

This is a repository copy of *Cultural Adaptation Framework of social interventions in mental health: evidence-based case studies from low and middle income countries*.

White Rose Research Online URL for this paper:  
<http://eprints.whiterose.ac.uk/150575/>

Version: Accepted Version

---

**Article:**

Fendt-Newlin, Meredith Leah, Jagannathan, Aarti and Webber, Martin Paul  
[orcid.org/0000-0003-3604-1376](https://orcid.org/0000-0003-3604-1376) (2019) Cultural Adaptation Framework of social interventions in mental health: evidence-based case studies from low and middle income countries. *International journal of social psychiatry*. ISSN 0020-7640

<https://doi.org/10.1177/0020764019879943>

---

**Reuse**

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.

**CULTURAL ADAPTATION FRAMEWORK OF SOCIAL INTERVENTIONS IN MENTAL HEALTH: EVIDENCE BASED CASE STUDIES FROM LOW AND MIDDLE INCOME COUNTRIES**

Meredith Fendt-Newlin<sup>1</sup>

Aarti Jagannathan<sup>2</sup>

Martin Webber<sup>3\*</sup>

Author Information:

<sup>1</sup>World Health Organization, Department of Mental Health and Substance Abuse

<sup>2</sup>Department of Psychiatric Social Work (Psychiatric Rehabilitation Services), National Institute of Mental Health and Neuro Sciences

<sup>3</sup>International Centre for Mental Health Social Research, Department of Social Policy and Social Work, University of York

\*Corresponding author: Martin Webber, International Centre for Mental Health Social Research, Department of Social Policy and Social Work, University of York, Heslington, York, YO10 5DD, email: [martin.webber@york.ac.uk](mailto:martin.webber@york.ac.uk), tel. +44 1904 321203

## **Abstract**

**Background** Evidence based strategies for treating mental health conditions need to be scaled up to address the mental health treatment gap in low and middle-income countries. Most medical and psychological interventions for the treatment of mental health conditions have been developed and evaluated in high income countries. However, the imperative of scaling up such interventions potentially ignores local realities, and may also discredit or replace local frameworks for responding to distress.

**Aims** This paper aims to develop a framework for the cultural adaptation of social interventions which are developed within, and draw upon, local contexts, to ensure they are acceptable, feasible and effective.

**Method** A case study approach is used to discuss the feasibility of developing and adapting psychosocial interventions which are embedded in local knowledge, values and practices.

**Results** The first introduces yoga as an alternative and/or complementary, and culturally relevant, approach for people experiencing mental health conditions in India. The second is a cross-cultural adaptation of a psychosocial intervention from the UK to fit the local idioms of distress and service context in Sierra Leone, as the country battled with the Ebola outbreak. We use these case studies to develop a Cultural Adaptation Framework, which recognises that people and their mental health are products of their culture and society, to inform the future development, adaptation and evaluation of socio-cultural interventions for people experiencing mental health conditions in low and middle-income countries.

**Conclusions** The Cultural Adaptation Framework can be used to ensure interventions are culturally relevant and responsive to local conditions prior to evaluating in experimental studies.

## **Keywords**

Mental health; Social interventions; LMIC; cultural adaptation; evidence-based case studies

## **Introduction**

The mental health of individuals is determined by social and environmental influences, with a strong association existing between social disadvantage and poor mental health (Campion, Bhugra, Bailey, & Marmot, 2013; World Health Organization (WHO) and Calouste Gulbenkian Foundation, 2014). Social contexts underlie much of the distress people experience, including inequities in access to services that can have a negative effect on mental health and wellbeing (WHO, 2008). However, the contribution of social interventions to a comprehensive response in addressing the burden of mental health conditions has largely been missing from global calls to action.

