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Effectiveness of knowledge translation of social interventions across economic boundaries: a systematic review

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Abstract

There is increasing evidence to suggest that the application of knowledge in low and middle-income countries (LMIC) is failing, that a gap exists between what is known from research and what is done to apply it. Despite widespread agreement that the application of evidence is needed, there are few published studies of how to effectively translate knowledge of social interventions, particularly those aimed at improving outcomes for mental health populations. To address this gap we assessed knowledge translation of social interventions for adults with mental health problems across economic boundaries using a systematic review of peer-reviewed literature. This review aimed to identify the extent of translational research available and to explore the effectiveness of different strategies and interventions. Studies were included if they translated knowledge between richer and poorer countries and reported a social component (as opposed to purely health) which aimed to improve social outcomes for adults with mental health problems. Our findings provide evidence for the successful translation of locally adapted social interventions to LMIC, though the specific knowledge translation mechanisms varied greatly. With only 23 studies meeting inclusion criteria for this review, further investigation is needed to ascertain the conditions surrounding knowledge translation of social interventions globally.

Introduction

Recent estimates from the World Health Organisation (WHO) suggest that 450 million people worldwide suffer from mental or behavioural disorders, and about 4 out of 5 people in low- and middle-income countries (LMIC) in need of mental health services do not receive them (WHO, 2010). Although the treatment gap for mental disorders persists in high-income countries, it is greatest in sub-Saharan Africa, where it has been shown to exceed 90% (Kohn, Saxena, Levav, & Saraceno, 2004; Ormel et al., 2008).

In the last decade, there has been increasing acknowledgement that mental health should be addressed on a global scale. The Lancet series on global mental health first published in 2007 and updated in 2011 provided a benchmark of evidence and a renewed call to action to scale-up mental health services worldwide. This call emphasised evidence-based, cost-effective and culturally appropriate interventions to address the mental health treatment gap (Lancet Global Mental Health Group et al., 2007; The Lancet, 2011). A second landmark publication which galvanised the field of global mental health was the WHO's flagship programme on mental health launched in 2008, Mental Health Gap Action Program, which produced an intervention guide for scaling-up interventions by general health practitioners (WHO, 2010). These guidelines comprehensively addressed a range of care components including psychological, pharmacological and social interventions, though its authors recognised that the challenge of translating evidence-based solutions to diverse context remained.

Social interventions can help to fill the treatment gap for people experiencing mental distress in LMIC. They have the potential to improve quality of life (Webber, Huxley, & Harris, 2011), community engagement (Attree et al., 2011) and positively impact the social functioning (De Silva, Cooper, Li, Lund, & Patel, 2013) of people with mental health problems. But one of the primary challenges of implementing social interventions is to determine the most effective intervention strategies within a given context and to promote the application of research. In order for knowledge to be disseminated outside the narrowly circumscribed scientific community, it needs to be 'socially robust' to capture the nature of wider communities (Driessens, Saurama, & Fargion, 2011). For service users, care providers and policy-makers, local data are important. Research and action into the 'know' and 'how' of mental health problems may vary across economic boundaries; such information is crucial to our understanding of health and social care needs in a given setting.

Most of the global burden of mental illness falls to the poorest nations, but on average LMIC invest less than 1% of their health expenditure to mental health, resulting in poorly developed mental health policies and research infrastructure (Kohn et al., 2004). Successive efforts by WHO, Global Forum for Health Research, Pan-American Health Organization, amongst others, have been made to foster research in LMIC; however, there is still a need for funding institutions and governments to increase and sustain knowledge translation across economic boundaries (Razzouk et al., 2010). These statistics clearly illustrate that the application of knowledge in LMIC is failing.

In social work, increasing pressure towards evidence-based practice and the development of interventions on sound evidence is crucial to the sustainability of the field in today's neoliberal environments (Gray & Schubert, 2012; Driessens et al., 2011). Considerable resources are devoted to mental health research and production of new knowledge. Policy-makers and practitioners are challenged to deliver care involving the use of research evidence combined with clinical knowledge and reasoning to inform practice. For this to occur knowledge provision is integral; however, the terms knowledge 'transfer' and 'translation' both acknowledge the complexities of transmission between researcher and user, and yet inconsistency in the use of the terms requires clarity.

There exists a breadth of literature available on knowledge transfer and can be defined as 'the process of getting knowledge used by stakeholders' (Graham et al., 2006, p. 16). Several frameworks have been developed for knowledge transfer strategies that generally focus on the activities directed by researchers including: (1) promoting public awareness, (2) dissemination to the target audience, (3) implementation with the goal of creating behaviour change (Davis et al., 2003; Lavis, Robertson, Woodside, McLeod, & Abelson, 2003).

The term knowledge transfer has been criticised because it implies unidirectional flow of knowledge. Whereas knowledge transfer refers to the point at which research findings are delivered, the term knowledge

translation has been used to describe a broader multidimensional concept involving partnerships, interaction and exchanges throughout the creation of knowledge, development and implementation of research (Graham, Tetroe, & KT Theories Research Group, 2007). This involves interaction between stakeholders in both countries throughout the research process to ensure, in intervention research, for example, appropriate adaptation for different, social, cultural and economic contexts.

Despite widespread agreement that knowledge translation is needed, there are few published studies of how to effectively translate knowledge of psychosocial interventions, particularly those aimed at improving social outcomes for mental health populations. Previous systematic reviews of mental health interventions involving LMIC have largely been limited to studying the effectiveness of randomised controlled trials (RCTs) for individuals with schizophrenia and depression (De Silva et al., 2013; Mari, Razzouk, Thari, Eaton, & Thornicroft, 2012; Purgato, Cipriani, & Barbui, 2012) though a focus on social interventions is largely absent. Evidence has also been synthesised to better understand the link between poverty and mental disorders in LMIC (Lund et al., 2010) although the translation of knowledge as it relates to economic boundaries has not been reviewed.

As is highlighted throughout this special issue, knowledge translation in social work is underdeveloped in contrast to other disciplines such as medicine. This is particularly true of international social work as research is frequently confined to national boundaries, reflecting policy and practice within jurisdictions. This review aims to provide a baseline of current knowledge about the translation of social interventions for mental disorders across economic boundaries against which progress can be benchmarked. In synthesising the available literature it also aims to build a case for the strengthening of knowledge translation in social interventions, recognising the importance of context-specific characteristics. This synthesis of international literature therefore aims to provide policy-makers, researchers and practitioners with evidence to inform decisions about how to plan effective interventions and to identify future research needs.

