Table 1: Summary of included studies describing mhGAP-IG Training Courses

Authors	Country	Study design	Participants	Sample size	Intervention details	Evaluation details	Summary of findings
Adebowale 2014[9]	Nigeria	Quasi-experimental study. 3 day training course developed from mhGAP-IG. Aimed to improve diagnosis and management of priority conditions: Psychosis, Depression, Alcohol &Substance abuse, Epilepsy and Other Significant Emotional Complaints (OSEC). Knowledge and skills to diagnose and treat mental health case vignettes assessed pre and post-course.	Primary Health Care (PHC) Workers	80 90% female 88% nurses	4 PHC workers nominated by 20 local government areas, based on interest. Collaboration with mental health professionals interested in PHC from Lancashire Care NHS Foundation Trust/University of Manchester under a British Council Health Link Scheme. Written support materials included locally adapted assessment flow charts, case records, follow-up sheets to guide and record practice. 3 day training course delivered as a 1 day introductory lecture and four 2 day regional training sessions, by Aro Hospital and Lancashire faculty. Didactic and participatory methods included lectures, videos, role plays, discussions.	Knowledge tests pre- and post-course Caseloads of patients seen over the following 12 months	Post-training rates of accurate diagnosis by PHC workers significantly improved: 12.5% for psychosis(p=0.018), 12.5% for substance abuse(p=0.018), 30% for OSEC(p=0.001). Mean scores for appropriate intervention improved by 114% for psychosis(p=0.001), 109% for depression(p=0.001), 78% for substance abuse(p=0.001), 103% for epilepsy(p=0.001) and 92% for OSEC(p=0.001). 473 patients were treated in the following 12months (46% psychosis, 10% depression, 3% OSEC, 2.5% alcohol and substance abuse).
Bruni 2014[10]	Ethiopia	Analysis of test scores pre- and post-mhGAP-IG training.	General health workers	61	2 separate cycles of training: mhGAP Base Course: 5 day sequential training, followed by 6 months' supervision and mentorship, before the mhGAP Standard Course, which builds on the Base Course with revision and addition of further mhGAP-IG modules and building skills through participatory techniques.	Qualitative observations that: Attendance was closely related to per diem payments for attendance, which was low despite needing to cover accommodation and other expenses. Master trainers (experienced senior psychiatrists) were expected to cascade mhGAP training without formal preparation. A formal introduction to familiarize trainers with the mhGAP-IG and its training formula was recommended.	Statistically significant improvement in participants' knowledge scores post-training on the WHO standardised knowledge test from the mhGAP monitoring and evaluation toolkit. A table of 592 MNS cases detected and treated or referred following training, by region and diagnoses, was provided.

Budosan 2016[11]	Philippines	Evaluation of an intervention to strengthen mental health service availability, accessibility and affordability in Eastern Visayas.	Community workers. Non-specialized healthcare providers.	1038 + 290	10 months' mhGAP training (groups of 7-50+) and supervision on assessment and management of common mental health conditions and conditions specifically related to stress for non-specialized health workers. Existing training module for community workers reviewed and training materials piloted. Modules modified for midwives and health workers.	3-point Likert scale survey of training quality, duration, trainer, participation, confidence to assess and manage priority conditions. Acceptability was noted as government and health stakeholders were motivated to improve local mental health services.	155 of 159 (98%) PHC units, 21 of 24 District Hospitals (88%) and all 8 provincial hospitals had a doctor and nurse trained in mental health assessment and management. Variable confidence of participants in mental health assessment and management post-course. Higher confidence among community workers than non-specialized staff. Local services increased inpatient, pharmacy and referral pathway capacity following intervention.
El Chammay 2016[12]	Lebanon and Syria	Descriptive account	Nurses, social workers, GPs at 50 PHC centres; Other staff at 30 PHC centres; Frontline staff	106 + staff at 30 PHC centres	mhGAP-IG training of health workers in PHC centres. Psychological first aid training for staff in a further 30 centres. 4Ws (Who's doing What, Where, and until When) assessment to map existing resources. Training modules on suicide risk management for frontline healthcare staff. Supervision unit will support >100 PHC centres in Lebanon.	Nil.	Lebanon's mental health system is growing, despite challenges, due to: Momentum and interest created by the Syrian crisis. Policy to avoid parallel care systems. Collaboration between Ministry, UN, national and international NGOs. National consensus mental health strategy involving all stakeholders. High level Ministry support for mental health reform.
Ekore 2016[13]	Nigeria	Quasi-experimental study. Volunteer trainees completed socio-demographic, Eysenck personality (short-form) questionnaires, focus group discussions and knowledge pre-test questionnaires. Received mental health peer counselling training before knowledge post-course test.	University student volunteers	20 45% male 55% female Mean age 20.2 years	2 day training (3 hours/day) course by clinical staff. Focus Group Discussions informed training, aimed at identification and referral of students having mental health problems, counselling and psychosocial support. Training covered epilepsy, psychosis, bipolar disorder, stress, alcohol and drugs, principles of care, communication, emergencies and peer counselling. Relaxation techniques were taught, record keeping, roles and responsibilities and an emphasis on commitment and altruism.	Nil.	The mean knowledge pre-test score was 24/30 (±2.3) points while the mean knowledge post-test score was 27.5/30 (±1.2) points. Mean difference 3.5/30 (t=6.4, p=0.00).