Intervention research has shown that some of the burden of mental health conditions might be prevented by strengthening individuals, their friends and families, and the communities in which they live (Webber & Fendt-Newlin, 2017). There is some evidence, predominantly from high-income countries, that social interventions have the potential to improve quality of life (Webber, Huxley, & Harris, 2011), community engagement (Attree et al., 2011), social capital (Webber et al., 2018) and positively impact the social functioning (De Silva, Cooper, Li, Lund, & Patel, 2013) of people with mental health conditions. Central to shaping mental wellbeing and recovery from distress is the social environment in which an individual lives, but there is a lack of evidence around how to translate this link into effective and cost-effective interventions that enhance social outcomes (e.g. social relationships and network, functioning, community engagement and capital) (Webber & Fendt-Newlin, 2017). There is an even greater knowledge gap in applying psychosocial interventions in low-resource settings where the prevalence of mental health conditions is highest and the need for services greatest (Chisholm, et al. 2016; Eaton et al., 2011).

In addressing the mental health treatment gap there is a fear that biomedical interventions are prioritised over local traditions of healing and recovery, medicalising social

suffering and promoting a psychiatric framework dominated by pharmacological interventions (Summerfield, 2012). One of the primary challenges of implementing effective strategies to minimise this gap is developing interventions which incorporate the nature of the social, economic and cultural environment (Newlin & Webber, 2015). Illness narratives are often closely linked to social adversity or trauma and hold a specific meaning within the local cultural context (Jacob & Patel, 2011). Access to treatment, care and support, where it is available, is mediated by pre-existing cultural practices and traditions which in some cases, may be embedded with stigma and discrimination that prevent people from accessing treatment (Bracke, Delaruelle, & Verhaeghe, 2019). Alternatively, the availability of traditional practices that promote mental health and wellbeing when shaping the interventions may be more culturally acceptable and thus enhance intervention effectiveness. For example, evidence is building on the effectiveness of yoga to treat depression and other common mental health conditions (Cramer, Lauche, Langhorst, & Dobos, 2013).

In this paper we present two case studies of potential ways to adapt psychosocial interventions to local environments to more effectively address mental health conditions. In the first case study, the traditional healing practice of yoga which originated in India, was adapted as a therapeutic intervention to address mental health conditions. In the second example, core components of the Connecting People Intervention (CPI), developed and tested in the UK, were adapted to meet the changing needs of people in post-conflict Sierra Leone amid the Ebola outbreak.

### **Case Study 1: Yoga as an intervention for improving mental health conditions in India**

There are emerging signs of the positive effects of yoga as an alternative and complementary culture-based intervention with people with mental health conditions (Cabral, Meyer, & Ames, 2011). Based on (1) whether yoga can be effectively used as an independent

or add-on intervention to pharmacology, (2) adherence to yoga intervention and (3) establishment of local community yoga groups – where people can receive supervised and continued training near their homes - yoga could potentially be used as an effective solution to the problem of accessing, affording and availing quality mental health care services and psychosocial interventions in the Indian community (Jagannathan, 2015).

Models of social work derived in high-income countries have been extensively used by psychologists and psychiatric social workers all over the world. However, mental health professionals in India have observed that psychosocial interventions, as practiced in their originating countries, might be suitable only for those living in metropolitan cities of India and not for majority of the Indian population (Bhatia, Madabushi, Kolli, Bhatia, & Madaan, 2013; Manickam, 2010; Shamasundar, 2008). They argue that these intervention models are not only ‘alien’ to the culture, but also to the sociocultural milieu of the country.

Yoga as a social intervention for people with mental health conditions in India could be an effective solution for three reasons: Yoga which originated in India, is seen to be a practical and culturally accepted intervention for people to practice at home; the number of yoga therapists is more than the number of mental health professionals available in India; yoga is cost-effective and has fewer side-effects than case of psychiatric medications (Jagannathan, 2015).

We hereby describe the process of adaptation of yoga as a social intervention in India for caregivers of people with mental health conditions, who had mild mental health conditions themselves.