Methods

Selection criteria

The review included psychosocial interventions with a social component (non-pharmacological/ physical) which aimed to improve social factors for adults experiencing mental disorders that had been translated across economic boundaries. Psychosocial interventions were defined as any intervention that emphasises psychological or social factors rather than biological factors, and specifies a social component (Ruddy & House, 2005). This comprised psychotherapies or collaborative stepped-care approaches aimed at enhancing an individual's social skills, relationships or network. This definition allows for the inclusion of interventions that appear in any format, e.g. groups, individual or family; and within the immediate social context of the individual rather than wider social context. Furthermore, policy analyses, system-level research and evaluation of existing care practice that had not been translated through intervention were also excluded from the analysis.

In order to determine whether an intervention had been translated across economic boundaries or simply executed in more than one setting, we identified the theoretical or conceptual foundation that informed the intervention development combined with the mechanisms pursued by the researchers to implement it in another country.

To be included, studies needed to measure social outcomes attributable to the intervention. This incorporates measures of social capital, social functioning, social support or social network development but is not limited to validated tools as access to measures adapted for LMIC is limited. Social capital is increasingly being recognised as important for health and mental well-being (Kawachi, Subramanian, & Kim, 2007). Defined by Nan Lin and others as the resources that are embedded within social networks (Lin, 2001), this conception is an extension of social network theory and emphasises the importance of network members' resources, such as wealth, power and status, to an individual. As such, studies with social outcome measures that broadly assessed an individual's social development were included in this review.

Search strategy

We identified relevant peer-reviewed studies in a three staged approach. First, we searched MEDLINE, Pubmed, EconLit, Web of Science and PsycINFO using Medical Subject Headings terms or equivalent adaptations to reflect different indexing, search functions and syntax (example search strategy, Appendix 1). The search strategy employed three independent variables linked by 'AND' statements: (1) indexed, fully exploded geographical term covering 'developing countries' or countries identified by the World Bank as LMIC

(annual gross national product per capita less than \$12,476); (2) indexed, fully exploded term covering 'mental disorders'; (3) a final term that was either indexed, covering 'interventions' or unindexed, for example: 'Random*adj control*adj trial*'. Second, hand searches were conducted to review tables of contents for British

Journal of Psychiatry, British Journal of Social Work, Community Mental Health Journal, European Journal of Social Work and The Lancet. Third, we reviewed reference sections of key articles. Language and publication year limits were not applied, however, only full-text papers in English were included in the final review. The searches covered the full range of publication years available up to April 2014.

Data extraction and analysis

Data were extracted from eligible studies using an adapted version of the standardised SCIE Data Extraction Tool for intervention evaluation (Rutter, Francis, Coren, & Fisher, 2010). The tool was adapted such that in addition to collecting details about the nature of the study (e.g. user/stakeholder involvement, sample characteristics, recruitment procedures, analyses), nature of the intervention (e.g. intervention aims, theoretical framework, main features, delivery) and outcomes (e.g. main measures, summary of findings, strengths/limitations, cost-effectiveness reported), the tool also contained a series of coding categories to facilitate systematic data analysis and synthesis (Appendix 2).

