiver quality of life instrument (CQLI) were used to measure outcomes. Price information relating to 1998 costs for nursing visits, attendant care, medical doctor visits, other paid help, day programmes and overnight institutional respite were used to calculate direct health service costs.

- There was a 20% improvement in CQLI among those carers receiving support. However, this was not statically significant (p value was not significant – no further details provided).

A 'conservative' incremental cost, based on the additional annual cost of the carer support programme, was calculated because there was no statistically significant difference in the costs of individual items between the two groups. At 1991 prices, this was calculated to be Can\$1240 for the programme cost/carer/annum. The incremental cost per QALY gained for the carer support programme, with two levels of respite care (not further defined), was calculated to

be Can\$12,365 (costs and benefits not discounted). Outcome and cost duration was 6 months and inclusion of treatment side effects was not considered relevant.

The review authors comment on the small sample size and the large variance in the quality of life scores of carers. They conclude that there was no statistically significant evidence to suggest that the carer support programme was more effective and more cost effective than conventional community care.

EVIDENCE STATEMENT – COST EFFECTIVENESS OF CARING FOR CARERS

There is insufficient review-level evidence to confirm the effectiveness – or cost effectiveness – of carer support programmes, compared with conventional community care for carers of people with dementia (Jepson et al. 2001). The review identified one Canadian study that found no significant effectiveness or cost effectiveness; further investigation in high-quality trials is warranted.

Counselling in primary care

Effectiveness and cost effectiveness of counselling in primary care (Bower et al. 2002); The clinical effectiveness of counselling in primary care: a systematic review and meta-analysis (Bower et al. 2003)

For background information on Bower et al. (2002, 2003) refer to p22. This systematic review is reported in two publications. The later review assessed the clinical effectiveness of counselling in primary care to manage common mental disorders. The earlier review included an assessment of the cost effectiveness of such interventions.

- Overall, the four trials of relevance to this briefing reported no difference in the costs associated with patients in counselling and those receiving the usual GP care.

However, the review authors note that the available cost data had a number of limitations. For example, as none of the sample size calculations were based on cost data, and as costs are susceptible to greater variability than clinical outcomes, it is likely that the analyses are underpowered and vulnerable to type II errors.

EVIDENCE STATEMENT – COST EFFECTIVENESS OF COUNSELLING IN PRIMARY CARE

There is review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems may cost a similar amount to usual GP care (Bower et al. 2002, 2003). However, the review authors note that the cost analysis is likely to be underpowered and susceptible to type II errors.

Family interventions for schizophrenia

Family intervention for schizophrenia (Pharoah et al. 2003)

For background, refer to p37. The authors identified three studies comparing family interventions with standard care. Each also included an economic analysis. One study from China reported only the direct costs of the intervention and two studies (from the UK and USA) reported on both the direct and indirect costs of community management for patients and families, and for health, welfare and community agencies.

- The Chinese study found that a family intervention resulted in a net saving of 58% of the per capita yearly income of the family, compared with standard care, although the direct benefit to the family varied, depending on whether the patient had medical insurance or received work disability payments.
- The UK study found a 27% decrease in the mean cost per patient in the family intervention group compared with standard care.
- The study from the USA found that after 1 year the overall costs of the family approach were approximately 20% less than those of the control (or usual care) group.

The review authors also report that group-based family interventions should be more economical than individual approaches, but provide no data for this comparison.

EVIDENCE STATEMENT – COST EFFECTIVENESS OF FAMILY INTERVENTIONS FOR SCHIZOPHRENIA

There is review-level evidence from the UK, the US and China that the economic costs of family-based interventions is lower than those of standard or usual care (Pharoah et al. 2003).

Discussion

Overview of main findings

This evidence briefing has examined the effectiveness of interventions aimed at promoting positive mental health, including the prevention of mental health disorders among adults. Evidence relating to the cost effectiveness of such interventions and their impact on health inequalities has also been gathered and reviewed where available.

A summary of the evidence statements generated for each of the identified themes is presented in Table 1 (p72).

Review-level evidence of effective mental health promotion initiatives was found for:

- two settings – primary care and workplaces
- a number of population sub-groups, for example, older adults, carers, parents and minority ethnic populations
- a diverse range of specific topic areas, for example, exposure to traumatic life events (divorce, bereavement, marital distress and re-housing), gambling, eating disorders, physical activity, volunteering and the use of mass media in mental health promotion campaigns.

Where evidence of effectiveness of interventions has been found on outcomes relating to mental health, interventions tend to focus on:

- strengthening protective factors for positive mental health (for example, improved self-esteem, which is linked to improving resilience and life skills)
- reducing risk factors for poor mental health (for example, reducing stress)
- preventing clinically-defined mental health disorders in at-risk groups (for example, selective or indicated

interventions for the prevention of eating disorders, see p62).

Very little evidence was found of effectiveness where universal interventions directly seek to prevent mental health disorders either through promoting protective factors or reducing risk factors in the general population. The reasons are likely to include the long-term nature of strategies for preventing mental health disorders and also the incomplete association between risk factors of poor mental health and the development of mental health disorders (ie not everyone who suffers from stress will develop anxiety disorder).

Equally, there is also an imbalance in the number of studies or reviews for each of the topic areas covered, with some areas yielding very little review-level literature (for example, interventions for minority ethnic and socio-economically deprived groups) while others have sufficient primary studies for meta-analysis (see for example parenting programmes, p42 or eating disorder prevention programmes, p62).

Overall, evidence from review-level literature has found a general lack of research on the effectiveness of mental health promotion interventions in reducing health inequalities. The studies described tend not to target people from low socio-economic, low education, high risk, vulnerable or minority ethnic groups and/or address the differential effectiveness of interventions between comparatively advantaged and disadvantaged groups.

Where papers did include primary studies with an inequalities dimension (such as reporting a population group's socio-economic status), the analysis of effectiveness generally did not present data broken down by socio-economic variables.

Likewise, little review-level evidence was found on the cost effectiveness of mental health promotion interventions or prevention of mental health disorders. Only four papers explicitly aimed to determine the cost effectiveness of an intervention/approach (Bower et al. 2002, 2003; Jepson et al. 2001; Pharoah et al. 2003) and for three of these very little detailed data were provided. Otherwise, the majority of papers do not include any costing data and so only minimal review-level data for this aspect of the briefing has been found.

Review methodology

During the course of preparing this evidence briefing a number of important methodological issues – in addition to the general ones raised in the Introduction – were encountered.

The ‘evidence briefing’ approach provides a synthesis or snapshot of the best available recent, review-level evidence in a particular topic area. However, while systematic reviews, meta-analyses and other review-level data aggregate large amounts of primary data (Elliott et al. 2001), it is acknowledged that these secondary sources tend to favour a relatively narrow spectrum of potential evidence – mostly drawn from randomised controlled trials, while other approaches, for example, qualitative work, tend to be under-represented (Kelly et al. 2002). Likewise, reviews of primary studies tend to rely solely on published sources, and publication policies that exclude studies with inconclusive or negative findings (publication bias) will further restrict the type of evidence captured within review-level literature.

A further inherent problem with review methodology or, indeed, with any secondary research synthesis, stems from the ultimately subjective, interpretative representation of primary study results. This potential reporting bias is further confounded by employing a ‘review of review-level’ literature methodology, such as that adopted for any evidence briefing. This issue is of particular concern in topic areas where significant methodological controversies exist, as conflicting results will often be demonstrated both within and between primary studies, making it difficult for a review author to draw firm conclusions.

Finally, it should be noted that this evidence briefing is restricted to recently published (post-January 1995)

review-level evidence. Although it is possible that relevant reviews published after 1995 may have been missed, it is hoped that hand searching of the reference lists of all critically appraised papers, together with consultation with reference group members and peer reviewers, have minimised this risk.

Inclusion/exclusion criteria

Prevention of any of the mental health disorders described within the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (American Psychiatric Association 1994) is used as the primary basis for this evidence briefing’s inclusion and exclusion criteria (see p16–17). However, such an approach does impose a narrow clinical or ‘deficit’ focus on investigations, which means assessment of the broader, societal or ecological factors that underpin mental health could be neglected (see Bronfenbrenner 1979).

It is important to note, that a number of DSM-IV mental health disorders are excluded from this briefing (for example, generalised anxiety disorder, post-traumatic stress disorder, self-harm and major depressive disorders) as they are being covered by complementary work from NICE (see Methods, p18). However, although reviews of the prevention of depression and anxiety are excluded, reviews of interventions that used depression and anxiety outcome measures as a proxy indicator of mental health are included. (For example, see the ‘Rehousing’ section in Findings, p54).

This evidence briefing is restricted to people aged over 16 for a number of reasons. The former HDA undertook its business planning in four streams and this briefing was allocated to the adult stream, which focused on people aged over 16. Consideration was given to undertaking it across both the adult and children and young people’s streams. However, because mental health issues for the younger age group are likely to have very different epidemiological considerations (the causes and triggers of mental health problems in children/young people are generally different to those in adulthood), a pragmatic decision was made to limit the scope to adults to ensure the work was manageable.

The importance of mental health interventions aimed at tackling the problems faced by children and younger people is acknowledged and recognised as an important topic for future investigation.

Unfortunately, one of the consequences of this age limitation has been that a number of high-quality papers that reviewed interventions across the age cut-off (for example, those delivered to adolescents) have been excluded, simply because the data presented have not been sufficiently disaggregated for relevant information to be extracted for this briefing. It is recognised, therefore, that this briefing may not have incorporated all high-quality review-level evidence pertinent to younger adults.

Reviews of interventions with people who had significant co-morbidities were also excluded (for example, individuals diagnosed with terminal or debilitating illness). It is recognised that these population groups are likely to be at a significantly increased risk of mental health problems, and a review of interventions targeting specific risk factors in these groups is warranted. It is important to note, however, that reviews of interventions that focus on carers (professional and non-professional), generally of children or people with significant co-morbidities, are included if they reported on a mental health outcome for carers.

Relapse

An area that presented particular difficulties during the preparation of this briefing is the consideration of relapse prevention in people who had previously been diagnosed with a mental health disorder. Reviews of the effectiveness of interventions that aim to prevent/reduce relapse rates is complicated by the varying definitions and outcome measures used to define relapse. For example, it is often defined by the presentation of clinical symptoms/features, by indicators of the treatment process (such as hospitalisation), or by a combination of the two. As a result, reviews of effectiveness of interventions seeking to prevent relapse are often plagued with problems of heterogeneity across studies, and the findings are often restricted to narrative descriptions.

A further complication related to prevention of relapse, as defined by the parameters of this briefing, is that interventions are invariably delivered to patients suffering from severe mental illness who are also in receipt of maintenance medication. As pharmacological and combined pharmacological and non-pharmacological interventions are outside the remit of this briefing, the vast majority of interventions that sought to prevent

relapse were excluded from further consideration. The authors of reviews of non-pharmacological interventions that failed to report whether or not patients were receiving, or likely to be receiving, maintenance medication, were contacted for clarification. A total of eight reviews were excluded after contact with the review authors (see Appendix 4).

As a result, no reviews were identified of non-pharmacological interventions that aimed to prevent relapse in people who had previously been diagnosed with a mental health disorder, and who were neither experiencing a mental health episode at the time of the intervention or were taking maintenance medication.

Depression, stress and anxiety

In a small number of papers, the authors have used the terms anxiety and stress interchangeably. While these conditions are inter-related, a decision was made during the planning of this work that depression and anxiety would be the subject of a separate evidence briefing. This was primarily because NICE was producing clinical guidance for the management of depression (including anxiety) and it was felt that a complementary public health evidence briefing would be useful. Consequently, if a paper (or study within a paper) uses stress and anxiety outcomes interchangeably it was not included in this briefing. However, if stress outcomes are reported separately the paper has been included.

On a number of occasions, the decision to separate depression/anxiety from stress outcomes has also meant that an otherwise good quality and potentially relevant paper has been excluded as it has only reported on outcomes outside the inclusion criteria and/or it was not possible to disaggregate the depression/anxiety outcomes from the other reported and relevant outcomes.