### **Phase 1: Feasibility study**

Focus group discussions and in-depth interviews with people with mental health conditions and their caregivers were used to better understand their needs, expected outcomes

and their sociocultural context. Further, classical yoga texts were reviewed, e.g., Gheranda Samhita (Bahadur, & Chandra Vasu, 2003), Hatharatnavali (Gharote, 2017) and Hatha yoga pradipika (Muktibodhananda, 2014), and contemporary yoga textbooks (Iyengar, 1993; Nagendra & Nagarathna, 2008; Satyananda Saraswati, 2008) to understand the various models of yoga. The overarching aim of the yoga intervention was to minimise stress, gain control over thoughts and harmonize the disturbances at each of the five levels (Pancha Kosa, Sanskrit word meaning five levels). To tackle mental health problems, the practices of ‘successive stimulation - relaxation’ based on the Integrated Yoga Therapy (IAYT) model, developed by Swami Vivekananda Yoga Anusandhana Samasthana (SVYASA), was adopted (Nagendra & Nagarathna, 2008).

A draft programme was developed along with a protocol on how to conduct the practice: i.e. participants were trained in performing yoga asanas under the guidance of a trained yoga therapist (Jagannathan et al., 2012a). The intervention included sessions of about one hour daily for a period of one month. It was observed that caregivers (n=137) of inpatients with schizophrenia were able to perform all the asanas (or postures) properly, understand its benefits, and feel relaxed. The feasibility and usefulness of the yoga programme was endorsed by the caregivers qualitatively and quantitatively with significant reduction in burden in those attending yoga as compared to those in the waitlist group (Jagannathan et al., 2012b).

## **Phase 2: Modelling the intervention**

A number of studies have advocated the provision of yoga within community settings (Varambally et al., 2013; Baspure et al., 2012, Jagannathan et al., 2012b). It was observed that barriers such as logistic factors to attend a session in a tertiary care centre had an effect on adherence to yoga (Baspure et al., 2012). We therefore modelled and validated a community project funded by the Indian Council of Medical Research which provided a self-help audio-

visual yoga intervention for outpatient caregivers living in Indian rural/semi-urban communities. As it may not be feasible to employ yoga therapists in large numbers in different districts of India, this self-help yoga manual (with video) was considered to be a novel and viable option to encourage caregivers to adopt yoga at home or in their local community. The earlier developed and validated yoga program for caregivers of schizophrenia (Jagannathan et al., 2012a) was successfully remodelled and validated (face and content) with the guidance of yoga experts (n=7) from SVYASA. This validated yoga module was developed into a self-help manual in English, Kannada and Hindi with the aim of reaching a large section of caregivers living in rural/semi-urban/urban India.

The manual contained step-wise details of the yoga asanas and pranayama (breathing techniques) along with pictures for ease of practice (available upon request from the authors). The audio-visual format was added to the written manual to help the caregivers to follow the practices. The entire yoga program consisted of yoga practices and Satsang (philosophy of yoga) which was broken down into three parts.

### **Phase 3: Pilot study**

The redeveloped self-help manual was piloted in a single blind randomized controlled trial. Primary caregivers of outpatients diagnosed with schizophrenia, (ICD-11; WHO 2018), were recruited for this study. Inclusion criteria were: those with a minimum of three months duration of illness; aged between 18 and 60 years; who continued to care for the person after discharge from the hospital; who consented to participate once a week in a yoga training for a period of one month; who knew Kannada, English or Hindi languages. Participants were excluded if the caregivers were diagnosed with severe psychiatric or neurological disorders. Caregivers were excluded if they had another relative with psychiatric or neurological illness. Caregivers who had undergone formal yoga training (a certificated course from a recognized



institute) and who were practicing yoga regularly for the past month were not included in the study.

Outcome measures of burden (Burden Assessment Schedule; Thara et al., 1998); quality of life (WHO QOL-Brief; Szabo, 1996); stress (Perceived Stress Scale; Cohen, 1994) and anxiety and depression (Hospital Anxiety and Depression Scale; Zigmond & Snaith, 1983) were assessed at baseline and at the end of every month for a period of five months. Assessments were conducted by a rater blind to group status.