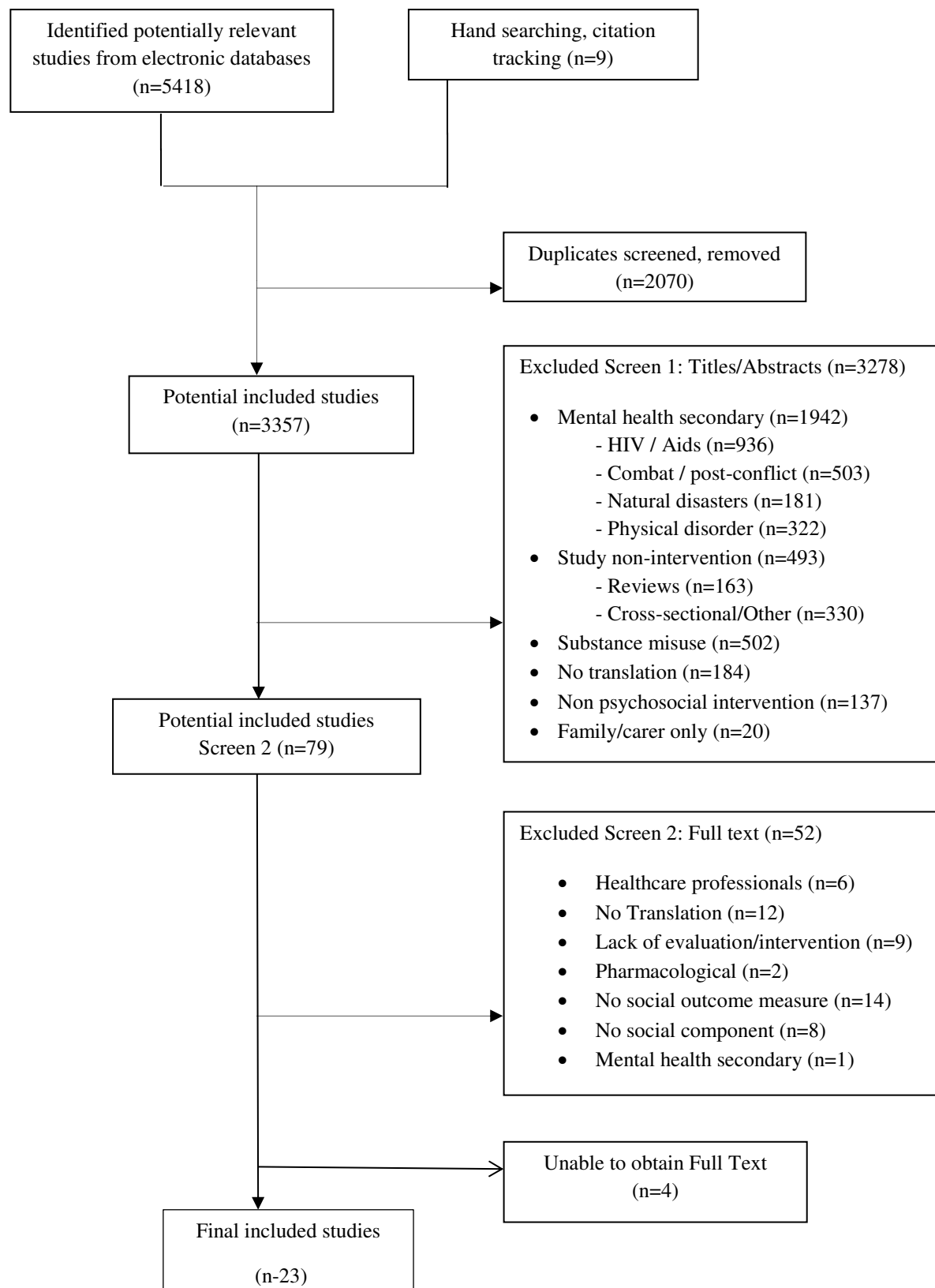
Quality appraisal

The quality of included studies was appraised to establish methodological rigour. Studies were appraised using a set of pre-determined criteria from SIGN50 guidelines (Appendix 2). Whilst the quality appraisal stage did not affect the inclusion of studies, the process was used to generate an overall quality score of '++', '+' or '—'.

Results

A total of 3357 unique studies were identified through database and hand searching (Figure 1). Where it was not obvious from titles and abstracts, full text was obtained in screen 2. Of the 79 studies reviewed at screen 2, most were excluded when it became apparent they did not meet the specific inclusion criteria, and additional four were unavailable by full text. Thus, 23 studies met selection criteria and were included in this review.

Figure 1: Application of selection criteria



Characteristics of included studies

Although each study reported the social outcomes attributable to intervention effects, the knowledge translation mechanisms, methodologies, instruments employed and results varied greatly. It was therefore not possible to analyse the studies quantitatively and meta-analysis was deemed impossible. Instead, the data extraction tool formed the basis of narrative synthesis, which was conducted to summarise the impact of intervention translation. Two papers report on outcomes from the same RCT, one reporting post-intervention data (Bolton et al., 2003) the other reports six-month follow-up data (Bass et al., 2006). For purposes of this review, both studies met inclusion criteria though participant data have been reported only once.

Characteristics of 23 included studies are presented in Table 1.

Table 1: Study Characteristics

Study Characteristics	High -> Low/Middle
<i>Location</i>	
Africa (n=7)	Kenya (n=1) South Africa (n=3) Uganda (n=3)
Asia (n=10)	China (n=3) India (n=6) Malaysia (n=1)
Eurasia (n=2)	Georgia (n=1) Turkey (n=1)
Latin America (n=4)	Brazil (n=1) Chile (n=2) Mexico (n=1)
<i>Study Design</i>	
Case Studies	(n=4)
Case control studies	(n=4)
Cohort Studies (before and after)	(n=4)
Randomised-Control Trials	(n=11)
<i>Mental Health Problem</i>	
Common mental disorders	(n=4)
Severe mental illness	(n=3)
Unipolar Depression	(n=6)
Schizophrenia	(n=10)
<i>Intervention Type</i>	
Assertive Community Treatment (ACT)	(n=2)
Interpersonal Psychotherapy (IPT)	(n=4)
Multicomponent Community Care	(n=4)
Multicomponent Collaborative Care	(n=7)
Multicomponent Structured Care	(n=6)
<i>Setting</i>	
Hospital in-patient	(n=4)
Hospital out-patient	(n=7)
Primary healthcare	(n=4)
Community	(n=8)
<i>Delivery Mode</i>	
Individual	(n=3)
Group	(n=7)
Individual + family	(n=3)
Individual + group	(n=7)

Group + family	(n=3)
Quality Appraisal	
(++) Low risk of bias	(n=13)
(+) Moderate risk of bias	(n=8)
(-) High risk of bias	(n=2)

Study samples

All 23 included social interventions which were translated from high-income countries into LMIC in the past 20 years, since 1996. The majority of studies (n = 10) were conducted in Asia, most of those from India (n = 6); one-third of the studies were conducted in Africa; the remaining studies were from Latin America (n = 4) or Eurasia (n = 2). A total of 5420 adult participants contributed to the 23 studies, ranging from 1 to 2367 per study. The most common mental health problem for the participants in the studies was schizophrenia (n = 10), followed by unipolar depression (n = 6), common mental disorders (n = 4) and severe mental illness (n = 3).

Studies varied in design, roughly half (48%) were RCTs, four were case studies, four were case-control (non-randomised before and after intervention) and four were cohort studies. Half of the included studies were hospital-based (seven outpatient; four inpatient). Although the majority of studies were delivered in the community (n = 9), one study took place in both the community and a hospital outpatient unit (Chatterjee, Patel, Chatterjee, & Weiss, 2003) and the remaining were delivered in primary-care settings. Seven studies were delivered in groups, three individually and the remaining 13 studies were mixed delivery.

Measurement of social outcomes

Table 2 summarises the social outcome measures employed across the review sample. Lack of consensus in the literature regarding measurement of social outcomes was evidenced by 12 different scales with 15 studies using quantitative measures, 6 using qualitative measures and 2 employing mixed methods. Social outcome measures were taken from high-income countries often with little translation for the local context. Whilst most scales were validated, only five were locally developed or specifically adapted for LMIC and two papers reported on instruments developed specifically for the study. The social domains measured across the 12 scales varied greatly, though no tool measured all domains: social activities and participation (n = 11); social functioning (n = 12); interpersonal relationships (n = 12); social networks (n = 3); social engagement and isolation (n = 7); employment or study (n = 4); communication (n = 4).

Overall, 14 of the 17 quantitative studies reported significant results on social outcomes; 3 studies that did not reach statistical significance still reported improved social outcomes to a lesser degree. The domains of social outcomes that saw marked improvement included: interpersonal relationships, engagement in social activities, social participation, social functioning and employment status. Qualitative studies also reported improvement in social network development and interpersonal communication skills.