One of the common consequences of the numerous and rigid inclusion/exclusion criteria is that not all of a relevant paper that has been identified meets the inclusion criteria. Rather than exclude the entire paper, the relevant data sections are included as long as they are sufficiently disaggregated to correspond with the inclusion criteria. For example, a paper may cover pharmacological interventions and psychosocial interventions. In this case only the psychosocial component would be of interest. However, when a review author has undertaken a meta-

analysis, or presented a summary of a variety of interventions and/or outcomes (incorporating findings consistent with the exclusion criteria of this briefing), the findings cannot be reported. See, for example, the paper by Stice and Shaw (2004).

Critical appraisal process

While the critical appraisal process is designed to be as objective as possible, it is acknowledged that decisions do contain a subjective element and this should be considered when reading the Findings section. It is hoped that subjectivity is minimised by having the critical process undertaken by two independent reviewers.

It should be noted that many of the reviews initially identified as useful and relevant were rejected from inclusion in the briefing during the critical appraisal process, because the paper did not meet the quality threshold for inclusion (reviews must be systematic and transparent). It is conceivable that the review authors may have applied a systematic methodology but simply failed to report it adequately (the paper lacked transparency). Unfortunately, the time limit imposed on production of this briefing meant it was not possible to contact review authors for any additional data/information.

Data presentation

A number of the studies/reviews presented in this briefing failed to report the follow-up periods used to determine effectiveness of the interventions reviewed and where they are reported they tend to be short-term outcomes (often during or immediately after completion of the intervention). Where this information is available it is presented in the review/study findings.

In a small number of sections in the Findings, studies are duplicated across the various reviews presented. Where this applies it is indicated whether there is duplication at the beginning of the description for the review. In some cases it was also found that there is variability or even contradiction in the content presented for duplicate studies across two reviews. See, for example, the divorce/separation study presented in both Papworth and Milne (2001) and Tilford et al. (1997) (see p53). Given resource constraints it was not possible to check with the authors of the primary study and so the descriptions

provided by the review authors has been used even where this appears to be contradictory.

Finally, a number of reviews that passed the systematic, transparency and quality critical appraisal thresholds, but then elicited a 'no' or 'unsure' response in the relevance section of the form, were still accepted for inclusion in the Findings section. For example, some Evidence Base papers draw heavily on non-UK studies, such as those conducted in the USA, Canada, Australia and New Zealand. Such countries have different healthcare systems and therefore potentially different mechanisms for delivering mental health promotion and prevention interventions. The findings may have limited applicability in the UK. Where it is evident that review authors have drawn on non-UK studies, the country where the study was based is stated both in the description and in the derived evidence statements.

Table 1: Summary of evidence statements for each of the identified themes

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
SETTINGS			
Primary care	<p>There is review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems is associated with modest improvements in psychological symptoms in the short term (1-6 months), compared with usual GP care (Bower et al. 2002, 2003)</p> <p>There is review-level evidence from the UK that people presenting with broad psychological and psychosocial problems are highly satisfied with counselling interventions delivered in primary care (Bower et al. 2002, 2003)</p>	<p>There is conflicting review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems is associated with modest improvements in psychological symptoms in the longer term (> 6 months), compared with usual GP care (Bower et al. 2002, 2003).</p>	<p>There is insufficient review-level evidence to demonstrate that counselling in primary care for people presenting with broad psychological and psychosocial problems can improve social function compared with usual GP care (Bower et al. 2002, 2003). The reviews identified one study from the UK that found no effect of intervention on either short- or long-term social function outcomes; further investigation in high-quality trials is warranted.</p>
Workplace	<p>There is review-level evidence from the USA and UK to suggest that workplace interventions involving either early referral (triggered after 2–3 months of sickness absence) to occupational health services, or group-based information and role play sessions, can be effective in reducing sickness absence (Michie and Williams 2003)</p> <p>There is review-level evidence to suggest that, overall, stress-reducing interventions focused either on the individual (such as cognitive behavioural counselling, relaxation techniques and multi-modal programmes) or the organisation can help reduce work-related stress (van der Klink et al. 2001)</p> <p>There is review-level evidence that interventions aimed at individuals are more effective in improving people’s skills for coping with work-related stress and/or reducing overall levels of work-related stress than interventions delivered to organisations (van der Klink et al. 2001)</p> <p>There is review-level evidence that cognitive behavioural interventions are more effective than relaxation techniques in improving people’s skills for coping with work-related stress and/or reducing overall levels of work-related stress. Cognitive behavioural interventions that are shorter in duration and frequency are also more effective than longer programmes (van der Klink et al. 2001)</p>		<p>There is insufficient review-level evidence to demonstrate that support, advice and stress management sessions delivered by a psychologist to hospital ward workers during a period of organisational change are effective in reducing stress hormone levels (Michie and Williams 2003). The review identified one study from Sweden that suggested a positive effect on stress hormone levels. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that cognitive behavioural therapy or aerobic exercise training are effective in reducing levels of occupational stress for male business managers and supervisors (Papworth and Milne 2001).The review identified one study from Canada that found no significant effect of either intervention compared with the control. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that cognitive behavioural interventions are effective in reducing levels of occupational stress for employees with low-control jobs (Van der Klink et al. 2001). The review identified one study that found no significant effect of intervention on levels of occupational stress. Further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Workplace (cont.)	<p>There is review-level evidence that occupational stress-reducing interventions significantly improve measures relating to quality of work, 'psychologic' responses and resources, and physiological complaints (van der Klink et al. 2001)</p> <p>There is review-level evidence that remedial interventions (addressing existing problems) are more effective than preventive approaches in reducing levels of work-related stress (van der Klink et al. 2001)</p> <p>There is review-level evidence that cognitive behavioural interventions are significantly more effective than relaxation techniques and multi-modal interventions for employees with high control jobs (van der Klink et al. 2001)</p>		
POPULATION GROUPS			
All adults			<p>There is insufficient review-level evidence that universal primary prevention programmes (delivered to a representative sample of the general adult population) comprising a cognitive behavioural approach can improve mental health and behavioural outcomes (Papworth and Milne 2001). The review identified a cognitive behavioural video intervention that suggested some positive effects of an intervention; further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to suggest that a community-wide health promotion programme which adopts an information or behavioural-based approach can improve measures of stress management/coping, wellbeing and happiness for adults (Tilford et al. 1997). The review identified one primary study from New Zealand that suggested a positive intervention effect; further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Older adults (> 55)	<p>There is review-level evidence that psychosocial and psychotherapeutic interventions (particularly control-enhancing interventions and cognitive behavioural therapy) in older adults significantly improves measures of self-reported psychological wellbeing (Pinquart and Sorensen 2001)</p> <p>There is review-level evidence that psychosocial and psychotherapeutic interventions for older adults are more effective if they are delivered to nursing home residents (compared with adults living in the community) on an individual basis (compared with group interventions) by therapists with advanced degrees and specialist experience (compared with therapists with advanced degrees and no special geriatric training) (Pinquart and Sorensen 2001)</p> <p>There is review-level evidence based on one study from Canada, one from the USA and one from an unspecified country that interventions offering 'buddying', self-help network or group-based emotional, educational, social, or practical support to at-risk (widowed) older people can help to improve self-reported measures of health perceptions, adjusting to widowhood, stress, self-esteem and social functioning (Tilford et al. 1997)</p>	<p>There is conflicting review-level evidence that home visiting can be effective in improving the psychosocial functioning of older people living in the community (van Haastregt et al. 2000)</p>	<p>There is insufficient review-level evidence to demonstrate that social support training for older people can improve self-rated life satisfaction and community knowledge (Papworth and Milne 2001). The review identified one study from the USA that suggested a positive effect of an intervention; further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to confirm that subsidised employment programmes for older job seekers (aged 55-70) improves job-seeking behaviour, motivation or psychological outcomes (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect on job-seeking behaviour and motivation and no intervention effect on psychological outcomes; further investigation in high-quality trials is warranted</p>
Carers and helpers – Professional carers			<p>There is insufficient review-level evidence to demonstrate that 'parent-adviser' training for primary care staff helps to improve trainer's self-esteem (Bower et al. 2001). The review identified one study that suggested a positive effect of an intervention on self-esteem; further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
<p>Carers and helpers – Carers of people with Alzheimer’s disease or dementia</p>			<p>There is insufficient review-level evidence to demonstrate that support group sessions that focus on assertiveness, problem management and family therapy, or provision of 10 days respite care, are effective in reducing stress levels of carers of people with dementia (Tilford et al. 1997). The review identified one study from Australia which suggested that stress levels are reduced for those carers who participated in the group sessions compared with those receiving respite care. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that discussions delivered by nurse practitioner with support groups for carers of people with Alzheimer’s are effective in enhancing the carer’s coping skills or reducing their stress levels (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect for coping styles but not for perceptions of burden. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that support groups offering information sessions, emotional support and assistance in problem solving delivered by clinical psychologists alone, or combined with stress management and relaxation training, are effective for carers of people with dementia (Tilford et al. 1997). The review identified one study that suggested that an intervention had no effect on life satisfaction, negative feelings towards the care-receiver or network satisfaction. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that individual/family counselling or support groups for carers who have been looking after someone with dementia for 6 months or longer are effective in lowering burden and psychiatric symptoms (Tilford et al. 1997). The review identified one study which suggested that the intervention had no effect. Further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
<p>Carers and helpers – Carers of people who are mentally ill</p>	<p>There is review-level evidence that family interventions in families of people with schizophrenia and related disorders can have ‘limited’ positive effects on variables relating to the family unit such as reduction in family distress and quality of interpersonal relationships (Barbato and D’Avanzo 2000; Cuijpers, 1999). However, in meta-analyses of more than eight trials, Cuijpers (1999) noted significant heterogeneity across studies so these results should be interpreted with caution</p> <p>There is review-level evidence that family interventions in families of people with psychiatric disorders can have a modest positive effect on variables relating to the relatives’ burden of care (Barbato and D’Avanzo 2000; Cuijpers 1999; Pharoah et al. 2003)</p> <p>There is review-level evidence that family interventions in families of people with schizophrenia and related disorders did not significantly improve measures of carer’s ability to cope (Pharoah et al. 2003)</p> <p>There is review-level evidence to suggest that family interventions for carers of those diagnosed with schizophrenia or schizophrenia-like illnesses can improve general understanding of patients’ needs (Pharoah et al. 2003)</p>	<p>There is conflicting review-level evidence on the effectiveness of family interventions for influencing the levels of expressed emotion within the family. One review concluded from a meta-analysis that family interventions significantly reduced levels of high expressed emotion (Pharoah et al. 2003), whereas another review identified four studies that found conflicting results (Barbato and D’Avanzo 2000). One further study was identified by one review (Pharoah et al. 2003) that found no significant difference in the amount of expressed emotion by relatives between an intervention delivered in a group format compared with one delivered to individual families</p>	<p>There is insufficient review-level evidence to demonstrate that family interventions in families of people with schizophrenia and related disorders are effective in improving measures of carer’s psychological morbidity, family’s experience of caregiving, support given to carers, carer’s satisfaction or carer’s quality of life (Pharoah et al. 2003). The review identified only one study assessing each of the above outcomes, so further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that information sessions delivered in a hospital are effective in reducing stress levels for carers of people who are chronically mentally ill (Tilford et al. 1997). The review identified one study from the USA that suggested a positive effect; further investigation in high-quality trials is warranted</p>
<p>Carers and helpers – Carers of older or frail older people</p>			<p>There is insufficient review-level evidence to demonstrate that weekly groups guided by a professional and offering discussion, education and relaxation training can be effective for carers of frail older people (Tilford et al. 1997). The review identified one study from the USA that suggested a positive effect on caregiver burden in the short term, but not in the long term. Further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Carers and helpers – Carers of older or frail older people (cont.)			<p>There is insufficient review-level evidence to demonstrate that community-based psycho-educational skill building sessions that aim to increase pleasant activities and events to enhance mood, or to increase problem-solving skills, can result in increases in the morale of carers of frail older people (Tilford et al. 1997). The review identified a study from the USA that suggested a positive effect on carer’s morale and no significant effects on self-efficacy measures. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that providing respite care for a few hours a week has any significant impact on stress, coping and strain for carers of older people (Tilford et al. 1997). The review identified one UK study which suggested that provision of respite care was ineffective. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that small-group discussions comprising psychosocial and emotional support, together with respite care, for people providing care for an older, dependent friend or relative are effective in changing positive and negative feelings (Tilford et al. 1997). The review identified one Australian study that suggested the intervention was ineffective at 12 month follow-up. Further investigation in high-quality trials is warranted</p>
Carers and helpers – Carers of people with disabilities/chronic disabilities	There is review-level evidence to suggest that community-based individual and group counselling sessions for carers of people with disabilities may be effective in reducing self-reported rating of psychiatric symptoms and improvements in social networks/support, coping and dealing with pressing problems (Tilford et al. 1997)		