Participants allocated to the yoga group were taught the exercises from the self-help manual in three parts (one session of one hour every month for three months) during their monthly follow-up visits. The manual contained step-wise details of the yoga asanas/pranayama along with pictures for ease of practice. Further, a DVD of the yoga practices was attached to the written manual to help the caregivers to follow the practices. The caregivers were asked to follow the manual and practice the exercises for the remaining month until the next follow-up date. Participants allocated to the waitlist control group did not receive yoga training. Instead, they were available for assessments for the five-month period and were called for follow-up to the outpatient department once per month. Average time spent with the caregiver/participant at the initial contact was three hours (understanding the client's problems, obtaining consent from the caregiver, explaining the nature of study and its benefits, administering baseline measures with the caregivers).

The quantitative results did not show any significant difference between the yoga group and the care as usual group on any of the outcome variables, due to a poor follow-up rate (Hamza et. al., in press). However, those who did complete the study across five months (n=7/30) reported qualitative improvement in their mental health. Hence the program was considered to be of some value by the caregivers, though retention would need to be improved in order to make a full trial possible which could test its effectiveness. It is possible that

monitoring of the program within the community itself was required, as shown below in the case example from Sierra Leone.

### **Case study 2: Connecting People in Sierra Leone**

Recognising the insufficient evidence of the effectiveness of social interventions that support people with mental health conditions, Webber and colleagues (2016) set out to develop the Connecting People Intervention (CPI). The CPI articulates the process of a mental health worker assisting an individual to enhance their social network and engage more in their community. The CPI is centred on the partnership between a worker and an individual with mental health conditions, his/her family, and the surrounding community (Webber, Reidy, Ansari, Stevens, & Morris, 2016), and has shown to be effective in UK (Webber et al., 2018).

Sierra Leone is the 10<sup>th</sup> lowest income country in the world (measured by gross domestic product per capita) (World Bank, 2019), having suffered from a decade-long civil war and recently the Ebola outbreak that claimed the lives of nearly 4,000 people. Although the country was declared Ebola free in March 2016, economic recovery has been volatile. Consequences of which include reports of high prevalence of mental health conditions as well as the breakdown of social cohesion and community trust (O’Leary, Jalloh, & Neria, 2018). Despite the need to address mental health conditions with interventions that are socially, economically and culturally appropriate, the country has only one psychiatric hospital for a population over seven million, one (retired) psychiatrist, and only 19 nurses trained in providing mental health services at the community level. The treatment gap provides a clear rationale for intervening in mental health services; the country’s recent history points to the potential for socially robust intervention strategies to make an impact.

#### **Phase 1: Feasibility study**

Phase one critically examined stakeholder perceptions of the feasibility and acceptability of developing a social intervention to address an under-capacity of mental health professionals in Sierra Leone. The purpose was to elucidate the context-specific facilitators and barriers that may be fundamental to scaling up services. A brief ethnography was deemed the most suitable approach to build research partnerships and gather rich data during two visits to the study site. Participants were selected to ensure adequate representation from a broad range of stakeholders spanning policymakers; psychiatry, psychology and social work practitioners; mental health activists; national and international non-governmental organisations (NGOs); community members such as religious leaders and traditional healers; and academics from a range of disciplines. This was achieved with 31 individual interviews and four focus groups involving 36 participants with a strong representation of the state of services in the country to date. Qualitative data were collected and analysed using a framework approach that drew upon the core components of the CPI (Gale, Heath, Cameron, Rashid, & Redwood, 2013).

Findings from the feasibility study highlighted the training needs for mental health professionals, key components of a feasible and acceptable model (e.g., building trusting relationships, working with families, reducing stigma and community engagement), and difficulties likely to be experienced in the implementation of an intervention. Participants agreed that addressing the social environment through the aforementioned key components would be an innovative way to enhance access to mental health services and would help to address gaps in the knowledge and capacity of the workforce. By ensuring the intervention was grounded in local knowledge, the sociocultural context and driven by beneficiaries, it was expected to be more amenable to implementation in routine practice, and produce better outcomes for service users (Webber, 2014).