Table 2: Social Outcome Measures

Scale	Description	Valid/ Reliable	Developed for LMIC	Studies using this scale	Social activities	Social functioning	Interpersonal relationships	Social network	Social participation: engagement/withdrawal	Employment/ Study	Communication
Global Assessment of Functioning (GAF)	Rates subjectively the social, occupational, and psychological functioning of adults, e.g., how well or adaptively one is meeting various problems-in-living (100 items)	Yes	No	(Lund et al., 2013; (Razali et al., 2000); (Valencia et al., 2010); (Yildiz et al., 2004)	X	X	X			X	
Global Assessment Scale (GAS)	Rating scale for evaluating the overall functioning of a subject during a specified time period on a continuum from psychological or psychiatric sickness to health, developed from GAF (100 items)	Yes	No	(Guo et al., 2010); (Li & Arthur, 2005)	X	X	X				
Life skills profile (LSP)	Instrument to assess social functioning and includes domains of social contact, communication (39 items)	Yes	No	(Uys & Zulu, 1996)		X	X	X	X		X
Nurses' Observation Scale for Inpatient Evaluation (NOSIE)	Psychosocial functioning and behaviour designed for individuals on a psychiatric inpatient unit (30 item)	Yes	Yes	(Li & Arthur, 2005)	X	X	X		X		
Qualitative	In-depth interviews or focus groups			(Hirdes & Kantorski, 2002); (Jaganathan & Sekar, 2011); (Petersen et al., 2012); (Petersen et	X	X	X	X	X	X	

				al., 2011); (Balaji et al., 2012); (Bass et al., 2006); (Uys & Zulu, 1996); (Zavradashvili et al., 2010)							
Social Disability Screening Schedule (SDSS)	Assessment of social disability, developed from WHO-DAS (10 items)	Yes	Yes	(Xiang et al., 2007)	X	X	X		X	X	
Social Functioning Scale (SFS)	Developed to assess areas of functioning that are crucial to the community maintenance of individuals with schizophrenia (79 items)	Yes	No	(Yildiz et al., 2004)	X	X	X		X	X	X
Social and Occupational Functioning Assessment Scale (SOFAS)	Assessing overall severity of psychiatric disturbance in adults, developed from GAF (100 items)	No	No	(Botha et al., 2010)	X	X	X				
Short-Form 36 social functioning scale (SF-36)	Consists of eight scaled scores, measures the extent to which health problems interfere with social activities (36 items)	Yes	No	(Araya et al., 2003); (Rojas et al., 2007); (Guo et al., 2010)	X	X					
World Health Organization Disability Assessment Scale (WHO-DAS II)	Generic assessment instrument for health and disability, produces standardized disability levels and profiles across six domains	Yes	Yes	(Chatterjee et al., 2003); (Murthy et al., 2005); (Patel et al., 2011); (Lund et al., 2013)	X	X	X	X	X		
Locally developed social functioning scale	Sex-specific measure to assess social functioning, describing activities important to the local culture (9 items)	Yes	Yes	(Bolton et al., 2003); (Bass et al., 2006)	X	X	X				
Social Behaviour Scale (SBS)	Measuring social behavioural difficulties (21 items)	Yes	No	(Razali et al., 2000)		X	X		X		X
Indian Disability Evaluation Assessment Scale (IDEAS)	Semi-structured interview measuring social relationships, activities, communication	Yes	Yes	(Chatterjee et al., 2009)	X		X				X

Key findings

In total, there were five types of social interventions to treat mental health problems reported, all of which had been derived from high-income countries and translated to LMIC. The most common type of intervention was multicomponent collaborative care ($n = 7$), which is defined as an intervention using case managers to link health and social care providers in order to increase the type and frequency of support for adults with mental health problems, addressing a variety of psychosocial factors (Thota et al., 2012). Six studies used multicomponent structured care, consisting of more than one therapeutic component such as pharmacotherapy, psychoeducation or structured family therapy, used in combination with social enhancement strategies (Katon et al., 1996). Used in four of the included studies, interpersonal psychotherapy (IPT) reviews a person's current social ties focusing on four social problem areas to improve relationships associated with the onset or perpetuation of mental disorders (Krupnick et al., 2008). Four studies evaluated multicomponent community care interventions, combining psychosocial therapies in a community-based setting where non-specialist human resources are utilised to reduce constraints on low-resourced health systems (Patel, Farooq, & Thara, 2007). Assertive community treatment (ACT) was used in two included studies, which is a social skill training that includes elements of culturally/context-appropriate assertive behaviours targeting behavioural, cognitive, emotive components of social skills (Marks, 1986).

Although the aims of each study varied, and most were designed to improve overall mental health which included social outcomes either primarily or secondarily, there were many similarities in the common social themes which emerged from the review (Table 3). These themes point to specific translational strategies that had been adapted to the local context of the LMIC, suggesting potential approaches for future translational work.

The first common theme is that many studies incorporated elements of social participation such as culture-specific community activities—particularly those that generate income—a mutually beneficial strategy for individuals with mental health problems and wider community development. In one RCT (Bass et al., 2006; Bolton et al., 2003), a locally developed tool addressing social outcomes measured engagement in gender-specific activities that were typical for the sample. Socialisation was an activity more commonly attributed to male participants than females who had stronger roles in the home. Qualitative results illustrated areas of improvement that mattered most were the development of income-generating activities in the community.

A multicomponent community intervention in India for people with schizophrenia reported social outcomes after four years, the longest follow-up for mental health service intervention in LMIC to date (Chatterjee, Pillai, Jain, Cohen, & Patel, 2009). The programme facilitated social participation whereby participants were engaging in context-specific community activities such as festivals, attending marriages and voting in local elections. The groups were found to support social inclusion and addressed economic concerns through linkages with microcredit facilities and employment schemes, thus providing mutual benefit for service users and the community. This was also evidenced by qualitative accounts of IPT implemented in Uganda with a user-carer support group, the intervention assisted with social skill development and facilitated access to community resources for agricultural production to enable group members to end the vicious cycle of poverty and mental illness (Petersen, Sebunnya, Bhana, & Baillie, 2011).

Second, interventions commonly addressed the impact on social network development, promoting wider community involvement and social relationships outside mental health services, thus breaking down stigma through advocacy and community acceptance. For example, Chatterjee and colleagues (2003) reported the intervention empowered community members to engage in rehabilitation, attributable to the lay health workers being members of the community whose influence generated positive social milieu regarding mental health. Lund and colleagues (2013) evaluated the implementation of the community-based Basic Needs' Mental Health and Development programme, created by an international NGO. This was the first programme to combine mental health, social support and poverty alleviation in Africa, uniquely mobilised the community through awareness-raising engagement meetings which also served as an opportunity to recruit participants to self-help support groups.