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Carers and helpers – General carers			There is insufficient review-level evidence to demonstrate that family participation and individual meetings offering general information, relaxation and communication exercises are effective in improving general carer's ability to cope and in reducing the sense of burden (Tilford et al. 1997). The review identified one study from the USA that suggested positive effects of this intervention; further investigation in high-quality trials is warranted
Carers and helpers – Parenting <i>Behavioural parenting programmes</i>	There is review-level evidence to suggest that behavioural parenting programmes are effective in improving a range of measures relating to parental efficacy and satisfaction (self-esteem) (Barlow et al. 2003)		There is insufficient review-level evidence to demonstrate that behavioural parenting programmes are effective in improving measures of irritability, social isolation and attachment, and marital adjustment (Barlow et al. 2003). The review identified one study assessing each outcome; further investigation in high-quality trials is warranted
Carers and helpers – Parenting <i>Cognitive behavioural parenting programmes</i>	There is review-level evidence to suggest that cognitive-behavioural parenting programmes are effective in improving a range of measures relating to parental psychological health, including parental guilt and self-blame, parental sense of competence (self-esteem) and frequency of automatic negative thoughts (Barlow et al. 2003)		There is insufficient review-level evidence to suggest that cognitive behavioural parenting programmes may improve measures relating to the 'mood states' of parents of children with developmental disabilities (Barlow et al. 2003). The review identified one RCT assessing the effectiveness of an intervention on measures of the seven domains of the Profile of Mood States and found a non-significant difference; further investigation of these programmes in high-quality trials is warranted
Carers and helpers – Parenting <i>Multi-modal parenting programmes</i>			There is insufficient review-level evidence to demonstrate that multi-modal parenting programmes may reduce levels of stress in the relationships with the spouse and child (Barlow et al. 2003). The review identified one RCT that found a significant improvement in the relationship with the child and a small but non-significant improvement in the relationship with the spouse. Further investigation in high-quality trials is warranted

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
<p>Carers and helpers – Parenting <i>Multi-modal parenting programmes (cont.)</i></p>			<p>There is insufficient review-level evidence to demonstrate that multi-modal parenting programmes may improve overall levels of stress in parents of children with ADHD (Barlow et al. 2003). The review identified one RCT that found improvements in stress levels. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that multi-modal parenting programmes may improve parent’s social support, attachment, feelings of parental role restriction and competence, parental self-esteem, interpersonal traits and measures of self-actualisation (Barlow et al. 2003). The review identified one RCT assessing each of these outcomes. Further investigation in high-quality trials is warranted</p>
<p>Carers and helpers – Parenting <i>Behavioural-humanistic parenting programmes</i></p>	<p>There is review-level evidence to suggest that the Parent and Children Series (behavioural-humanistic) parenting programme does not significantly improve measures of parental stress (Barlow et al. 2003)</p>		<p>There is insufficient review-level evidence to demonstrate that the Parent and Children Series (behavioural-humanistic) parenting programme enhanced with either a problem-solving component or further discussion can improve measures of parental stress (Barlow et al. 2003). The review identified one RCT that found significant improvements in the problem-solving group compared with the control. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that the Parent and Children Series (behavioural-humanistic) parenting programme improves measures of dyadic adjustment relating to parental relationships (satisfaction, cohesion, consensus and affectional expression), levels of social support, parental self-efficacy, parental anger or aggression (Barlow et al. 2003). The review identified one RCT that assessed each of these outcomes and suggested improvements with the intervention. Further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
<p>Carers and helpers – Parenting <i>Rational emotive therapy parenting programmes</i></p>	<p>There is review-level evidence to suggest that rational emotive therapy parenting programmes are effective in improving measures of parental guilt (Barlow et al. 2003)</p> <p>There is review-level evidence to suggest that rational emotive therapy parenting programmes are ineffective in improving measures of parental anger (Barlow et al. 2003)</p>		<p>There is insufficient review-level evidence to demonstrate that rational emotive therapy parenting programmes improve measures of relationship with spouse, social isolation and parental mood (Barlow et al. 2003). The review identified one RCT assessing each of these outcomes that suggested improvements with the intervention; further investigation in high-quality trials is warranted</p>
<p>Carers and helpers – Parenting <i>Parental support programmes</i></p>			<p>There is insufficient review-level evidence to demonstrate that peer parent volunteers for new parents, support programmes for single parents or group interventions for single mothers are effective (Papworth and Milne 2001). The review identified one study that suggested improvements in new parent’s levels of expectation with an intervention; one that found no improvement with intervention in measures of mood, self-esteem or levels of activity in single parents; and one that found beneficial effects on parent-child interactions, self-rated parental attitudes and locus of control, and no sustained effect on measures of self-reported depression and instrumental support for mental health outcomes. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that community-based competency programme for single, low income, mothers increases their self-esteem, or reduces their isolation and stress (Tilford et al. 1997). The review identified one Canadian study that suggested a positive effect on self-esteem and participation in community activities and a decrease in emotional difficulties and stress. Further investigation in high-quality trials is warranted. investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Carers and helpers – Parenting <i>Parental support programmes (cont.)</i>			<p>There is insufficient review-level evidence to demonstrate that a community-based parenting programme delivered to first-time mothers identified at high risk of child abuse increases their self-esteem (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that support programmes involving self-help discussion groups or parent education evening for parents of children with developmental disabilities improves their social support systems and decreases their stress levels (Tilford et al. 1997). The review identified one study from the USA that suggested a positive intervention effect. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that linking families with another family that does not have a child with a learning disability increases levels of social support and morale in parents with children with learning disabilities (Tilford et al. 1997). The review identified one UK study with a positive intervention effect. Further investigation in high-quality trials is warranted</p>
Carers and helpers – Volunteers	There is review-level evidence from the USA and Canada to suggest that volunteering undertaken by older people improves the quality of life of those who volunteer, with those participating in face to face/direct volunteering achieving the greatest benefit compared with those involved in indirect, less formal helping roles (Wheeler et al. 1998)		There is insufficient review-level evidence to suggest that a 'stress inoculation' group approach may improve levels of anxiety symptomatology as an indicator of mental health in older adult volunteers (Papworth and Milne 2001). The review identified one before-and-after controlled trial from the USA that suggested improvements with the intervention; further investigation in high-quality trials is warranted

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Minority ethnic populations			<p>There is insufficient review-level evidence from the USA that selective primary prevention programmes seeking to enhance social and communication skills in minority ethnic populations can improve mental health and behavioural outcomes (Papworth and Milne 2001). The review identified two poor quality studies that suggested some positive effects of an intervention; further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to suggest that meditation and/or muscle relaxation techniques may be effective in reducing stress levels among black college students (Tilford et al. 1997). The review identified one study from the USA that suggested a positive effect; further investigation in high-quality trials is warranted</p>
Disadvantaged groups			<p>There is insufficient review-level evidence that group interventions seeking to enhance social and communication skills in women in receipt of financial aid can improve mental health and behavioural outcomes such as self-esteem, positive attitudes and approaches, relationships, life planning, problem solving and stress management (Papworth and Milne 2001). The review identified one study from the USA that suggested some positive effects; further investigation in high-quality trials is warranted</p>
LIFE EVENTS AND TRANSITIONS			
Coping with negative life changes			<p>There is insufficient review-level evidence to determine if group-based interventions focusing on reactions to change, support, confidence, guidance and community involvement, delivered to people who have undergone two or more recent negative life changes, is effective in improving mental health outcomes (Papworth and Milne 2001). The review identified one study from Israel which suggested that an intervention was effective in improving depression and anxiety scores although other mental health symptoms were not improved. Further investigation of this intervention in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Bereavement			There is insufficient review-level evidence to determine if home-based counselling interventions are effective for recently bereaved people (Tilford et al. 1997). The review identified one study from the USA which suggested that an intervention was ineffective; further investigation in high-quality trials is warranted
Divorce and separation			<p>There is insufficient review-level evidence from the USA that a university based multi-component intervention comprising individual counselling and study groups, delivered to newly separated individuals, is effective in improving self-reported mental health outcomes (Papworth and Milne 2001; Tilford et al. 1997) These two reviews identified a study which suggested positive effects of intervention on anxiety and neurasthenia symptoms of mental health, quality of life, distress, psychological adjustment in terms of distress and maladjustment, social functioning and ratings of loneliness. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to determine if community-based communication skills training courses that focus on post-divorce adjustment are effective for divorced women (Tilford et al. 1997). The review identified one study from the USA that suggested positive effects on divorce adjustment and self-esteem and no effects on social support outcomes for recently divorced women; further investigation in high-quality trials is warranted</p>
Organisational change			There is insufficient review-level evidence from the USA that consultant-led group sessions delivered to members of a religious community who were undergoing a period of organisational change are effective in improving self-reported mental health outcomes (Papworth and Milne 2001). The review identified one study that suggested positive effects of intervention on support and wellbeing outcomes; further investigation in high-quality trials is warranted

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Re-housing			There is insufficient review-level evidence to demonstrate that re-housing individuals who suffer from 'mental ill health' symptoms that they attribute to housing improves 'mental ill health' (Tilford et al. 1997). The review identified one UK study which suggested that re-housing results in a decline in 'mental ill health'; further investigation in high-quality trials is warranted
TOPICS			
Mass media	There is review-level evidence derived from the UK, Norway and the USA to suggest that mass media campaigns, particularly those that include community activities, can have a beneficial effect on attitudes towards – and knowledge of – mental health issues. They can also impact on an individual's behavioural intentions and support enhancing behaviours to improve their own mental wellbeing (Tilford et al. 1997)		
Physical activity	<p>There is review-level evidence from Britain, USA and other countries (not specified) to suggest that participation in physical activity, sport and exercise is positively associated with mood, emotion and psychological wellbeing (Biddle 2000; Fox 2000; McAuley and Rudolph 1995) and can produce positive changes in wellbeing through improved physical self-perception (Fox 2000)</p> <p>There is review-level evidence from Britain to suggest that those who are highly active experience more positive affects of physical activity compared with those who are less active. The most negative affect is reported for high-intensity exercise by those who are less active (Biddle 2000)</p> <p>There is review-level evidence from Britain to suggest that low-intensity exercise compared with moderate-intensity exercise results in favourable mood states (such as increased vigour and exhilaration) and lower mental fatigue (Biddle 2000)</p>	<p>There is conflicting review-level evidence to demonstrate that physical activity differentially affects males and females (McAuley and Rudolph 1995)</p> <p>There is conflicting review-level evidence from the USA and other countries (not specified) to demonstrate that increased physical activity increases self-esteem (Fox 2000)</p> <p>There is conflicting review-level evidence as to whether there is an association between exercise participation and immediate or acute effects in psychological wellbeing (McAuley and Rudolph 1995)</p> <p>There is conflicting review-level evidence as to whether there is a positive relationship between improved physical fitness and improved psychological wellbeing (McAuley and Rudolph 1995)</p>	<p>There is insufficient review-level evidence to determine what mechanisms underpin the positive changes in mental wellbeing associated with participation in sports, physical activity and exercise (Biddle 2000; Fox 2000; McAuley and Rudolph 1995). These reviews identified a number of studies from various countries that suggested a positive association between mental wellbeing and participation in sports, physical activity and exercise; however, whether this relationship is causal could not be verified. Further investigation in high-quality trials is warranted</p> <p>There is insufficient review-level evidence to demonstrate that low and high intensity home-based and group exercise sessions are associated with lower stress levels (Fox 2000; Tilford et al. 1997). The reviews identified one primary study from the USA that suggested a positive intervention effect; further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Physical activity (cont.)	<p>There is review-level evidence to suggest that the length of exercise programmes appears to have a positive effect on psychological wellbeing, with exercise programmes lasting 20 weeks or more, compared with 10–20 weeks or less than 10 weeks, having the greatest association (McAuley and Rudolph 1995)</p> <p>There is review-level evidence to suggest that there is no association between age, physical activity and psychological wellbeing (McAuley and Rudolph 1995)</p>		<p>There is insufficient review-level evidence to confirm that a 6 week, low intensity, exercise-to-music programme for older women may improve their self-reported measures of happiness and wellbeing (Tilford et al. 1997). The review identified one UK primary study that suggested a positive intervention effect; further investigation in high-quality trials is warranted</p>
Prevention of eating disorders	<p>There is review-level evidence that selective eating disorder prevention programmes (those delivered to ‘at risk’ groups) are effective in reducing the risk factors that predispose to eating pathology (such as body dissatisfaction, thin ideal internalisation or body mass and negative affect) (Stice and Shaw 2004)</p>	<p>There is conflicting review-level evidence that universal eating disorder prevention programmes (delivered to a representative sample of the population) are effective either in reducing symptoms of eating pathology or the risk factors known to predict its onset (Stice and Shaw 2004). The review found five controlled trials that had no significant impact of the interventions on eating pathology or the risk factors, and two trials that found some positive effects, either on eating pathology or on the risk factors. Further investigation in high-quality trials is warranted</p> <p>There is conflicting review-level evidence that selective eating disorder prevention programmes (those delivered to ‘at risk’ groups) are effective in reducing the symptoms of eating pathology (such as bulimic, general psychiatric or physical symptoms) (Stice and Shaw 2004). The review found three controlled trials that reported positive effects of intervention and three that reported no effect. Further investigation of in high-quality trials is warranted</p>	
Prevention of pathological gambling	<p>There is review-level evidence to suggest that cognitive behavioural therapy, including ‘imaginal desensitisation’, may help reduce the frequency of further pathological gambling episodes (or urges). It may also help increase the gambler’s perceived control over gambling (Petry and Armentano 1999)</p>		<p>There is insufficient review-level evidence to suggest that self-help manuals either alone, or in conjunction with a single, in-depth motivational interview, helps reduce the frequency of further pathological gambling episodes or money spent on gambling (Petry and Armentano 1999). The review identified one study which suggested a positive intervention effect; further investigation in high-quality trials is warranted</p>