## **Phase 2: Modelling the intervention**

Phase two was the process of developing a culturally relevant intervention model to meet the needs of the extremely limited mental health services in Sierra Leone. Informed by the evidence base around social interventions in mental health and the findings from the feasibility study, the adapted intervention emphasised the use of existing community resources and strengthening of social connections to fill the need for a locally adapted mental health intervention. The name for the model also bore out of discussions with local stakeholders in Sierra Leone. When asked for cultural references related to the model, one focus group participant suggested the term “sababu” which in Krio, the local language, means connections with other people, in particular, benefiting from connections with other people.

The Sababu intervention model uses the CPI as a base from which to build upon and extends the culturally relevant themes explored in phase one. Additional focus groups with mental health professionals in Sierra Leone and the UK Diaspora were used to confirm cultural relevance of the intervention. The intervention endured several iterations as the context in the country changed due to the Ebola outbreak. The intervention was then manualised to provide trainers with key learning outcomes, background information and activities to facilitate learning within each core component of the model. The product of this phase of research—a psychosocial intervention that is both evidence-based and culturally appropriate—provides a flexible approach which may be adapted for use in other contexts globally.

### **Phase 3: Pilot study**

Phase three included a pilot study of the Sababu intervention (Fendt-Newlin, 2018). A single group within-cohort intervention design was used whereby mental health nurses (n=19) were trained in the Sababu intervention model and follow-up at three, six, and nine months. With very limited mental health service coverage, the nurses were the only service providers in most districts.

The impact of the intervention training on practice was measured by self-report follow-up questionnaires and reports from supervisors, as well as practice observations at three, six- and nine-month follow-up. The pilot study found a post-training improvement of skills in communicating and building relationships with service users, identifying assets and linking community resources to support recovery. The 19 mental health nurses participating in the pilot described feeling empowered by the intervention training, with increased confidence to take this learning back to their districts where they adapted the techniques from the model into their own practice context. When assessing the impact of the Sababu intervention on the participants, several themes also emerged. These themes included having an increased awareness of the role that social support and the wider community play in recovery; more confidence in themselves as mental health nurses, both in terms of supporting service users and of feeling empowered to perform their roles as healthcare specialists; and specific skills gained in networking with local communities that they could adapt and apply within their own districts.

In addition, valuable lessons about the challenges involved in implementing mental health interventions in low- and middle-income countries (LMIC), particularly during a humanitarian emergency, were also highlighted. At three months post-training, 58% of participants mentioned limited mobility in their districts, inhibiting their ability to connect with local communities and provide outreach services, and a lack of access to medication was mentioned by 47%. A long-standing issue for the nurses had been a severe lack of psychotropic medication available in Sierra Leone. By nine months follow-up, nurses had used their networks to help service users procure medicine from international NGOs and expressed confidence in treating people with counselling techniques in addition to pharmacological interventions.

## **Discussion**

These examples illustrate the iterative nature of complex social intervention development, moving backwards and forwards between piloting and refining the intervention components. In both examples, the pilot studies revealed potential problems with the use of the intervention in routine practice. It was either the nature of caregiving in India, or the challenging circumstances in which the nurses worked in Sierra Leone, which impacted on the ability to deliver the intervention with fidelity. This learning is fed back into the intervention development phase and further iterations of the model are made until its real-world feasibility is established. The intervention model thereby takes on characteristics of the local environment in which it is being developed. Although further evaluation is required, we hypothesise that this process helps to ensure that the interventions are more culturally sensitive and are likely to be more efficacious, given the challenging situations in which they are to be implemented. The two models have followed the cultural adaptation framework, but they are unique in their own ways, based on the sociocultural context in India and Sierra Leone; if adapted to other cultures, would need to be further refined and field tested again.

Given that most mental health research has been undertaken in narrow settings worldwide, where only a minority of the population lives, it must be acknowledged that straightforward extrapolation of the existing evidence-base is not always appropriate. Determining the most effective intervention strategies within a given context is an important opportunity to harness local meanings, initiatives and contextual factors in addressing mental health conditions. Therefore, social interventions may be uniquely able to help to fill the treatment gap for people experiencing mental health conditions in LMIC.