Third, a common theme across the studies was an emphasis on culturally appropriate social and behavioural skill development, most often measured by social functioning, but also including communication

and interpersonal relationship skills. Such social skills outcomes reflect how patients live, function, and perform various roles in society. Chavis and Newbrough (1986) defined social functioning as 'the ability of a person to do what is appropriate in a social setting' (p. 19). The development of locally relevant social skills was a strategy used across a number of the included studies when translating interventions. This was illustrated in a multicomponent collaborative care intervention for women with depression was compared with usual care in Chile, and aimed to be as feasible as possible for the local setting in order to improve existing care using standardised protocols (Araya et al., 2003). Delivered in groups and focusing on several treatment components: social and behavioural skills training, psychoeducation and where necessary pharmacology, results indicated statistically significant between- and within-group differences in social functioning scores. Similar improvement to social functioning and skills were found in a Ugandan trial of IPT with participants suffering from local depression-like symptoms, *yo'kwekyawa* and *okwekubazida*, translated as 'self-loathing and self-pity' (Bass et al., 2006).

Contrastingly, two studies reported no significant differences between intervention and control groups on social function scores, though authors explained it takes time for patients and families to integrate new social skills into daily life, and as symptoms and social problems reappear individuals are changing coping behaviours to modify relationships (Li & Arthur, 2005; Uys & Zulu, 1996). It is possible that limited gains in social skills could also be understood from further examination of the extent to which interventions were adapted and evaluated for the local context. Both studies included elements of psychoeducation for schizophrenia but did not address explanatory models for the illness in China and South Africa.

Lastly, a number of studies reported tailoring interventions to the local community through task shifting: restructuring services by redistributing tasks among health care workers and utilising the community resources already available. Studies identified by this review utilised task-shifting strategies to employ non-specialist, lay health workers (Balaji et al., 2012; Bass et al., 2006; Chatterjee et al., 2003; Patel et al., 2011; Petersen, Bhana, & Baillie, 2012; Petersen et al., 2011), reduce the size of caseloads and frequency of visits (Botha, Koen, Joska, Hering, & Oosthuizen, 2010) and operate temporary outreach camps in the community (Chatterjee et al., 2009). Task-shifting was also shown to increase job satisfaction and reduce feelings of isolation and burn out when staff were trained in new strategies (Uys & Zulu, 1996).

Table 3: Summary of key findings

Study	Country	Study Aims	Translation strategies for social interventions	Quality Appraisal
Araya et al. (2003)	Chile	To compare effectiveness of a stepped-care programme with usual care in primary-care management of depression in low-income women	<i>Culturally appropriate social & behavioural skill development</i> <i>Task-shifting- training community health workers (CHW)</i> <i>Psychoeducation</i>	(++)
Balaji et al. (2012)	India	To evaluate a lay health worker delivered community based intervention	<i>Advocacy outside mental health services</i> <i>Task-shifting- training CHW</i> <i>Psychoeducation</i>	(++)
Bass et al. (2006)	Uganda	To determine whether the substantial treatment benefits found immediately following the formal intervention were maintained 6 months later (connected with Bolton, 2003)	<i>Community activities + Income generation</i> <i>Culturally appropriate social & behavioural skill development</i> <i>Task-shifting- training CHW</i>	(+)
Bolton et al. (2003)	Uganda	To test the efficacy of group IPT in relieving depressive symptoms and improving functioning; to evaluate the feasibility of such studies in Sub-Saharan Africa	<i>Community activities + Income generation</i> <i>Task-shifting- training CHW</i>	(++)
Botha et al. (2010)	South Africa	To determine the impact of a tailored, assertive treatment service on readmission rates and other measures of outcome in HFUs of psychiatric services in a developing country	<i>Task-shifting- training CHW</i>	(++)
Chatterjee et al. (2003)	India	To compare the effectiveness of CBR with that of out-patient care in the treatment of people with chronic schizophrenia, and to test the hypothesis that CBR would produce superior clinical and disability outcomes compared with standard out-patient care	<i>Advocacy outside mental health services</i> <i>Task-shifting- training CHW</i>	(++)

Chatterjee et al. (2009)	India	To describe the scaling up and impact of a community-based rehabilitation programme for people with psychotic disorders in a very-low-resource setting	<i>Community activities + Income generation</i> <i>Task-shifting- training CHW</i> <i>Psychoeducation</i>	(+)
Guo et al. (2010)	China	To evaluate the effectiveness of antipsychotic medication alone vs combined with psychosocial intervention on outcomes of early-stage schizophrenia.	<i>Culturally appropriate social & behavioural skill development</i> <i>Psychoeducation</i>	(++)
Hirdes & Kantorski (2002)	Brazil	To approach care systematization in two individuals with psychiatric disorder who attended services in the community, focussing on: permanence in their environment, allowing service users to remain close to their families and social spheres; and social reinsertion	<i>Advocacy outside mental health services</i>	(-)
Jaganathan & Sekar (2011)	India	To report and analyse a case study of a strengths-based case management approach as a psychiatric social work intervention in India	<i>Culturally appropriate social & behavioural skill development</i>	(+)
Li & Arthur (2005)	China	To conduct a longitudinal experimental study examining the effect of service user and family education in a sample of Chinese people with schizophrenia	<i>Culturally appropriate social & behavioural skill development</i> <i>Psychoeducation</i>	(++)
Lund et al. (2013)	Kenya	To evaluate mental health, economic and quality of life outcomes for participants of Basic-Needs' Mental Health and Development programme in rural Kenya	<i>Advocacy outside mental health services</i> <i>Community activities + Income generation</i> <i>Task-shifting- training CHW</i>	(+)
Murthy et al. (2005)	India	To examine the costs associated with a community outreach programme for people with schizophrenia living in rural area, to assess its impact on the personal functioning of individuals and burden on families	<i>Culturally appropriate social & behavioural skill development</i>	(+)
Patel et al. (2011)	India	To test the effectiveness of an intervention led by lay health counsellors in primary care settings (the MANAS intervention) to improve outcomes of people with common mental disorders	<i>Task-shifting- training CHW</i> <i>Psychoeducation</i>	(++)