Gureje 2015[14]	Nigeria	Supervised mhGAP-IG cascade training model delivered over 18 months in 8 local government areas in Osun state. Training focused on detection and management of moderate to severe depression, psychosis, epilepsy and alcohol use disorders. Master Trainers (mental health specialists) trained Facilitators, who delivered training for front-line PHC workers. Initial training was supervised and mentored by Master Trainers. Refresher training was provided after 9 months.	PHC workers from 68 PHC clinics.	198	3 planning workshops of key mental health stakeholders, including PHC workers and policy makers occurred, before a pilot training course to test methods including role plays. Facilitators were trained in all 9 modules of the mhGAP-IG, teaching skills, role play organisation and conduct. Training materials were contextualized and adapted by Master Trainers before giving them to Facilitators and delivering 2 day workshops. Facilitators attended de-briefing following initial, supervised training, to receive training observations and discuss areas for clarification. Midway refresher workshop reinforced knowledge and skills, with reference to clinical challenges and experiences.	1) Clinical notes review for proper documentation. 2) Non-intrusive supervisor observation of clinical assessments using the mhGAP-IG. WHO mhGAP monitoring and evaluation toolkit knowledge tests, contextualized for the Nigerian setting, were conducted midway and at the end of the project, alongside mhGAP-IG fidelity, patient flow and referral information.	Markedly improved knowledge and skills of health workers (mean difference pre/post: -4.90, p<0.001). Significant increase in numbers identified and treated for MNS disorders (0 in 2011 versus 96 in 2013), and number of referrals (0 versus 45). Substantial retention of gained knowledge observed nine months after initial training but some knowledge loss with time, so the refresher training was needed (mean difference: 1.98, p<0.001)
Hamdani 2015[15]	Pakistan	Pilot service for children with developmental disorders in a rural area.	Supervised 'champion' volunteers. Families of children with developmental disorders.	10 champions 70 families	Avatar-assisted Cascade Training (ACT): Standardised, intuitive tablet-based training and delivery tool developed. mhGAP-IG guidelines for developmental disorders incorporated into animated, interactive 'avatar' narratives about 3 children and families, divided into training scenarios on psychoeducation, parent skills training, community participation, stigma, rights. Master's level psychologist trainer delivered 8 days' training for champions using ACT, to cascade the same 8 days' training to 5-7 families, each. Champions received monthly supervision and met families regularly after training.	Pre- and post-training knowledge, attitudes and practices questionnaire. WHODAS-Child at baseline and 3-monthly. Pre-post training child and family outcome evaluation: Strengths and Difficulties questionnaire, inventory of stigmatising experiences, family empowerment scale, WHO-5 wellbeing index. Summary table of steps to replicate the innovation in other settings.	Significant improvement in trained family member knowledge scores (n = 24) from 23.29 +/-3.22 to 27.17 +/-2.11 (t = 8.36, P<.001). Significant decrease in WHO-DAS global disability score from baseline (56.89 +/- 22.02 to 50.57 +/-24.62, 95% CI 3.63 to 9.0; P< .001) in families receiving 6 month intervention. Reduction in parent-reported socioemotional difficulties scores in children (19.67 +/-5.24 to 13.40 +/-4.76, 95% CI –7.68 to 4.87; P<.001).