Table 1: Summary of evidence statements for each of the identified themes (cont.)

	Review-level evidence of effectiveness	Conflicting review-level evidence	Insufficient review-level evidence
Prevention of pathological gambling (cont.)	There is review-level evidence to suggest that partner/spouse involvement in Gamblers Anonymous sessions are successful in the secondary prevention of pathological gambling, by encouraging abstinence or reducing pathological gambling episodes (Petry and Armentano 1999)		
Prevention of marital distress			There is insufficient review-level evidence to confirm that community-based, pre-marital relationship enhancement training for pre-marital couples is effective (Tilford et al. 1997). The review identified one study from the USA that suggested positive intervention effects on relationship satisfaction levels and reduced intensity of problems. Further investigation in high-quality trials is warranted
COST EFFECTIVENESS OF MENTAL HEALTH SERVICE INTERVENTIONS			
Mental health promotion			There is insufficient review-level evidence on the cost effectiveness of mental health promotion interventions (Jepson et al. 2001). No studies were identified by the review; further investigation in high-quality trials is warranted
Caring for carers			There is insufficient review-level evidence to confirm the effectiveness - or cost effectiveness - of carer support programmes, compared with conventional community care for carers of people with dementia (Jepson et al. 2001). The review identified one Canadian study that found no significant effectiveness or cost effectiveness; further investigation in high-quality trials is warranted.
Ccounselling in primary care	There is review-level evidence from the UK that counselling in primary care for people presenting with broad psychological and psychosocial problems may cost a similar amount to usual GP care (Bower et al. 2002, 2003). However, the review authors note that the cost analysis is likely to be underpowered and susceptible to type II errors.		
Family interventions for schizophrenia	There is review-level evidence from the UK, the US and China that the economic costs of family-based interventions is lower than those of standard or usual care (Pharoah et al. 2003).		

Gaps in the evidence base and recommendations for research

Reviews considered by this briefing make a number of observations about the lack of primary-level evidence on the promotion of positive mental health and the prevention of mental health disorders among adults, in addition to recommendations about areas in need of further work. Likewise, the process of compiling this evidence briefing has given a clear indication of review-level gaps in the evidence and areas in need of further investigation. These gaps and recommendations are summarised below.

Gaps in the review-level evidence

Overall, very limited review-level evidence was found on the promotion of positive mental health among adults within the general population. Similarly, few good-quality reviews of interventions for the primary prevention of mental health disorders were identified. This may be due, in part, to the paucity of primary-level research in the field. However, a lack of good-quality review-level evidence does not necessarily mean there is a lack of evidence per se, but that the evidence has not made it to review level. This can be because of a time lag between publication of research and completion of a systematic review, because the quality of primary research is not sufficiently high for inclusion in reviews, or simply because an area has not yet been subjected to review scrutiny. Indeed, in their qualitative review of primary prevention of mental health problems in adults, Papworth and Milne (2001) (see Findings, p24) observe that the status of the field has improved over the last 20 years, as evidenced by their failure to identify any studies before 1980.

In addition, as a result of the inclusion and exclusion criteria used in compiling this evidence briefing, important population groups (for example, children and

young people) and conditions (for example, depression and anxiety) have not been included. These important areas are worthy of investigation in their own right. Taken together, these factors may explain the observed lack of review-level evidence.

Settings

Little review-level evidence was identified on the effectiveness of interventions delivered within or across different settings, or of interventions that aimed to influence the environment affecting a person's mental health. Only two reviews examined the effectiveness of primary care-based interventions and three reviews examined the effectiveness of workplace interventions. Other areas where no review-level evidence was found include community care settings, universities and further education.

Primary care, the setting for opportunistic health promotion across many health areas, yielded two reviews describing counselling interventions targeted at individuals. However, primary care trusts in England now have a public health role that requires them to think about the health of communities, not just individuals, and the new GP contract provides an opportunity for primary care to develop non-pharmacological interventions to promote mental health (Sainsbury Centre for Mental Health 2003b).

Population groups

Little review-level evidence was identified on universal interventions delivered to the general population. Of the nine reviews identified, the majority focused on interventions delivered to individuals or small groups. It has been proposed, however, that a focus on general population levels has the potential for more 'significant and lasting

improvements' (see Bronfenbrenner 1979). Systematic reviews of mental health promotion interventions for all adults, not just those who are already using mental health services, are vital to develop a credible evidence base that will support the implementation of broad policy goals to improve the mental health of populations.

Life events and transition

Only two reviews included an assessment of interventions for people at a vulnerable stage or transition in their lives. Again, this may reflect a lack of primary research. Given the elevated levels of psychiatric morbidity among, for example, people undergoing divorce or bereavement, and the long-term unemployed, this gap could be usefully filled. Similarly, no systematic reviews specifically addressed gender issues at different stages of the lifecycle, despite well-documented gender differences in psychiatric morbidity (Tilford et al. 1997).

Topic specific

Six reviews were identified that covered a variety of specific interventions/approaches for mental health promotion (for example, mass media and physical activity) and prevention interventions for specific at-risk groups (for example, eating disorders, pathological gambling and marital distress).

Cost effectiveness

Only four reviews provided some cost-effectiveness data relating to general mental health promotion, caring for carers and counselling services in primary care. Several reviewers commented on this omission, citing a lack of primary research and pointing to the need for further work in the area (see Bower et al. 2001; Tilford et al. 1997). The scoping review of mental health services found no economic evaluations of mental health promotion interventions (Jepson et al. 2001).

Inequalities

One of the most striking omissions from the evidence is any systematic or other review of interventions that examined the mental health promoting elements of programmes to reduce health inequalities. There are well-documented links between social inequalities and an increased incidence of a range of mental health problems. For example, a review of the published evidence has found that common mental disorders were

more prevalent among socially disadvantaged populations (Fryers et al. 2003). This paper found even more consistent associations with unemployment, lack of education and low income or a low material standard of living. In fact, occupational social class was the least consistent marker of such links.

Some of the interventions described have been targeted at high-risk groups who are socially excluded, such as people from lower socio-economic groups or black or minority ethnic communities. None of the reviews, however, described studies that aimed to reduce inequalities.

A range of government initiatives aim to reduce social exclusion and reduce the other associated individual and community factors linked to health inequalities. The Social Exclusion Unit has a programme to increase opportunities for people with mental health problems to enter into and retain employment, as well as to enhance their social networks (www.socialexclusionunit.gov.uk). The Neighbourhood Renewal Unit has a related programme on the role of neighbourhoods in promoting social inclusion and mental wellbeing (www.neighbourhood.gov.uk). However, none of this work has yet found its way into review-level evidence.

Review-level recommendations

Further review work is recommended in the areas identified to clarify the extent of the gaps in primary research, and to provide information on the effectiveness of interventions where evidence does exist. In addition, there is a need for:

- new theoretical frameworks so that a broad range of data from experimental – as well as qualitative – research can be included in systematic reviews and so reliable conclusions about mental health promotion can be drawn from a wider data pool
- further systematic reviews of mental health promotion interventions in primary care, particularly those targeting patients who are not receiving pharmacological treatment
- systematic reviews of workplace interventions such as counselling or employee assistance schemes that have the potential to impact on employee mental health
- systematic reviews of complex social interventions that aim to reduce inequalities and include measures of mental health for individuals and communities.

Gaps and recommendations in primary research

Based predominantly on the findings of reviews included in this briefing, the following gaps in primary research and recommendations for further work are identified.

Methodological issues

Good-quality primary research, at multiple levels, covering different time periods and utilising a range of methodologies – including process and follow-up data – are required to capture the complexity of social interventions that aim to reduce the risk factors for mental health or enhance protection against such problems. There is also a need to develop new theoretical frameworks that provide indicators of mental health rather than mental illness. Likewise, valid and reliable measures of mental health need to be developed so that the efficacy of interventions can be assessed.

All reviews identified methodological weaknesses in the primary research. Furthermore, methodological weaknesses often influenced the ability of a number of reviewers to draw conclusions on interventions in a number of topic areas, including the workplace, parents or families caring for children with disabilities or relatives with schizophrenia or related psychiatric disorders, older people and many others (see for example Barbato and D'Avanzo 2000; Barlow et al. 2003, 2004; Michie and Williams 2003; Papworth and Milne 2001; Tilford et al. 1997).

In summary, the review authors recommend that future research on mental health promotion should ensure that:

- studies have sufficient statistical power to detect an intervention effect, if one exists
- wherever possible and practicable, participants are randomised to intervention or control groups
- interventions are compared with a comparison or placebo condition and the control or standard treatment (for example, usual GP care) is sufficiently described
- investigators are 'blinded' to the participants' group allocation
- outcome measures are valid and reliable, with less reliance on self-reported outcome measures
- follow-up assessments are undertaken over a long enough period to assess longer-term effect
- outcome data are analysed according to intention-to-treat principles.

There are, however, a number of provisos. For instance, Papworth and Milne note that although the randomised controlled trial (RCT) is the 'yardstick' by which studies are methodologically compared, sometimes it is impractical to implement, particularly with community programmes. They further suggest that well-conducted, non-randomised experimental trials may, at times, be more reliable than a poorly conducted RCT. Similarly, Barbato and D'Avanzo (2000) acknowledge that choosing a valid control treatment in psychotherapy research is often extremely difficult. They argue that 'placebo controlled' is inappropriate and that attempts to create a 'psychotherapy placebo' (for example, through the use of waiting list controls, non-specific contacts and attention contacts) have never managed to solve the problem.

Intervention design

Some review authors also made a few general research recommendations focusing on the design of interventions.

- Few primary studies in mental health promotion provide clear information or assessment of implementation techniques for interventions (for example, Barlow et al. 2003), and further work is needed in most areas.
- Little is known about why participants drop out of intervention studies, or what happens to them (for example Barlow et al. 2003) – improved understanding of why some people drop out more than others may help ensure interventions are tailored more effectively to meet the needs of target audiences.

Some authors also made some topic-specific intervention design recommendations.