This developmental process occurs prior to testing in a larger randomised controlled trial, rather than waiting for the implementation stage at the end of the process as in the MRC (2008) Framework, when it is arguably too late to see if the intervention works in 'real-world' contexts. Although it acknowledges that real-world considerations need to be brought into the

feasibility / piloting phase, the MRC Framework does not make a direct connection between the development and implementation phases. The common framework adapted in both the cases and suggested in this paper (figure 1) foregrounds the social and cultural contexts in the development and piloting of the complex social intervention so that when it comes to implementation, this is already built into the model so that further adaptation should not be required. This approach to intervention development is particularly important in LMIC as the characteristics of the local social and cultural context are particularly likely to influence the acceptability of new approaches to addressing mental health conditions. Innate culturally-based interventions that people identify with are more likely to be acceptable and cost-effective in resource-poor contexts.

Figure 1 about here

After testing for effectiveness and cost-effectiveness, the implementation and scaling-up of psychosocial interventions developed within this framework should be able to readily progress within similar social and cultural contexts. As these interventions are likely to be sensitive to the context in which they are developed, further adaptation may be required to translate them to different social and cultural contexts within or beyond the country they are developed in.

A limitation of this framework is that it is relatively untested. We presented here two case studies which are yet to progress to large randomised controlled trials or large-scale implementation. They are indicative of the inherent potential of this approach to intervention development, but both experienced challenges. Case study 2 utilised community psychiatric nurses, as they were the only locally-trained mental health professionals in Sierra Leone. However, psychosocial interventions were not a core feature of their training, or expectation of their clinical practice, which provided an additional challenge for the development of Sababu. Further, the appropriateness of adapting evidence-based interventions from high-

income countries to LMIC is open to challenge, when indigenous approaches may be more acceptable to local people. However, as case study 1 illustrated, inferences about the feasibility of locally-developed interventions are difficult to make with incomplete follow-up in pilot studies. This example also raises a question about utilising yoga, a holistic treatment, for the treatment of specific mental health conditions when it may be more effective for general health.

There is a limited evidence base for the effective translation of complex social interventions for people with mental health conditions in LMIC (Newlin & Webber, 2015). Culture-based models, while more holistic, are also not without their critics due to their potential limited applicability or absence of empirical evidence of their effectiveness. The framework presented in this paper provides a potential way to reconcile these challenges. It provides a systematic approach that assists researchers to identify the most relevant intervention components for the target population and service capacity, whilst documenting the adaptation process and evaluating the outcomes. It draws on the strengths of the community and stakeholders' experience in the field by integrating feedback loops throughout the adaptation process. However, further research, which utilises this framework and follows it through to full evaluation or implementation, is required to fully test its utility. Its success can then only be judged if stakeholders are fully involved in the process; there are multiple iterations between the phases; and evaluation of outcomes is rigorous.

### **Conclusion:**

The Cultural Adaptation Framework is based on two case studies from LMIC and recognises that people are products of their culture and society. It potentially provides a pathway to the future development, adaptation and evaluation of socio-cultural interventions for people experiencing mental health conditions in LMIC.