Petersen et al. (2011)	Uganda	To understand how the use of the common implementation framework assisted in the development of district/sub-district mental health services in Uganda, this study focussed on the results from user/carer focus groups	<i>Community activities + Income generation</i> <i>Task-shifting- training CHW</i>	(++)
Petersen et al. (2012)	South Africa	To assess the feasibility of the adapted IPT intervention for women with depressive symptoms that could be delivered by trained CHWs within a task shifting approach	<i>Advocacy outside mental health services</i> <i>Culturally appropriate social & behavioural skill development</i> <i>Task-shifting- training CHW</i>	(++)
Rojas et al. (2007)	Chile	To compare clinical outcomes achieved with this improved programme with those from usual care for postnatal depression in primary-care clinics in Santiago, Chile	<i>Psychoeducation</i>	(+)
Razali et al. (2000)	Malaysia	To assess the efficacy of the Culturally Modified Family Therapy (CMFT) against the Behavioural Family Therapy (BFT) in the management of schizophrenia in a developing country	<i>Psychoeducation</i> <i>Culturally appropriate social & behavioural skill development</i>	(+)
Uys & Zulu (1996)	South Africa	To link services to the individual and co-ordinate various system and community components through case management	<i>Culturally appropriate social & behavioural skill development</i> <i>Task-shifting- training CHW</i>	(-)
Valencia et al. (2010)	Mexico	To determine the cross-cultural effectiveness of a psychosocial skills training (PSST) treatment for schizophrenia that was developed and validated in the United States and adapted for use with people with schizophrenia in Mexico	<i>Culturally appropriate social & behavioural skill development</i> <i>Psychoeducation</i>	(++)
Xiang et al. (2007)	China	To evaluate the effectiveness of the Chinese version of the Community Re-EntryModule (CRM; a module of a standardised, structured social skills training programme) for people with schizophrenia compared with standard group psychoeducation	<i>Task-shifting- training CHW</i> <i>Psychoeducation</i> <i>Culturally appropriate social & behavioural skill development</i>	(++)
Yildiz et al. (2004)	Turkey	To investigate the role of the comprehensive model of psychosocial skills training on social functioning and quality of life of people with schizophrenia	<i>Culturally appropriate social & behavioural skill development</i>	(++)

Zavradashvili et al. (2010)	Georgia	Evaluating the feasibility, outcome and cost-effectiveness of Assertive Community Treatment piloted in Tbilisi	<i>Advocacy outside mental health services</i> <i>Community activities + Income generation</i>	(+)
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Quality appraisal

The appraisal process revealed a range of methodological biases across studies, with 56% studies deemed at low risk of bias, 35% at moderate risk of bias and 9% at high risk of bias (Tables 1 and 3). Some did not provide adequate detail of randomisation procedures, allocation concealment and blinding to exposure. Poor reporting of outcome assessment was evidenced by limited information regarding the social outcomes and details of tool adaptation for the local context, as well as few studies reporting effect sizes to determine the strength of the outcomes, although author reports of both significant and non-significant results was deemed a methodological strength in several studies. Although there were numerous limitations in study designs, the overall included studies were judged as at low to moderate risk of bias.

Discussion

This overview of literature on the translation of social interventions across economic boundaries reflects an important gap in the translation of knowledge. The paramount finding that no published literature from social interventions developed in LMIC has been translated to high-income countries points to wider issues surrounding global mental health-across the globe there are numerous developments in mental health research but richer and poorer countries are not necessarily learning from one another. Results indicate that some strategies to ensure knowledge is translated into policy, practice and improved health have been developed, but the evidence base for the effectiveness of those strategies is limited in high-income countries and relatively sparse in LMIC.

Overall intervention findings

The included studies in this review provide evidence for the successful translation of social interventions across LMIC in order to improve social outcomes for adults with mental health problems. However, it is difficult to ascertain if these concepts are universally applicable or transferrable across economic boundaries. Mental health social research is local in character; strategies to improve care must be locally developed and influenced by the communities in which they are measured. The common features identified incorporate findings from a diverse range of countries across Africa, Asia, Latin America and Eurasia, which help to provide evidence for the application of social interventions in other countries.

In many cases the interventions described in this review were locally adapted which enabled an appropriate evaluation of the resource implications, and thus provides relevant data for planning and implementation in similar settings. It appears, however, that the effectiveness of these strategies is highly variable and dependent on the setting and that success hinges on the extent to which strategies have been tailored. Graham et al. (2006) explain, if research evidence is produced in a rigorous and transparent way, it may be more readily applied. This issue is further complicated by marked cultural, religious and societal differences between many low-, middle- and high-income countries; and is especially important as the concept of therapeutic treatment may be culturally unfamiliar, foreign and stigmatising to many ethnic communities.

Findings of significant improvement for people with a variety of mental health problems are consistent with other surveys in developing countries (Mari et al., 2009; Razzouk et al., 2010; Sheriff, Adams, Tharyan, Jayaram, & Duley, 2008). Comparative studies have actually demonstrated better long-term outcomes for schizophrenia in LMIC, particularly for individuals living in rural areas (Leff, Sartorius, Jablensky, Korten, & Ernberg, 1992). In one included study, authors point to the finding that people in Asian, African and Latin American countries tend to live with their extended families whereby family involvement in care may be more important than in Western cultures (Guo et al., 2010). This is further explained by the use of antipsychotic medications, which have been shown to be effective against symptoms, and in Western medicine they are now the foundation of treatment for schizophrenia. Nevertheless, Western medicine and psychological therapy is arguably not universally appropriate, particularly in resource-limited settings where medications are unavailable. Explanations for this phenomenon point to the social environment including: (1) greater inclusion in communities, (2) availability of close communal networks, (3) involvement in traditional healing rituals which might reaffirm communal solidarity, (4) valued roles in society which are adaptable to lower levels of functioning (Rosen, 2006).

There is international consensus that care for mental illness should largely be delivered in the community for best outcomes as this strategy enables people to maintain connections with family, friends and

wider community (Padmavati, 2012; WHO, 2010). In a survey of village health workers, family, friends and neighbours were viewed as most likely to be helpful to people experiencing mental health problems, and the role of psychiatrists in the provision of mental health care was less well recognised (Kermode et al., 2009). In many cases the first 'port of call' for an individual with mental health problems in LMIC is the traditional healer or religious leader; and the rural family often provides a major portion of the care. However, family has been seen as a substitute for professional care, possibly due to the inaccessibility of mental health services in most rural settings and the stigma attached to having a family member consult a psychiatrist. Consistent with aforementioned global mental health priorities by WHO and other international organisations, results indicate the majority of interventions were undertaken in community care settings, with further primary-care and outpatient units prevailing as the preferred setting for mental health social interventions, where available.