- Tilford et al. 1997 report a need to identify the most appropriate forms of intervention for long-term carers
- In their review of family interventions for schizophrenia and related disorders, Barbato and D'Avanzo (2000) suggest that the limited reliability of outcome measures deserves special attention in future studies (a number and variety of rating scales are used). The authors also note that the essential elements of family intervention programmes remain unclear, as outcome studies to date have failed to demonstrate any significant differences between models. They make the following recommendations for future research on family interventions to cope with schizophrenia:
 - large community-based, unselected samples should be identified

- control groups receiving good, well defined standard care should be used
- the clinical significance of continuous outcome measures should be defined
- the focus should be populations with diverse cultural backgrounds
- family burden and wellbeing should be systematically assessed as outcome variables
- mediating variables concerning the family unit's functioning or interaction should be studied.
- In a review of the effectiveness of family interventions with relatives of psychiatric patients, Cuijpers (1999) concludes that further research is needed to clarify whether the number of intervention sessions – or the total length of time spent in the intervention – is more predictive of success.

It is also important to note that interventions and evaluation studies need to gain the views of people from the target groups about their experiences of an intervention. They should also address the different influence that elements of an intervention may exert on mental health outcomes, as well as the influence of external factors, such as mode and agent of delivery. For example, the effectiveness of one-to-one visits and support groups could be compared for different groups of mothers (Tilford et al. 1997). Similarly, the relative effectiveness of brief vs longer interventions in different settings could be compared.

Place and time

Much of the evidence included here came from studies conducted outside the UK, often with outcomes assessed in the short- or medium-term only. Consequently, primary research is needed in the UK covering all themes, and evaluation studies need to take more account of long-term outcomes, as well as short- and mid-term effects.

Dissemination

There is a need to improve dissemination of evaluation studies so that the effectiveness of interventions can be assessed (Tilford et al. 1997).

Settings

Considerable gaps in primary research exist across virtually all potential intervention settings, including the workplace, social care, primary care, further and higher education, community and family. More specifically,

when synthesising the evidence and producing the evidence statements, the evidence for a number of interventions described by the primary studies for both primary care and workplace were assessed to be either currently insufficient or conflicting.

In these situations either a positive finding for only one study or no intervention effect was suggested for the intervention, or the available evidence was contradictory, all of which warrants further investigation. The interventions in question are as follows.

Primary care

- Counselling services in primary care.
- Counselling services in primary care (> 6 months).

Workplace

- Support, advice and stress management sessions delivered during period of organisational change.
- Cognitive behavioural therapy or aerobics exercise training for male business managers and supervisors.
- Cognitive behavioural interventions for employees with low-control jobs.

The authors of the reviews also identified specific areas requiring further investigation.

Primary care

In their review of the clinical and cost effectiveness of counselling in primary care, Bower et al. (2002, 2003) conclude that further research is needed in the following areas.

- The effectiveness of counselling interventions needs to be compared with other psychological therapy treatments, such as problem solving and self-help.
- The long-term clinical and economic impact of psychological therapies, such as counselling, on patients treated in primary care settings needs to be examined.
- Economic analyses of primary care services, preferably reporting power analyses based on economic outcomes, need to be carried out.
- Qualitative evaluations of counselling interventions are needed, with an emphasis on subjective symptoms, daily functioning, quality of life and the qualities of the intervention that help patients to feel better.

Workplace

- There is a need to undertake longitudinal studies and RCTs that investigate the causal relations between work factors and health outcomes (Michie and Williams 2003).
- Work-related, stress-reducing interventions should be designed to include a controlled follow-up at least 12 weeks later (van der Klink et al. 2001).
- Furthermore, it would be useful to investigate further the potential of multi-factor or combined interventions in this area, such as cross-organisational interventions aimed at reducing workplace stress that also incorporate individual training in perception and coping skills (van der Klink et al. 2001).
- There is also a pressing need to examine the impact that context and environment can exert on mental health, and the potential for intervention at this level. (van der Klink et al. 2001).

Population groups

A number of primary studies were identified as relevant to this section of the Findings. While some evidence of effectiveness was found for four of the eight themes covered by this section (older adults, family carers, parenting and volunteers) the majority of interventions described in this section were assessed to be in need of further investigation to determine their effectiveness. This is either because the primary studies presented in the reviews presented conflicting findings or because evidence of effectiveness or ineffectiveness was currently only based on one trial that was assessed to be insufficient evidence.

Interventions covered by the reviews but assessed to be in need of further investigation by the authors of this evidence briefing are as follows.

All adults

- Universal primary prevention programmes comprising cognitive behavioural approaches.
- Community-wide health promotion programmes adopting information or behavioural-based approaches.

Older adults (aged over 55)

- Social support training for older people.
- Home visiting for older people living in the community.
- Subsidised employment programmes for older job seekers.

Professional carers

- Parent-adviser training for primary care staff.

Family carers

- Provision of support group sessions or respite care for carers of people with dementia.
- Group discussions for carers of people with Alzheimer's.
- Support groups delivered by clinical psychologists and/or stress management and relaxation training for carers of people with dementia.
- Individual/family counselling or support groups for carers of people with dementia.
- Family interventions to influence levels of expressed emotion within the family.
- Family interventions for carers of patients with schizophrenia and related disorders.
- Information sessions delivered in hospital for carers of people who are chronically mentally ill.
- Weekly groups and relaxation training guided by a professional for carers of frail older people.
- Community-based psycho-educational skill building sessions for carers of frail older people.
- Provision of respite care for carers of older people.
- Small group discussions combined with respite care for people caring for an older dependent friend or relative.
- Family participation and individual meetings for general carers.

Parenting

- Behavioural parenting programmes to improve irritability, social isolation and attachment and marital adjustment.
- Cognitive behavioural parenting programmes for parents with children with developmental disabilities.
- Multi-modal parenting programmes to improve stress in relationships with a spouse and child.
- Multi-modal parenting programmes to improve overall stress levels in parents of children with ADHD.
- Multi-modal parenting programmes to improve parents social support, attachment, feelings of parental role restriction and competence, parental self-esteem, interpersonal traits and measures of self-actualisation.
- Parent and Children Series (behavioural-humanistic) parenting programmes to improve parental stress.
- Parent and Children Series (behavioural-humanistic) parenting programmes to improve dyadic adjustment relating to parental relationships, parental anger and aggression; parental self-efficacy and levels of support.

- Rational emotive therapy parenting programmes to improve relationships with spouse, social isolation and parental mood.
- Peer-parent volunteers for new parents, support programmes for single parents or group interventions for single mothers
- Community-based competency programmes for single, low income, mothers.
- Community-based parenting programmes for first time mothers identified at high risk of child abuse.
- Support programmes comprising self-help discussion groups or parent education evenings for parents of children with developmental disabilities.
- Linking families with children with learning disabilities to families without children with learning disabilities.

Volunteers

- 'Stress inoculation' group approach for older adult volunteers.

Minority ethnic populations

- Selective primary prevention programmes for minority ethnic populations.
- Mediation and/or muscle relaxation techniques for black college students.

Disadvantaged groups

- Group interventions for women in receipt of financial aid.

In their review of the effectiveness of psychotherapeutic and psychosocial interventions with older adults, Piquart and Sorensen (2001) conclude that further research is needed on:

- the long-term clinical impacts of psychotherapeutic and psychosocial interventions aimed at older adults
- psychotherapeutic and psychosocial interventions that were under-represented in the meta-analyses (for example, psychodynamic therapy, family therapy, client-centred therapy) to validate the findings.

There is a marked paucity of primary research on the effectiveness of interventions to promote mental wellbeing among black, minority and ethnic groups (BMEG). Primary research also needs to take account of potential gender differences in response to any given intervention (Tilford et al. 1997). In addition, further

research is needed on the effectiveness of interventions with fathers, as well as mothers, to improve parental psychosocial outcomes (Barlow et al. 2003).

Also, the impact that training can have on primary care staff's knowledge, attitudes and behaviour in relation to mental health promotion needs to be evaluated (Bower et al. 2001).

Finally, there is a need for primary research on the impact of community and population interventions, as the majority of primary research that aims to improve mental health outcomes currently focuses on individuals.

Life events and transitions

No review-level evidence of effectiveness was found for any of the interventions covered in the life events and transitions section of the Findings. However, a number of the primary studies described in this section were assessed to be suggestive of effectiveness or ineffectiveness and therefore warrant further research.

Coping with negative life changes

- Group-based interventions for people who have undergone two or more recent negative life changes.

Bereavement

- Home-based counselling interventions for recently bereaved people.

Divorce and separation

- University-based multi-component interventions comprising individual counselling and study groups for newly separated individuals.
- Community skills training for recently divorced women.

Organisational change

- Consultant-led group sessions for members of a religious community undergoing periods of organisational change.

Re-housing

- Re-housing initiatives for those who attribute their

'mental ill health' to their housing situation. The following topic specific research recommendations were also made by two review authors:

- research is needed to identify other groups at vulnerable life stages or transition points (Jepson et al. 2001)
- in the area of relationships and marital distress, evidence from reviews suggests that it would be useful to assess where intervention costs could be reduced by using peers, and in which situations more intensive intervention is required (Tilford et al. 1997). Furthermore, where interventions have been trialled on small populations or samples, there is a need to investigate their acceptability and use in the wider population.

Topics

Some evidence of effectiveness was found for four of the five themes covered in the topic specific section of the Findings, the exception being the prevention of marital distress. All of the themes in this section of the Findings also described a number of primary studies that were assessed to be suggestive of effective or ineffective interventions. Further investigation to determine effectiveness or ineffectiveness is required for the following interventions.

Physical activity

- Low- and high-intensity home-based and group exercise sessions.
- Six week low-intensity exercise-to-music programmes for older women.

Eating disorders

- Universal eating disorder prevention programmes.
- Selective eating disorder prevention programmes (ie delivered to at-risk groups).

Pathological gambling

- Self-help manuals either alone or in conjunction with a single in-depth motivational interview.

Marital distress

- Community-based pre-marital relationship enhancement training.

The following research recommendations were also made by the authors of the reviews for a number of the themes covered in the 'Topic specific' section of the Findings.

Physical activity

- Investigate whether there a positive relationship between improved physical fitness and improved psychological wellbeing.
- Further investigate if there is an association between exercise participation and immediate or acute effects in psychological wellbeing.
- Identify what mechanisms underpin the positive changes in mental wellbeing associated with participating in physical activity.
- Further investigate if increased physical activity increases self-esteem.
- The temporal nature of changes in mood after different types of intense exercise should be further investigated.
- Mechanisms (biochemical, physiological and psychological) that cause physical activity to have an impact on mood have not been clearly identified and should be further investigated across different groups (for example males vs females).
- Existing measures of affect and mood need further testing and development to ensure they are suitable for physical activity research.
- Further exploration is needed of the mechanisms of change and the conditions for optimal functioning to demonstrate whether exercise can produce positive changes in wellbeing through improved physical self-perception and self-esteem.
- Further research is needed on the concept of having a sense of control over the body – its appearance and functioning – as a route to improving self-esteem.
- Investigation is needed on the benefits of group-based exercise compared with home-based or individual exercise for improved self-esteem, and the gender/age differences associated with these improvements.
- Better designed primary research, incorporating evidence-based health principles (such as intention-to-treat statistics and cost-effectiveness components), supported by time series case studies and a range of qualitative techniques, is needed to unravel the influence of exercise and exercise settings on self-perception and self-esteem.
- Studies with longer follow-up periods (6–12 months minimum) are needed to investigate the relationship between affect and sustained self-esteem.

- Studies are needed to investigate the degree of wellbeing change (for example, emotional adjustment) alongside self-perception change.
- Further investigate whether physical activity differentially affects men and women.
- The dose-response effect of exercise on psychological health factors should be investigated further in older adults.
- There is a need to determine whether the sex of a subject interacts with various exercise parameters such as frequency, intensity, duration and mode, including affective consequences of aerobic and anaerobic activity.
- The role played by age differences in the exercise/psychological wellbeing relationship should be examined.
- Further development of valid measures to assess psychological wellbeing in exercising in older adults is required as currently they often fail to represent a conceptual structure of psychological wellbeing and fail to tap the stimulus properties of the exercise environment.
- Multidisciplinary approaches (psychological, social-environmental and physiological) that embrace the interaction of the components are required to understand the complex relationship between physical activity and psychological health. (Biddle 2000; Fox 2000; McAuley and Rudolph 1995)

Prevention of eating disorders

In their review of eating disorder prevention programmes, Stice and Shaw (2004) conclude that future research should compare the most promising interventions in high-quality RCTs so that the most potent interventions can be identified. The authors also suggest that independent replications of the most promising prevention trials should be undertaken.