Hughes 2015[16]	Sierra Leone	Descriptive account.	Psychiatric nurses and community health workers	20 + 150	mhGAP-IG and PFA used for training. A range of providers and approaches acknowledged.	Positive feedback forms mentioned. More evaluation recommended.	Reflective comments that: - PFA seems to be an effective tool. - Just one support session can reduce staff anxiety and depression. - mhGAP-IG is useful for screening and management, and receives positive feedback from field work. - In Sierra Leone, psychosocial care, encompassing culturally appropriate local support and religion, are valued.
Humayun 2017[17]	Pakistan	2 months' pre-training joint consultations with District Health Office. 6 months' monthly mental health 'camps' assessed 785 cases. Joint specialist and non-specialist staff provided advocacy and needs assessment in camps, in an apprenticeship model. mhGAP-IG adapted to local mental health needs and competence of PHC staff. mhGAP-IG interface simplified as too complex. Most training in Urdu due to limited English.	51 doctors working in: PHC (18); Hospitals (11); secondary care (14); administration (3); North Waziristan tribal area (5). 7 NGO psycho-social staff.	58	Three 2-day training workshops over 3 months, featuring: Large and small group discussions, individual exercises, seminars, role-play demonstrations. 3 psychiatrists adapted modules to local needs. Master trainer supervised guideline adaptation for use in the camps. 1 day training of trainers (ToT) workshop on rationale, content, method of mhGAP-IG. 2 external reviewers gave independent feedback on course, trainers and materials, before review by senior staff. Supervision: formal and informal case discussion, emphasising holistic assessment, psychosocial intervention, timely referral. Following camps, a local psychiatrist continued to supervise PHC staff informally and follow up difficult cases.	Feedback on: what was useful? What was not useful? Any suggestions? Summary of responses without description of collation.	Mean pre- and post-test knowledge scores were 15.43, 62% (p value 0.000, S.D. 4.05) and 19.48, 78% (p value 0.000, S.D. 3.13) respectively. mhGAP-IG was implemented to train PHC doctors in Pakistan. Lack of PHC resources hindered complete integration of mental health services into PHC. Pilot implementation of mhGAP-IG in PHC was initiated across five districts.
Lasisi 2017[18]	Nigeria	Randomised controlled trial.	Public and private primary school teachers in Kaduna.	84 (intervention) +75 (control)	Intervention: initial 3 hour training; 1.5 hour booster session 2 weeks later. Used mhGAP-IG module on behavioural disorders, focusing on ADHD, plus classroom management strategies for ADHD. Delivered using PowerPoint presentations, clinical vignettes, role plays, small group discussions and videos. Outcome measures: knowledge of ADHD, attitude towards ADHD, knowledge of behavioural	Pre- and post- training knowledge and attitude scores.	Controlling for baseline scores, intervention group had significantly higher post-intervention scores on ADHD (SRAQ) and intervention knowledge (KBIQ) and less negative attitudes towards ADHD, compared with the control group. Intervention showed moderate to large effect sizes. Booster training was associated with a statistically significant increase in ADHD knowledge only.

					intervention. Control: waiting list.		
Ryland 2015[19]	India	Descriptive account.	Health professionals	Not stated.	Training course using mhGAP-IG delivered by UK trainee psychiatrists who had attended a two day 'train the trainer' course in the UK. Duration and training methods not described (conference abstract).	Not described.	UK trainees gained experience of global mental health: cultural factors, stigma, differences in resources and health systems. Trainees developed competencies relevant to UK practice, by teaching and being assessed for workplace-based assessment.
Siriwardhana 2013[20]	Sri Lanka	Protocol for a pilot randomised controlled trial	PHC staff working with displaced and returning conflict-affected populations in Puttalam and Mannar districts.	86	Intervention arm: structured training based on mhGAP-IG depression, medically unexplained symptoms, alcohol abuse, and suicide modules. 5 full consecutive days' training by 2 psychiatrists. Control: waiting list. Initial 3 month monitoring from the date of recruitment pre-training. All patients with common mental disorders (CMD) reported to study coordinator. After training, both arms monitored again for 3 months. Intervention arm will use mhGAP-IG to diagnose, treat, and refer suspected CMD seen in routine PHC. Control arm will continue current practice. Both arms will report CMD diagnoses to coordinator. Consenting identified patients will be re-assessed by the study psychiatrist, who will also assess them using mhGAP-IG.	A qualitative study exploring the attitudes, views, and perspectives of PCP on integrating mental health and primary care will be nested within the pilot study. An economic evaluation will be carried out by gathering service utilization information.	Protocol: Primary outcomes: rates of correct identification, adequate management based on set criteria, correct CMD referrals.