With regard to findings of task-shifting when translating interventions across economic boundaries, simple mental health training for local providers represents one effective strategy for improving the detection and treatment of common mental disorders (Chisholm et al., 2000). The multicomponent community care intervention demonstrates the importance of training non-specialist, low-cost human resources to implement care, which is often more feasible in settings where capacity building with community health workers can promote social participation with limited funding (Chatterjee et al., 2003, 2009; Lund et al., 2013; Xiang et al., 2007). It has been argued that the single largest barrier to scaling-up efficacious treatments in LMIC is inadequate human resource (Kakuma et al., 2011; Patel, 2012). By engaging community members in mental health care provision, programmes support social inclusion and lead to the second strategy found across the studies: that developing social ties across communities has the power to promote greater tolerance for mental illness, thus improving social milieu and destigmatising individuals with mental health problems (Rosen, 2006).

The strength of social interventions to mutually address economic concerns and community development alongside patient recovery was illustrated by the strategy utilised in a number of studies which combined elements of culture-specific community activities and income generation. Given that social interventions emphasise a person's social context and relationships as determinants that cause or maintain symptoms, such a strategy is particularly salient when translating interventions to LMIC. Whilst some researchers purport poverty is an issue that exacerbates rather than triggers depression (Bolton et al., 2003), initial qualitative results from Petersen and colleagues (2012) suggested that the stress and worry of not being able to provide basic necessities was directly related to depression. These findings are congruent with local views in many LMIC regarding the causes of mental distress, which are largely thought to be social and economic; and a number of studies have found psychosocial interventions which include the provision of interpersonal and financial support were viewed by the majority of participants as the most helpful response (Kermode et al., 2009; Lund et al., 2010).

It is noteworthy that only one of the included studies was published in a social work journal (Jaganathan & Sekar, 2011), with the others coming from psychiatry or psychology journals. While this largely reflects academic publishing convention in mental health research (researchers typically publish in journals with higher impact factors, which are usually from the health disciplines), it highlights a potential dearth of mental health social work intervention research. Not only are social workers minimally involved in articulating and defining mental health social interventions in HIC, highlighting the need for improving their research capacity (Webber, 2013), there is limited evidence of their leadership in translating this knowledge to LMIC.

Limitations

Several limitations need to be considered when interpreting results of this review. First, the review focused only on published peer-reviewed literature. A systematic review of grey literature on immunisation strategies in LMIC by Batt, Fox-Rushby, and Castillo- Riquelme (2004), found the quantity of available evidence nearly doubled, and interventions in the grey literature cover a different geographical spread, but the inclusion of unpublished literature can introduce bias and grey literature has been found to have an overall lower intervention effect, and therefore was not included (Higgins & Green, 2011). Second, publication bias may limit the conclusions that can be drawn from this review, as there is potential for non-statistically significant findings to be underrepresented as researchers and academic journals traditionally minimise the importance of such results (Quintana & Minami, 2006). Third, our selection criteria were deliberately narrow in order to capture only social interventions for individuals with mental disorders as the primary focus as defined above. This restricted a body of literature targeting the mental health of individuals with, for example, HIV/AIDS as the primary focus, or post-conflict experiences. Arguably mental disorders are secondary to other health and

social problems, however, these studies did not focus on our primary aim and therefore did not meet the criteria for this review. Additionally, the selection criteria excluded cross-sectional studies which offer a breadth of information comparing mental illness across economic boundaries but fail to draw causal inferences.

Limited research capacity

Where health care delivery is scarce, so too is the research evidence for addressing the mental health needs of individuals from LMIC. Approximately 90% of the global population lives in LMIC but these countries are represented in only 10% of the world's health research (Saxena, 2006) and only 3–6% of the mental health research published in high-impact journals (Sumathipala, Siribaddana, & Patel, 2004). However, limited the published literature, evidence shows that poorer countries, precisely because they have fewer resources, learn to engage people and communities in care. Nigel Crisp (2012) in his book *Turning the World Upside Down*, illustrates how in disparate countries such as Uganda and India, health leaders are using natural strengths of their countries such as strong sense of community and familial ties to promote health care. They are finding ways to support women as natural health leaders, and reconcile traditional healing practices with western strategies. Therefore, the challenge is not merely of research knowledge from high-income countries reaching under-resourced communities globally, but also of exporting knowledge in the other direction, from LMIC to richer countries.

Arguably, findings from this review exemplify the need to make important changes in mental health social research, to cross-economic boundaries and move from seeing ourselves as 'the creators of generalizable knowledge' to co-develop locally appropriate interventions (Driessens et al., 2011, p. 82). This way of conceiving research offers benefit to all partners involved and a stimulus for conceptualising new strategies to address emergent issues. Meaningful findings across the 23 included studies in this review suggest that this area merits further research, taking into account the gap in knowledge translation we have raised. There remains a shortage of economic data to support discussions of resource allocation when translating interventions. Consequently, there is a need to address the cost-effectiveness of intervention strategies and planned in accordance with cultural factors such as explanatory model of mental illness and health-seeking behaviour. To comprehensively capture the measurable benefit and personal experience of adults with mental health problems in LMIC, we also call for investment in further large-scale, high-quality research that combines theory with locally adapted strategies. By embedding skill training that highlights evidence-based intervention strategies into existing care services, policy-makers can capitalise on established frameworks of practice as cost-effective means to improve care.