The authors further recommend that greater attention should be devoted to developing general prevention techniques independent of the specific intervention, such as strategic self-presentation, motivational interviewing and other persuasion techniques from social and clinical psychology.

Finally, they suggest that it is crucial to conduct trials to determine whether interventions remain effective when delivered outside the clinical or research environment (for example, by school counsellors in 'ecologically valid settings' such as schools).

Prevention of pathological gambling

A review of the effectiveness of interventions aimed at influencing levels of gambling (Petty and Armentano 1999) suggests a need to undertake studies that compare the efficacy of different psychotherapies. These should include an adequate sample size and a clearly defined therapy to identify effective secondary prevention methods for pathological gambling or to decrease gambling levels. The review also identifies a need for further research on the efficacy of different approaches (for example, the use of therapist and self-help manuals) and the effectiveness of referral to Gamblers Anonymous and Gam-Anon for both gamblers and their families (Petty and Armentano 1999).

Cost effectiveness of mental health service interventions

Minimal cost-effectiveness data were found. This gap in the evidence base is acknowledged by various review authors and a number of general recommendations linked to cost effectiveness were identified.

- Further research is required on the cost effectiveness and cost utility of different interventions with different populations and in different settings (Bower et al. 2001; Jepson et al. 2001; Tilford et al. 1997).
- Economic evaluations should be explicit about the cost perspective that they take (for example, stating clearly if it is an analysis of costs from an NHS or societal point of view) and should be based on an adequate sample size (Jepson et al. 2001).
- As well as generic cost-effectiveness studies, further analysis is required on specific interventions and settings. For example, detailed economic evaluations in the workplace would enable employers to make a decision about whether or not to implement interventions that aim to reduce work-related psychological illness and sickness absence (Michie and Williams 2003).

Specifically, Jepson et al. (2001) identify the need to undertake the following primary research for the two areas covered in their review:

- are general mental health promotions interventions cost effective?
- are carer support programmes for carers of people with dementia effective and cost effective?

Inequalities

Given the strong links between social deprivation and mental health problems (Fryers et al. 2003; Melzer et al. 2004) there is a pressing need for primary research that explicitly addresses the mental health impact of interventions that aim to reduce social inequalities for individuals and communities.

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APPENDIX 1

Search strategy

MEDLINE

1. meta.ab.
2. synthesis.ab.
3. literature.ab.
4. randomized.hw.
5. published.ab.
6. meta-analysis.pt.
7. extraction.ab.
8. trials.hw.
9. controlled.hw.
10. search.ab.
11. medline.ab.
12. selection.ab.
13. sources.ab.
14. trials.ab.
15. review.ab.
16. review.pt.
17. articles.ab.
18. reviewed.ab.
19. english.ab.
20. language.ab.
21. comment.pt.
22. letter.pt.
23. editorial.pt.
24. animal/
25. human/
26. 24 not (24 and 25)
27. exp mental health/
28. exp mental health services/
29. community mental health services/
30. community mental health centers/
31. (mental adj2 health).tw.
32. or/27-31
33. health promotion/
34. promot\$.tw.
35. increas\$.tw.
36. educat\$.tw.
37. inform\$.tw.
38. improv\$.tw.
39. impact\$.tw.
40. or/33-39
41. 32 and 40
42. exp mental disorders/
43. (mental adj2 disord\$.tw.
44. (mental adj2 illness\$.tw.
45. or/42-44
46. prevent\$.tw.
47. reduc\$.tw.
48. detect\$.tw.
49. primary prevention/
50. or/46-49
51. 50 and 45
52. exp preventive psychiatry/
53. or/51-52
54. 41 and 53
55. 54 not (21 or 22 or 23 or 26)
56. or/1-20
57. 55 and 56
58. limit 57 to (human and english language and yr=1996 - 2004)

CINAHL

1. meta analysis/
2. systematic review/
3. systematic review.pt.
4. (metaanaly\$ or meta-analy\$).tw.
5. metanal\$.tw.
6. nursing interventions.pt.
7. (review\$ or overview\$).ti.
8. literature review/
9. exp literature searching/
10. cochrane\$.tw.
11. (synthes\$ adj3 (literature\$ or research\$ or studies or data)).tw.
12. (medline or medlars or embase or scisearch or psycinfo or psychinfo or psychlit or psychlit).tw,sh.
13. pooled analy\$.tw.
14. ((data adj2 pool\$) and studies).tw.
15. ((hand or manual\$ or database\$ or computer\$) adj2 search\$).tw.
16. reference databases/
17. ((electronic\$ or bibliographic\$) adj2 (database\$ or data base\$)).tw.
18. (review or systematic-review or practice-guidelines).pt.
19. (review\$ or overview\$).ab.
20. (systematic\$ or methodologic\$ or quantitativ\$ or research\$ or literature\$ or studies or trial\$ or effective\$).ab.
21. 18 and 20
22. ((review\$ or overview\$) adj10 (systematic\$ or methodologic\$ or quantitativ\$ or research\$ or literature\$ or studies or trial\$ or effective\$)).ab.

23. or/1-17,21-22
 24. editorial.pt.
 25. letter.pt.
 26. case study.pt.
 27. record review/
 28. peer review/
 29. (retrospective\$ adj2 review\$).tw.
 30. (case\$ adj2 review\$).tw.
 31. (record\$ adj2 review\$).tw.
 32. (patient\$ adj2 review\$).tw.
 33. (patient\$ adj2 chart\$).tw.
 34. (peer adj2 review\$).tw.
 35. (chart\$ adj2 review\$).tw.
 36. (case\$ adj2 report\$).tw.
 37. exp case control studies/
 38. exp prospective studies/
 39. case studies/
 40. animal studies/
 41. "edit and review"/
 42. (rat\$ or mouse or mice or hamster\$ or animal\$ or dog\$ or cat\$ or rabbit\$ or bovine or sheep).tw.
 43. or/24-42
 44. 43 not (43 and 23)
 45. 23 not 44
 46. exp mental health/
 47. exp mental health services/
 48. community mental health services/
 49. community mental health cent\$.tw.
 50. (mental adj2 health).tw.
 51. or/46-50
 52. health promotion/
 53. promot\$.tw.
 54. increas\$.tw.
 55. educat\$.tw.
 56. inform\$.tw.
 57. improv\$.tw.
 58. impact\$.tw.
 59. or/52-58
 60. exp mental disorders/
 61. (mental adj2 disord\$).tw.
 62. (mental adj2 illness\$).tw.
 63. or/60-62
 64. prevent\$.tw.
 65. reduc\$.tw.
 66. detect\$.tw.
 67. preventive health care/
 68. primary prevention.tw.
 69. or/64-68
 70. 69 and 63
 71. 51 and 70

72. 71 and 45
 73. limit 72 to (english and yr=1996 - 2004)

Cochrane

1. meta?analy\$.mp.
 2. meta analys\$.mp.
 3. (predetermined and criteri\$).mp.
 4. inclusion criteri\$.mp.
 5. exclusion criteri\$.mp.
 6. (systematic and review\$).mp.
 7. (systematically and review\$).mp.
 8. (review\$ and literature).mp.
 9. (review\$ and guideline\$).mp.
 10. (review\$ and publication\$).mp.
 11. (review\$ and published).mp.
 12. (review\$ and unpublished).mp.
 13. case report.ti.
 14. editorial.pt.
 15. letter.pt.
 16. or/1-12
 17. or/13-15
 18. 16 not 17
 19. mental health.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 20. (mental adj2 health).mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 21. or/19-20
 22. health promotion.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 23. promot\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 24. increas\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 25. educat\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 26. inform\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 27. improv\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 28. impact\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 29. or/22-28
 30. 29 and 21
 31. mental disorder\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 32. (mental adj2 disord\$).mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 33. (mental adj2 illness\$).mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 34. or/31-33
 35. prevent\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 36. reduc\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 37. detect\$.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 38. primary prevention.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 39. or/35-38
 40. 39 and 34
 41. preventive psychiatry.mp. [mp=ti, ab, tx, kw, ct, ot, sh, hw]
 42. 40 or 41
 43. 18 and (42 and 30)
 44. limit 43 to yr=1996-2004

EMBASE

1. meta?analys\$.mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
2. meta analys\$.mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
3. (predetermined and criteri\$).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
4. inclusion criteri\$.mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
5. exclusion criteri\$.mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
6. (systematic and review\$).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
7. (systematically and review\$).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
8. (review and (literature or guideline\$ or publication\$ or published or unpublished)).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]
9. case report.ti. or (editorial or letter).pt.
10. (1 or 2 or 3 or 4 or 5 or 6 or 7 or 8) not 9
11. exp mental health/
12. exp mental health services/
13. community mental health services/
14. Community Mental Health Centers/
15. (mental adj2 health).tw.
16. or/11-15
17. Health Promotion/
18. promot\$.tw.
19. increas\$.tw.
20. educat\$.tw.
21. inform\$.tw.
22. improv\$.tw.
23. impact\$.tw.
24. or/17-23
25. 16 and 24
26. exp mental disorders/
27. (mental adj2 disord\$).tw.
28. (mental adj2 illness\$).tw.
29. or/26-28
30. prevent\$.tw.
31. reduc\$.tw.

32. detect\$.tw.
33. primary prevention/
34. or/30-33
35. 34 and 29
36. preventive psychiatry.tw.
37. primary mental health prevention.tw.
38. or/35-37
39. 10 and (25 and 38)

HMIC

1. mental health/
2. (mental adj2 health).mp. [mp=title, other title, abstract, heading words]
3. or/1-2
4. health promotion/
5. promot\$.mp. [mp=title, other title, abstract, heading words]
6. increas\$.mp. [mp=title, other title, abstract, heading words]
7. educat\$.mp. [mp=title, other title, abstract, heading words]
8. inform\$.mp. [mp=title, other title, abstract, heading words]
9. improv\$.mp. [mp=title, other title, abstract, heading words]
10. impact\$.mp. [mp=title, other title, abstract, heading words]
11. or/4-10
12. 11 and 3
13. mental disorders/
14. (mental adj2 disord\$).mp. [mp=title, other title, abstract, heading words]
15. (mental adj2 illness\$).mp. [mp=title, other title, abstract, heading words]
16. or/13-15
17. prevent\$.mp. [mp=title, other title, abstract, heading words]
18. reduc\$.mp. [mp=title, other title, abstract, heading words]
19. detect\$.mp. [mp=title, other title, abstract, heading words]
20. primary prevention.mp. [mp=title, other title, abstract, heading words]
21. or/17-20
22. 21 and 16
23. preventive psychiatry.mp. [mp=title, other title, abstract, heading words]
24. 22 or 23
25. 12 and 24
26. (((((((((((guideline\$ or review\$ or overview\$ or literature) adj3 search\$) or synthes\$) adj3 (literature\$ or research\$ or studies or data)) or critical\$) adj3 apprais\$) or meta-analys\$ or meta) adj analys\$) or metaanalys\$ or evidence) adj3 base\$) or evidence-base\$ or pooled) adj3 analys\$) or ((data adj2 pool\$ and studies)).mp.
27. literature reviews/
28. experts/
29. (guideline\$ or review\$ or overview\$ or (literature and

search\$) or (critical and apprais\$) or meta-analy\$ or (meta and analys\$) or metaanalys\$ or evidence-base\$ or (evidence and base\$)).af.

30. or/26-29

31. 30 and 25

PsycINFO

1. meta?analys\$.mp. [mp=title, abstract, subject headings, table of contents, key concepts]

2. meta analys\$.mp. [mp=title, abstract, subject headings, table of contents, key concepts]

3. (predetermined and criteri\$).mp. [mp=title, abstract, subject headings, table of contents, key concepts]

4. inclusion criteri\$.mp. [mp=title, abstract, subject headings, table of contents, key concepts]

5. exclusion criteri\$.mp. [mp=title, abstract, subject headings, table of contents, key concepts]

6. (systematic and review\$).mp. [mp=title, abstract, subject headings, table of contents, key concepts]

7. (systematically and review\$).mp. [mp=title, abstract, subject headings, table of contents, key concepts]

8. (review and (literature or guideline\$ or publication\$ or published or unpublished)).mp. [mp=title, abstract, subject headings, table of contents, key concepts]

9. case report.ti. or (editorial or letter).pt.

10. (1 or 2 or 3 or 4 or 5 or 6 or 7 or 8) not 9

11. exp mental health/

12. exp mental health services/

13. community mental health services/

14. Community Mental Health Centers/

15. (mental adj2 health).tw.