## References

- Attree, P., French, B., Milton, B., Povall, S., Whitehead, M., & Popay, J. (2011). The experience of community engagement for individuals: A rapid review of evidence. *Health & Social Care in the Community*, 19, 250–260. doi:10.1111/j.1365-2524.2010.00976.x
- Bahadur, R. & Chandra Vasu, S. (2003). *The gheranda samhita* (1st ed.), Varanasi: Chaukhamba Sanskrit Pratishthan.
- Baspure, S., Jagannathan, A., Kumar, S., Varambally, S., Thirthalli, J., Venkatasubramanian, G., et al. (2012). Barriers to yoga therapy as an add-on treatment for schizophrenia in India. *International Journal of Yoga*, 5(1), 70-73.
- Bhatia, S. C., Madabushi, J., Kolli, V., Bhatia, S. K., & Madaan, V. (2013). The Bhagavad Gita and contemporary psychotherapies. *Indian Journal of Psychiatry*, 55, 315-21.
- Bracke, P., Delaruelle, K., & Verhaeghe, M. (2019). Dominant Cultural and Personal Stigma Beliefs and the Utilization of Mental Health Services: A Cross-National Comparison. *Frontiers in Sociology*, 40(40), doi:10.3389/fsoc.2019.00040
- Cabral, P., Meyer, H. B., & Ames, D. (2011). Effectiveness of yoga therapy as a complementary treatment for major psychiatric disorders: a meta-analysis. *Primary Care Companion CNS Disorders*, 13(4), doi:10.4088/PCC.10r01068
- Campion, J., Bhugra, D., Bailey, S., & Marmot, M. (2013). Inequality and mental disorders: opportunities for action. *The Lancet*, 382(9888), 183-184.
- Chisholm, D., Sweeny, K., Sheehan, P., Rasmussen, B., Smit, F., Cuijpers, P., et al. (2016). Scaling-up treatment of depression and anxiety: a global return on investment analysis. *The Lancet Psychiatry*, 3(5), 415–24.
- Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 385-396.

- Cramer, H., Lauche, R., Langhorst, J., & Dobos, G. (2013). Yoga for Depression: A Systematic Review and Meta-Analysis. *Depression and Anxiety*, 30(11), 1068-1083. doi:10.1002/da.22166
- De Silva, M. J., Cooper, S., Li, H. L., Lund, C., & Patel, V. (2013). Effect of psychosocial interventions on social functioning in depression and schizophrenia: Meta-analysis. *British Journal of Psychiatry*, 202, 253–260. doi:10.1192/bjp.bp.112.118018
- Eaton, J., McCay, L., Semrau, M., Chatterjee, S., Baingana, F., Araya, R., et al. (2011). Scale up of services for mental health in low-income and middle-income countries. *The Lancet*, 378(9802), 1592–603.
- Fendt-Newlin, M. (2018). Enhancing mental health practice in Sierra Leone: A social intervention development study (Doctoral dissertation). University of York, UK.
- Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, 13, 117-117. doi:10.1186/1471-2288-13-117
- Gharote, M. L. (2017). *Hatharatnavali*. Lonavla: The Lonavala Yoga Institute.
- Hamza, A., Jagannathan, A., Hegde, S., Katla, N., Bhide, R. U., Varambally, S., et al. Development and testing of an audio-visual self-help yoga manual for Indian caregivers of persons with schizophrenia living in the community: A single blind randomized controlled trial. *International Journal of Yoga* [in press].
- Iyengar, B. K. S. (1993). *Light on the Yoga Sutras of Patanjali*. London: Harper Collins Publishers.
- Jacob, K.S. & Patel, V. (2014). Classification of mental disorders: a global mental health perspective. *The Lancet*, 383, 1433–35.
- Jagannathan, A., Hamza, A., Thirthalli, J., Nagendra, H. R., Nagarathna, R., & Gangadhar, B. N. (2012a). Development and feasibility of need-based yoga programme for family

caregivers of inpatients with schizophrenia in India. *International Journal of Yoga*, 5, 42-47.

Jagannathan, A., Hamza, A., Thirthalli, J., Nagendra, H. R., Kare, M., Yadav, M., et al. (2012b). Efficacy of yoga and psychosocial training programme for caregivers of persons with schizophrenia. *National Journal of Professional Social Work*, 13(1-2), 3-15.

Jagannathan, A. (2015). Yoga as a complementary and alternative treatment for psychiatric disorders in India: A solution to liberalization, privatization and globalization (LPG) of mental health care? *International Journal of Emergency Mental Health and Human Resilience*, 17(3), 605-606.

Manickam, L. S. (2010). Psychotherapy in India. *Indian journal of psychiatry*, 52(Suppl 1), S366-70.