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Appendix

Appendix 1: Search Terms example for PsycINFO

Construct	Search Terms
<i>Low- and middle-income countries</i>	(Afghanistan or Albania or Algeria or (American Samoa) or Angola or Antigua or Argentina or Armenia or Azerbaijan or Bangladesh or Barbuda or Belarus or Belize or Benin or Bhutan or Bolivia or Bosnia or Botswana or Brazil or Bulgaria or (Burkina Faso) or Burundi or (Côte d'Ivoire) or Cambodia or Cameroon or (Cape Verde) or (Central African Republic) or Chad or Chile or China or Colombia or Comoros or Congo or (Costa Rica) or Cuba or Djibouti or Dominica\$ or DRC or Ecuador or Egypt or (El Salvador) or Eritrea or Ethiopia or Fiji or Gabon or Gambia or Gaza or Georgia or Ghana or Grenada or Grenadines or Guatemala or Guinea or Guyana or Haiti or Herzegovina or Honduras or India or Indonesia or Iran or Iraq or Jamaica or Jordan or Kazakhstan or Kenya or Kiribati or Korea or Kosovo or (Kyrgyz adj2 Republic) or Lao\$ or Latvia or Lebanon or Lesotho or Liberia or Libya or Lithuania or Macedonia or Madagascar or Malawi or Malaysia or Maldives or Mali or (Marshall Islands) or Mauritania or Mauritius or Mexico or Micronesia or Moldova or Mongolia or Montenegro or Morocco or Mozambique or Myanmar or Namibia or Nepal or Nicaragua or Niger or Nigeria or Pakistan or Palau or Panama or (Papua New Guinea) or Paraguay or Peru or Philippines or Principe or Romania or (Russian Federation) or Rwanda or (São Tomé) or Samoa or Senegal or Serbia or Seychelles or (Sierra Leone) or (Solomon Islands) or Somalia or (South Africa) or (Sri Lanka) or (St Lucia) or (St Vincent) or Sudan or Suriname or Swaziland or Syria\$ or Tajikistan or Tanzania or Thailand (Timor adj2 Leste) or Togo or Tonga or Tunisia or Turkey or Turkmenistan or Tuvalu or Uganda or Ukraine or Uruguay or Uzbekistan or Vanuatu or Venezuela or Vietnam or (West Bank) or Yemen or Zambia or Zimbabwe) OR (exp Developing Countries/) OR (LAMIC or LMIC or LAMI) OR (low adj income) OR (middle adj income)
<i>Mental Health</i>	(exp Mental Disorders/) OR (mental\$ adj2 (health or ill\$ or disorder\$ or disab\$)) OR ((psychotic or mood or affective or obsessive?compulsive or panic or stress or common mental) adj2 disorder\$) OR (psychiatric or psychiatry or psychology\$ or neurotic or neurosis or neuroses or depress\$ or anxiety\$ or anxious or schizophreni\$ or schizotyp\$ or psychos\$ or mania or manic or delusion\$ OCD or phobia\$ or phobic or somatic or somatoform or suicide\$)
<i>Methodology</i>	(knowledge adj (transfer or translat\$)) OR intervention\$ OR (Random\$ adj1 control\$ adj1 trial\$) OR RCT OR (clinical adj2 (trial\$ or stud\$)) OR ((effect\$ or impact or outcome\$ or

	process\$ or program\$ or implem\$) adj3 (evaluat\$ or assess\$)) OR ((quasi-experiment\$ or quasi experiment\$) adj1 stud\$
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Appendix 2: Adapted tools for data extraction and quality appraisal

A) Data extraction tool adapted from SCIE Data Extraction Tools

A. Publication details	
A.1 Author	
A.2 Year	
A.3 Title	
A.4 Publication	
A.5 Country	
B. Nature of the Study	
B.1 Aims	
B.2 Study Setting/context	User/carer/stakeholder involvement
B.3 Population	B.3.1 Inclusion; B.3.2 Exclusion
B.4 Sample Size	B.4.1 Intervention; B.4.2 Control; B.4.3 Total Sample
B.5 Characteristics of participants	Mean age; Sex; Ethnicity; SES; Education
B.6 Study Design	B.6.1 Descriptive; B.6.2 Correlational ; B.6.3 Experimental; B.6.4 Review
B.7 Theory/conceptual	Detail
B.8 Sampling procedures	
B.9 Methods of data collection	
B.10 Analyses used	
C. Nature of Intervention	
C.1 Intervention title	
C.2 Aims	
C.3 Location/setting	C.4.1 Community mental health team; C.4.2 Voluntary/Not-for-Profit agency; C.4.3 Independent/Private agency; C.4.4 Statutory; C.4.5 User/peer/self-advocacy agency; C.4.6 Further/higher education institution; C.4.7 Commercial business; C.4.8 Social firm/Co-operative; C.4.9 Occupational health; C.4.10 Employment agency; C.4.11 Joint provider; C.4.12 Other (please specify)
C.4 How delivered	C.5.1 Group; C.5.2 Individual; C.5.3 Mixed
C.5 Theoretical framework	
C.6 Model elements and main features	
C.7 Control Group	
C.8 Duration	C.8.1 Unclear; C.8.2 <one week; C.8.3 +1 week-1 month; C.8.4 +1-2 months; C.8.5 +2-3 months; C.8.6 +3-6 months; C.8.7 +6-12 months; C.8.8 >one year
C.9 Frequency	C.9.1 Unclear; C.9.2 Daily; C.9.3 Weekly; C.9.4

	Fortnightly C.9.5 Monthly; C.9.6 >Monthly
C.10 Follow-up	C.10.1 Unclear; C.10.2 Post intervention- <1 day; C.10.3 1 day-1 week; C.10.4 1 week-1 month; C.10.5 1-3 months; C.10.6 3-6 months; C.10.7 6-12 months; C.10.8 1-2 years; C.10.9 2-3 years; C.10.10 3-5 years; C.10.11 >5 years
C.11 Implementation Issues	
D. Outcomes and results	
D.1 Main measures	D.1.1 Quantitative; D.1.2 Qualitative
D.2 Secondary measures	
D.3 Summary findings	
D.4 Costs reported	
D.5 Strengths/limitations	D.5.1 Strengths; D.5.2 Limitations
D.6 Author's conclusions	

B) Quality appraisal tool from SIGN50

Study design	Criteria for quality appraisal
All study designs	Presentation of appropriate and clearly focused research question, risk for bias due to selection, confounding and/or measurement, and reporting of confidence intervals.
Case control studies (quasi-experimental, non random)	Comparable cases and controls, same exclusion criteria, participation rate, similarities at baseline, clear case-control definitions, clear establishment of controls, blindness to exposure, reliability of exposure measure, identification of potential confounders and use of sensitivity analysis.
Cohort studies	Comparable baseline, response rate, outcome present at baseline, losses to follow-up, impact of losses to follow-up, clearly defined outcome, blind outcome assessment, acknowledgement of impact of non-blind assessment, reliable exposure assessment, validity of outcome assessment and reliability of exposure measure.
Randomised-Control Trials	Presentation of appropriate and clearly focused question, assignment of subjects to treatment groups is randomised, adequate concealment method is used, comparable baseline, blindness to exposure, validity of outcome assessment and reliability of exposure measure, intention to treat analysis.

Overall ratings
(++ Low risk of bias) All or almost all of the above criteria were fulfilled, and those criteria that were not fulfilled were thought unlikely to alter the conclusions of the study. (+ Moderate risk of bias) Some of the above criteria were fulfilled, and those criteria that were not fulfilled were thought unlikely to alter the conclusions of the study. (- high risk of bias) Few or no criteria were fulfilled, and the conclusions of the study were thought likely or very likely to alter with their inclusion.