16. or/11-15

17. Health Promotion/

18. promot\$.tw.

19. increas\$.tw.

20. educat\$.tw.

21. inform\$.tw.

22. improv\$.tw.

23. impact\$.tw.

24. or/17-23

25. 16 and 24

26. exp mental disorders/

27. (mental adj2 disord\$).tw.

28. (mental adj2 illness\$).tw.

29. or/26-28

30. prevent\$.tw.

31. reduc\$.tw.

32. detect\$.tw.

33. primary prevention.tw.

34. or/30-33

35. 34 and 29

36. exp Primary Mental Health Prevention/

37. preventive psychiatry.tw.

38. or/35-37

39. 10 and 25 and 38

40. limit 39 to (human and english language and yr=1996 - 2004)

Sociological Abstracts

1. mental health.mp. [mp=title, abstract, heading word, key phrase identifiers]

2. (mental adj2 health).mp. [mp=title, abstract, heading word, key phrase identifiers]

3. or/1-2

4. health promotion.mp. [mp=title, abstract, heading word, key phrase identifiers]

5. promot\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

6. increas\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

7. educat\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

8. inform\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

9. improv\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

10. impact\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

11. or/4-10

12. 11 and 3

13. mental disorder\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

14. (mental adj2 disord\$).mp. [mp=title, abstract, heading word, key phrase identifiers]

15. (mental adj2 illness\$).mp. [mp=title, abstract, heading word, key phrase identifiers]

16. or/13-15

17. prevent\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

18. reduc\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

19. detect\$.mp. [mp=title, abstract, heading word, key phrase identifiers]

20. primary prevention.mp. [mp=title, abstract, heading word, key phrase identifiers]

21. or/17-20

22. 21 and 16

23. preventive psychiatry.mp. [mp=title, abstract, heading word, key phrase identifiers]

24. 22 or 23
25. 12 and 24
26. (((((((((((guideline\$ or review\$ or overview\$ or literature) adj3 search\$) or synthes\$) adj3 (literature\$ or research\$ or studies or data)) or critical\$) adj3 apprais\$) or meta-analys\$ or meta) adj analys\$) or metaanalys\$ or evidence) adj3 base\$) or evidence-base\$ or pooled) adj3 analys\$) or ((data adj2 pool\$) and studies)).mp.
27. literature reviews/
28. overview/
29. experts/
30. (guideline\$ or review\$ or overview\$ or (literature and search\$) or (critical and apprais\$) or meta-analy\$ or (meta and analys\$) or metaanalys\$ or evidence-base\$ or (evidence and base\$)).af.
31. or/26-30
32. 25 and 31
33. limit 32 to (english language and yr=1996-2004)

APPENDIX 2

Critical appraisal tool

Authors: _____

Title: _____

Source: _____

Relevance to topic			
Does this paper address your topic area?	Yes	No	Unsure
Circle the type of paper:			
• Systematic review			
• Meta-analysis			
• Synthesis			
• Literature review			
• Other review (please specify)			
Does it address (circle as appropriate):			
• Effectiveness (interventions and treatments)?			
• Causation?			
• Monitoring and surveillance trends?			
• Cost?			
• Other (please specify)?			
Transparency			
Does the paper have a clearly focused aim or research question?	Yes	No	Unsure
Consider whether the following are discussed:			
• The population studied	Yes	No	Unsure
• The interventions given	Yes	No	Unsure
• The outcomes considered	Yes	No	Unsure
• Inequalities	Yes	No	Unsure
Systematicity			
Do the reviewers try to identify all relevant English language studies?	Yes	No	Unsure
Consider whether details are given for:			
• Databases searched	Yes	No	Unsure
• Years searched	Yes	No	Unsure
• References followed-up	Yes	No	Unsure
• Experts consulted	Yes	No	Unsure
• Grey literature searched	Yes	No	Unsure
• Search terms specified	Yes	No	Unsure
• Inclusion criteria described	Yes	No	Unsure
Is it worth continuing?	Yes	No	
Why/why not?			

Quality			
Do the authors address the quality (rigour) of the included studies? Consider whether the following are used:	Yes	No	Unsure
• A rating system	Yes	No	Unsure
• More than one assessor	Yes	No	Unsure
If study results have been combined, was it reasonable to do so? Consider whether the following are true:	Yes	No	Unsure
• Are the results of included studies clearly displayed?	Yes	No	Unsure
• Are the studies addressing similar research questions?	Yes	No	Unsure
• Are the studies sufficiently similar in design?	Yes	No	Unsure
• Are the results similar from study to study (test of heterogeneity)?	Yes	No	Unsure
• Are the reasons for any variation in the results discussed?	Yes	No	Unsure
What is the overall finding of the review? Consider: • How the results are expressed (numeric – relative risks, etc) • Whether the results could be due to chance (<i>p</i> -values and confidence intervals)			
Are sufficient data from individual studies included to mediate between data and interpretation/conclusions?	Yes	No	Unsure
Does this paper cover all appropriate interventions and approaches for this field (within the aims of the study)? If no, what?	Yes	No	Unsure
Relevance to UK			
Can the results be applied/are generalisable to a UK population/population group?	Yes	No	Unsure
• Are there cultural differences from the UK?	Yes	No	Unsure
• Are there differences in healthcare provision from the UK?	Yes	No	Unsure
• Is the paper focused on a particular target group (age, sex, population sub-group etc)?	Yes	No	Unsure
Accept for inclusion onto Evidence Base?	Yes	No	Refer to third party
Additional comments			

APPENDIX 3

Abstracts and papers not retrieved within the timeframe of this evidence briefing

Abstracts

Appelbaum M, Sweet MA (1999) *Is home visiting an effective strategy?* Presented at a workshop, Revisiting Home Visiting, sponsored by the Board for Children, Youth, and Families of the National Research Council/Institute of Medicine, Washington DC.

Barnes H, Goodson B, Layzer J (1995, 1996) *National evaluation of family support programs: review of research on supportive interventions for children and families*. Vol. 1/2 Cambridge, MA: Abt Associates.

Dawson S (1997) *No way out but to be born an adult: a literature review*. Hastings: Healthcare Hawkes Bay.

Edwards D, Hannigan B, Fothergill A et al. (2002) Stress management for mental health professionals: a review. *Mental Health Bulletin* 2 (3):159–66.

Falloon IRH, Coverdale JH, Brooker C (1996) Psychosocial interventions in schizophrenia: a review. *International Journal of Mental Health* 25:3–23.

Gomby DS, Culross PL, Behrman RE (1999) Home visiting: recent program evaluations-analysis and recommendations. *Future of Children* 9 (1):4–26.

Munoz RF, Mrazek PJ, Haggerty RJ (1996) Institute of Medicine report on prevention of mental disorders. Summary and commentary. *American Psychologist* 51 (11):1116–22.

Sowden AJ, Tilford S, Delaney F et al. (1997) Mental health promotion in high risk groups. *Quality in Health Care* 6 (4):219–25.

Papers

Agence d'Evaluation des Technologies et des Modes d'Intervention en Sante (AETMIS) (2004) *Evaluation of the individual placement and support (IPS) model for people with mental problems – systematic review (project)*. Quebec: AETMIS.

Burns T, Knapp M, Catty J et al. (2002) Home treatment for mental health problems: a systematic review. *Health Technology Assessment* 5 (15):1–139.

Commonwealth Department of Health and Aged Care (2000) *Promotion, prevention and early intervention for mental health – a monograph*. Canberra: Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care.

Edwards D, Burnard P (2003) A systematic review of stress and stress management interventions for mental health nurses. *Journal of Advanced Nursing* 42 (2):169–200.

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Malek M (1998) Untapped potential: the role of the voluntary sector in promoting young people's mental health and well being. In: Utting D, editor. *Children's services now and in the future*, p103–9. London: National Children's Bureau Enterprises.

Meltzer H, Bebbington P, Brugha T et al. (2003) The reluctance to seek treatment for neurotic disorders. *International Review of Psychiatry* 15 (1–2):123–8.

Warner R (1999) Schizophrenia and the environment: speculative interventions. *Epidemiologia e Psichiatria Sociale* 8 (1):19–34.

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Albee and Gullotta (1997)	✓	✗	✗	✗	No. Relevant reviews in this book are not systematic	-	-	-	-	-
Anderson and Adams (1996)	✗	✗	✗	✗	No. Not a review. Paper is a summary of another review	-	-	-	-	-
Arias (2004)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	-
Ashley et al. (2003)	✓	✓	✗	✓	No. Review is not systematic	✗	✓	✓	✓	No. Focus on drug treatment, not mental health outcomes
Bailey (2003)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-
Bellack (2004)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-
Berger (1996)	✗	✗	✗	✗	No. Relevant reviews in this paper are not systematic	-	-	-	-	-
Bernheim and Lehman (1985)	-	-	-	-	No. This book was published outside the time period for this briefing	-	-	-	-	-
Bisson and Kitchiner (2003)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-
Black and Krishnakumar (1998)	✓	✗	✗	✗	No. Focus on children and age not specified	-	-	-	-	-
Blazer (2002)	✓	✗	✗	✗	No. Focus on theory, not interventions	-	-	-	-	-
Bledsoe (2003)	✓	✓	✗	✓	No. Review on critical incident stress management (exclusion criterion for this briefing)	-	-	-	-	-

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE					STAGE TWO				
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Bond (1997)	✓	✓	✓	✓		✓	✓	✓	✓	No. Review focuses on treatment of people with severe mental illness, who are likely to have been in receipt of medication. (Author contacted and reply received 28/07/2005)
Bond et al. (2001)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Bond and Hauf (2004)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Bower et al. (2003a)	✓	✓	✓	✗	No. Ages of participants ≥ 16 could not be extrapolated from the data as age groups were not separated	-	-	-	-	
Bower et al. (2003b)	✗	✗	✗	✗	No. Paper reports findings from a postal survey	-	-	-	-	
Bradley et al. (2003)	✗	✗	✗	✗	No. Not a review. Paper reports findings of a single study	-	-	-	-	
Broatch (1996)	✗	✗	✗	✗	No. Review was not systematic	-	-	-	-	
Buist (1998)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Burns et al. (2001)	✓	✓	✓	✓		✓	✓	✓	✓	No. Focus on treatment models
Bustillo et al. (1999)	✓	✓	✓	✓	No. Focus on treatment	-	-	-	-	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO				Meets inclusion criteria?	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings				
Bustillo et al. (2001)	✓	✓	✓	✓		✗	✓	✓	✓	✓		No. Participants were in receipt of medication (exclusion criterion for this briefing).	
Carpenter (1996)	✗	✗	✗	✗	No. Focus on treatment options available to people with schizophrenia, not on prevention	–	–	–	–	–			
Centre for Reviews and Dissemination (1997)	✓	✗	✗	✗	No. Review is not systematic	–	–	–	–	–			
Chan and Leung (2002)	✓	✓	✗	✓		–	✓	✓	✓	✓		No. Review focuses on treatment of clients with schizophrenia, who are likely to have been in receipt of medication. (Author contacted and reply received on 04/05/2005)	
Charney et al. (2003)	✗	✗	✗	✗	No. Review is not systematic	–	✗	–	–	–			
Chilvers et al. (2002)	✓	✓	✓	✓		✓	✓	✓	✓	✓		No. Review focuses on treatment of people with severe mental disorders, who are likely to have been in receipt of medication	
Christensen and Heavey (1999)	✗	✗	✗	✗	No. Review is not systematic	–	✗	–	–	–			
Ciliska et al. (1996)	✓	✓	✓	✓		✓	✓	✓	✓	✓		No. Focus on depression as a mental health outcome (exclusion criterion for this briefing)	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Clegg et al. (1998)	X	X	X	X	No. Review is not systematic	-	-	-	-	-
Conseil d'évaluation des technologies de la santé du Québec (2001)	✓	✓	X	X	No. Focus on treatment	-	-	-	-	-
Coren and Barlow (2001)	✓	✓	X	✓		✓	✓	✓	✓	No. Ages of participants \geq 16 could not be extrapolated from the data
Cowen (1997)	X	X	X	X	No. Review is not systematic	-	-	-	-	-
Crawford et al. (2004)	✓	✓	✓	✓	No. Review on barriers to delivery of continuity of care. No evidence based data on mental health outcome	-	-	-	-	-
Creamer (2000)	X	X	X	X	No. Review is not systematic	-	-	-	-	-
Crowther et al. (2001)	✓	✓	✓	✓		✓	✓	✓	✓	No. Review focuses on treatment of people with severe mental illness, who are likely to have been in receipt of medication. (Author contacted and reply received 28/07/2005)
Cuijpers (2003)	✓	X	X	X	No. Review is not systematic	-	-	-	-	-
Dalgard et al. (1996)	✓	X	X	X	No. Review is not systematic	-	-	-	-	-