Medical Research Council (2008). *Developing and Evaluating Complex Interventions: New Guidance*. London: Medical Research Council.

Muktibodhananda, S. (2014). *Hatha yoga Pradipika* (4th ed.). Bihar: Yoga Publications Trust.

Nagendra, H. R. & Nagarathna, R. (2008). *New perspectives in stress management*. Bangalore: Vivekananda Yoga Research Foundation, Swami Vivekanand Yoga Prakashana.

Newlin, M. & Webber, M. (2015). Effectiveness of knowledge translation of social interventions across economic boundaries: a systematic review, *European Journal of Social Work*, 18 (4), 543-568.

O'Leary, A., Jalloh, M. F., & Neria, Y. (2018). Fear and culture: contextualising mental health impact of the 2014-2016 Ebola epidemic in West Africa. *BMJ global health*, 3(3), e000924. doi:10.1136/bmjgh-2018-000924

- Satyananda Saraswati (2008). *Asana Pranayama Mudra Bandha*. Bihar: Yoga Publications Trust.
- Shamasundar, C. (2008). Some personal reflections relating to psychotherapy. *Indian Journal of Psychiatry*, 50, 301-4.
- Summerfield, D. (2012). Afterword: against “global mental health”. *Transcultural Psychiatry*, 49, 519–30.
- Szabo, S. (1996). The World Health Organisation Quality of Life (WHOQOL) Assessment Instrument. In *Quality of Life and Pharmacoeconomics in Clinical Trials* (2nd edition, Edited by Spilker, B.). Philadelphia: Lippincott-Raven Publishers.
- Thara, R., Padmavati, R., Kumar, S., & Srinivasan, L. (1998). Burden Assessment Schedule: Instrument to assess burden on caregivers of chronically mentally ill. *Indian Journal of Psychiatry*, 40, 21-29.
- Varambally, S., Vidyendaran, S., Sajjanar, M., Thirthalli, J., Hamza, A., Nagendra, H. R., et al. (2013). Yoga-based intervention for caregivers of outpatients with psychosis: a randomized controlled pilot study. *Asian Journal of Psychiatry*, 6(2), 141-5.
- Webber, M. (2014). From ethnography to randomised controlled trial: An innovative approach to developing complex social interventions. *Journal of Evidence-Based Social Work*, 11 (1-2), 173-182.
- Webber, M., Huxley, P., & Harris, T. (2011). Social capital and the course of depression: Six-month prospective cohort study. *Journal of Affective Disorders*, 129(1–2), 149–157.
- Webber, M. & Fendt-Newlin, M. (2017). A review of social participation interventions for people with mental health problems, *Social Psychiatry and Psychiatric Epidemiology*, 52(4), 369-380.

Webber, M., Reidy, H., Ansari, D., Stevens, M., & Morris, D. (2016). Developing and modelling complex social interventions: introducing the Connecting People Intervention, *Research on Social Work Practice*, 26(1), 14-19.

Webber, M., Morris, D., Howarth, S., Fendt-Newlin, M., Treacy, S. & McCrone, P. (2018). Effect of the Connecting People Intervention on Social Capital: A Pilot Study. *Research on Social Work Practice*, 29(5), 483-494. [doi:10.1177/1049731517753685](https://doi.org/10.1177/1049731517753685)

World Bank, World Development Indicators. (2019). World Bank national accounts data, and OECD National Accounts data files. Retrieved from <https://www.worldbank.org/en/country/sierraleone>.

World Health Organization and Calouste Gulbenkian Foundation (2014). *Social determinants of mental health*. Geneva: World Health Organization.

World Health Organization (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health*. Geneva: World Health Organization.

World Health Organization. (2018). *International statistical classification of diseases and related health problems (ICD; 11<sup>th</sup> Revision)*. Geneva: World Health Organization. Retrieved from <https://icd.who.int/browse11/l-m/en>

Zigmond, A. S. & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavia*, 67(6): 361-70.

**Figure 1. Framework for cultural adaptation of complex social interventions**