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE							STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?	
Department of Health (2001)	✓	✓	✗	✗	No. Not relevant. This is a guide for delivery of health promotion	-	-	-	-	-	
Dickey (2000)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-	
Dixon (1999)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-	
Dixon et al. (2001)	✓	✗	✓	✗	No. Review is not systematic	-	-	-	-	-	
Dixon and Lehman (1995)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants were in receipt of medication (exclusion criterion for this briefing)	
Dorfman and Smith (2002)	✓	✓	✓	✓		✓	✓	✓	✓	No. Focus on managed care settings	
Dowrick (1992)	-	-	-	-	No. Review is outside the time period for this briefing	-	-	-	-	-	
Duarte et al. (2003)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-	
Durlak (1998)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	-	
Durlak and Wells (1997)	✓	✓	✓	✗	No. Ages of participants ≥ 6 could not be extrapolated from the data	-	-	-	-	-	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions relate to individual studies' findings	Meets inclusion criteria?
Durlak and Wells (1998)	✓	✓	✗	✗	✗	✗	✓	✓	✓	No. Ages of participants ≥ 16 could not be extrapolated from the data as age groups were not separated
Edens et al. (1997)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Ekeland et al. (2004)	✓	✓	✓	✓		✓	✓	✓	✓	No. Age range of participants in primary studies was 3–20. Findings aggregated and could not be extrapolated for age groups ≥ 16
Elkan et al. (2001)	✓	✓	✓	✓		✓	✗	✗	✗	No data on mental health outcomes
Esterling et al. (1999)	✗	✗	✗	✗	No. Focuses on depression and anxiety (exclusion criteria for this briefing)	-	-	-	-	
Falloon et al. (1998)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Farrell and McKinnon (2003)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Faulkner (2004)	✓	✓	✗	✗		✓	✓	✓	✓	No. Participants were in receipt of medication
Fox (1999)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Fox (2000a)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Fox (2000b)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Garralda (2001)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
George (2000)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Gibson (1999)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Gilvary (2000)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Godfrey and Denby 2004	✓	✓	✓	✓	No. Focuses on depression (exclusion criterion for this briefing)	-	-	-	-	
Gray (1999)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Greenberg (2003)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Greenfield and Shore (1995)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Harden et al. (2001)	✓	✓	✗	✓	No. Review is not systematic	✓	✓	✓	✓	No. Ages of participants ≥ 16 could not be extrapolated from the data as the age range in the included studies was 11-21
Hayes and McGrath (2000)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants in identified studies were in receipt of medication (exclusion criterion for this briefing)

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Herrman (2001)	✓	✗	✗	✗	No. Focus on concepts of mental health, not on effectiveness of interventions	-	-	-	-	
Hofmann and Tompson (2002)	✗	✗	✗	✗	No. reviews in this book are not systematic	-	-	-	-	
Hootman et al. (2002)	✗	✗	✗	✗	No. Not a review. Paper reports findings of a single study	-	-	-	-	
Huibers et al. (2003)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants affected with a DSM-IV disorder, ie depression or somatisation disorder, which are exclusion criteria for this briefing
Hull et al. (2002)	✗	✗	✗	✗	No. Not a review. Paper reports findings of a single study	-	-	-	-	
Izquierdo de Santiago and Khan (2004)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants were in treatment for an acute episode (exclusion criterion)
Jeffery et al. (2000)	✓	✓	✓	✓		✓	✓	✓	✓	No. Focus is on substance misuse (exclusion criterion)
Jones et al. (2004)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants in identified studies were in receipt of medication, an exclusion criterion for this briefing

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Joy et al. (2004)	✓	✓	✓	✓		✓	✓	✓	✓	No. Review focuses on crisis intervention models for acute episodes of mental illness, an exclusion criterion
Kaitiata-Heino and Rimpela (1999)	✓	✓	✗	✓		✓	✓	✓	✓	No. Ages of participants ≥ 16 could not be extrapolated from the data as the age range for adolescence was not defined
Kane et al. (1990)	-	-	-	-	No. This book was published outside the time period for this briefing	-	-	-	-	
Kaplan et al. (2001)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Kawakami and Haratani (1999)	✓	✗	✗	✗	No. Focus on epidemiology of job stress, not on interventions	-	-	-	-	
Keks et al. (2000)	✓	✗	✗	✗	No. review is not systematic	-	-	-	-	
Klausner and Alexopoulos (1999)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Knapp (1997)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Knapp (2000)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Lamb and Weinberger (1998)	✓	✓	✗	✗	No. Review not relevant. It examines the issue of severe mental illness in prison	-	-	-	-	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions relate to individual studies' findings	Meets inclusion criteria?
Lamb and Zusman (1979)	X	X	X	X	No. Review publication date is outside the time period (\geq 1995) for this briefing	-	-	-	-	
Latimer (1999)	✓	X	✓	X		✓	✓	✓	✓	No. Focus is on treatment of people with severe mental illness, who are likely to have been in receipt of medication (exclusion criterion for this briefing)
Latimer (2001)	✓	X	✓	X	No. Review is not systematic	-	-	-	-	
Lees et al. (1999)	✓	✓	✓	✓	No. Focuses on treatment for people with significant behavioural disorders or people with substance related disorders (exclusion criteria for this briefing)	-	-	-	-	
Lehman and Steinwachs (1998)	X	X	X	X	No. Review discusses recommendations for treatment, not interventions	-	-	-	-	
Lehman et al. (2003)	X	X	X	X	No. Review is not systematic	-	-	-	-	
Lewin et al. (2003)	✓	✓	✓	✓		✓	✓	✓	✓	No. Not relevant. Focus is not on mental health outcomes
McAuley et al. (1997)	X	X	X	X	No. Primary study	-	-	-	-	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
McGorry (2000)	X	X	X	X	No. Review is not systematic	-	-	-	-	
Mabe et al. (2001)	✓	-	-	-	No. Review was not systematic	-	-	-	-	
Macdonald et al. (2004)	✓	X	X	X	No. Report on qualitative interviews, not on interventions	-	-	-	-	
Magyar (2002)	✓	X	X	X	No. Review is not systematic	-	-	-	-	
Marschke (1997)	X	X	X	X	No. Review is not systematic	-	-	-	-	
Marshall et al. (1998)	✓	✓	✓	✓		✓	✓	✓	✓	No. Review focuses on treatment of people with severe mental disorders who are likely to have been in receipt of medication. (Author contacted and reply received 16/06/2005)
Marshall and Lockwood (1998)	✓	✓	✓	✓		✓	✓	✓	✓	No. Review focuses on treatment of people with acute psychiatric disorders who are likely to have been in receipt of medication. (Author contacted and reply received 16/06/2005)

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Marshall et al. (2001)	✓	✓	✓	✓	No. Focuses on treatment and study participants in receipt of medication (exclusion criteria for this briefing)	-	-	-	-	
Marshall et al. (2003)	✓	✓	✓	✓		✓	✓	✓	✓	No. Review focuses on treatment of people with acute psychiatric disorders who are likely to have been in receipt of medication. (Author contacted and reply received 16/06/2005)
Matthews et al. (1998)	✓	✗	✗	✗	No. Focus on causation between religious commitment and physical and mental health, not on interventions	-	-	-	-	
mentality (2003)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
mentality (2004)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Mohit (1996)	✗	✗	✗	✗	No. Not a review. Paper reports findings of a single study	-	-	-	-	
Mueser et al. (1998)	✓	✗	✓	✗		✗	✓	✓	✓	No. Focus on treatment that includes medication (exclusion criterion for this briefing)

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Mueser et al. (2002)	✓	✓	✓	✗	No. Insufficient data presented on primary studies	-	-	-	-	
Murphy L (1996)	✓	✗	✗	✗	No. review not systematic – references another paper for method details. This was ordered but did not arrive in time	-	-	-	-	
Murray and Jenkins (1998)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Nicholas (1999)	✓	✓	✓	✓		✓	✓	✓	✓	No. Age range of participants in primary studies was 14–24. Findings aggregated and could not be extrapolated for age groups ≥ 16
Patel and Kleinman (2003)	✓	✓	✗	✗	No. Focus on epidemiology, not on interventions	-	-	-	-	
Pavis et al. (1998)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Peck and Kirkwood (2001)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Pekkala and Merinder (2002)	✓	✓	✓	✓		✓	✓	✓	✓	No. Focus on treatment of people with schizophrenia who are likely to have been in receipt of medication. (Author contacted and reply received 13/05/2005)

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Petrasek and Rapin (2002)	✓	✗	✗	✗	No. Focus on treatment costs, not on interventions	–	–	–	–	
Pilling et al. (2002a)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants were people with schizophrenia receiving medication (exclusion criterion for this briefing). (Author contacted and reply received 27/07/2005)
Pilling et al. (2002b)	✓	✓	✓	✓		✓	✓	✓	✓	No. Participants were people with schizophrenia receiving medication (exclusion criteria for this briefing). (Author contacted and reply received 27/07/2005)
Pratt and Woolfenden (2002)	✓	✓	✗	✓		✓	✓	✓	✓	No. Age groups 14–19 are not consistently separated to assess outcome for age ≥ 16
Roberts et al. (2002)	✓	✓	✗	✓		✓	✓	✓	✓	No. Medication was a component of the included studies
Robertson et al. (1998)	✓	✓	✓	✓	All patients had chronic schizophrenia so it is highly likely they were also receiving medication. Author contacted, response received 7/09/2005. Medication was a component of the included studies	–	–	–	–	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
Ruddy and Milnes (2005)	✓	✓	✓	✓	✓	✓	✓	✓	✓	No. Focuses on treatment for schizophrenia which includes medication (exclusion criterion for this briefing)
Sanders (2002)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Scott and Dixon (1995)	✓	✓	✗	✓		✓	✗	✗	✓	No. Participants were in receipt of medication (exclusion criterion for this briefing)
Scottish Intercollegiate Guidelines Network (1998)	✗	✗	✗	✗	No. Not relevant. Focus on clinical guidelines	-	-	-	-	
Siddle and Kingdon (2000)	✗	✗	✗	✗	No. Not a review. Paper is an overview of issues relating to the management of people with schizophrenia in the community	-	-	-	-	
Svanberg (1998)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Thirlaway and Benton (1996)	✗	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Thompson and Ontai (2000)	✓	✗	✗	✗	No. Review is not systematic	-	-	-	-	
Turner-Boutle et al. (1997)	✓	✗	✗	✗	No. Paper is an extract of a systematic review by the Centre for Reviews and Dissemination, 1997 (included in the evidence base)	-	-	-	-	

Appendix 4: Summary of critical appraisal findings of papers excluded from this evidence briefing (cont.)

Author and date	STAGE ONE						STAGE TWO			
	Specifies clear and relevant aim or research question	Identifies appropriate range of source databases	Undertakes additional search strategies	Specifies search terms	Meets inclusion criteria?	Rigour of individual studies assessed	Individual studies' findings presented clearly and consistently	Individual studies' findings analysed clearly and consistently	Conclusions presented relate to individual studies' findings	Meets inclusion criteria?
van Emmerik et al. (2002)	✓	✓	✓	✓		✓	✗	✗	✗	No. Focus on trauma, ie post-traumatic stress disorder, an exclusion criterion for this briefing
Walker and Townsend (1998)	✓	✓	✗	✗	No. Ages of participants ≥ 16 could not be extrapolated from the data	-	-	-	-	
Weinhardt et al. (1999)	✓	✗	✗	✗	No. Review was not systematic	-	-	-	-	
Wells et al. (2003)	✓	✓	✓	✓		✓	✓	✓	✓	No. Ages of participants ≥ 16 could not be extrapolated from the data
Zubrick et al. (2000)	✗	✗	✗	✗	No. Review was not systematic	-	-	-	-	

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