Siriwardhana 2016[21]	Sri Lanka	Pilot and qualitative study, with curtailed training duration and no pre- or post-training monitoring and evaluation	PHC practitioners serving post-conflict populations, including internally displaced people and returnees.	12	Using mhGAP-IG depression, stress-related disorders, medically unexplained symptoms, substance misuse and suicide modules, a 24 hour training programme was held over 3 days. Modules were selected as relevant to the setting based on prior research into priority conditions, conflict-related context and participant backgrounds. WHO materials and videos were used. Training was delivered by a mhGAP-trained trainer and a local psychiatrist with clinical and research experience.	mhGAP-IG pre- and post-training knowledge tests were used. Feedback on training, materials and content gathered after each module. A small-scale qualitative evaluation with participants highlighted experiences of conflict and displacement, discussed health needs of post-conflict populations and provided insight into mental health care and training needs in PHC.	Mean pre- and post-test knowledge scores were 72.8 and 77.2%.
Spagnolo 2017[22]	Tunisia	Cluster randomized controlled trial to evaluate the effectiveness of training based on the mhGAP-IG. Multiple case study design to explore how contextual factors impact successful implementation of training and desired outcomes.	GPs with 5+ years' experience, dedicating a minimum 1h per week to mental health. Selected by psychiatrist-trainer who works with GPs, or by Ministry of Health.	722 (19 per 38 clusters)	Implementation and evaluation of pilot mhGAP-IG training adapted to the local context in Tunis and Sousse before country-wide scale-up. Modules chosen by MoH, reflecting pressing needs: depression; psychosis; suicide/self-harm; alcohol use disorders; drug use disorders, alongside general principles of care and introduction to mhGAP. 3 trained Tunisian psychiatrists will deliver training 1 afternoon/week over 5 weeks in a total 17.5 hours, followed by 2 hours' supervision to present mental health cases to trainer-psychiatrists, engage in additional role plays, and review training materials.	Multiple sources of data, including focus groups with GPs and quantitative cluster RCT data will be triangulated to develop 'converging lines of inquiry.' Focus groups with 7 GPs in a delegation at a time will be recorded, transcribed and analysed using thematic analysis.	Protocol: Demographic details. GPs' knowledge using adapted WHO questionnaire, attitudes towards mental illness (Mental Illness Clinicians' Attitudes Scale (MICA)v4), and perceived clinical self-efficacy (developed for this trial) in detecting, treating, and managing selected disorders. Tested pre-, post- and 1 year later. WHO Mental, Neurological and Substance User Patient Visit Summary to log cases pre- and post-training.
Tesfaye 2014[23]	Ethiopia	2 week child psychiatry course and 4 week child psychiatry clinical internship implemented during 1st and 2nd years of MSC program in mental health for non-physician clinicians.	Participants had degrees in nursing/ health officer training. After the 2 year course, graduates were expected to establish district hospital services, train and supervise PHC staff and conduct research.	24 over three years	Child psychiatry training designed and implemented by Jimma, Addis Ababa and Ludwig-Maximillian's University expertise. mhGAP-IG adapted for Ethiopian context modules on developmental disorders and behavioural problems were main training materials. 40 hours' child psychiatry course over 2 weeks, including behavioural observation and mental state examination at different ages. Instructor assessment of clinical and presentation skills performed at	Overall outcome measures: Trainees' satisfaction and expansion of child mental health training and services throughout the country. Direct feedback from trainees post-course and follow-up. 2010 course revised, based on feedback and staff input. 2012 course increased time to discuss patient management. Classroom teaching reduced to increase	Trainees rated the course 'very good' to 'excellent'. Many graduates became faculty at universities in Ethiopia. Case discussions on video and patient material, and interactive teaching were highly appreciated. Trainees recommended an overview, including DSM diagnoses, at the end of case discussions. Others suggested reducing course content and increasing specific subject content, e.g. epilepsy, enuresis. Course considered too short. Some

					course end and during 4 week clinical internship in the 2nd year. Training used lectures, case discussions, seminars. Clinical skills taught through videos and clinic demonstrations.	time for clinical activities. 2013 course extended to 3 weeks and modified to emphasize decision making, problem management, lecture time reduced. Guest lecturers' growing cultural awareness improved their skills.	trainees said they learned how to better manage their time. Follow-up feedback from program graduates showed that out of 16, all were working in clinical, academic or managerial positions in-country.

ADHD, Attention Deficit Hyperactivity Disorder; KBIQ, Knowledge of Behavioural Interventions Questionnaire; SRAQ, Self-Report ADHD Questionnaire.

Table 2: Summary of included studies describing clinical uses of mhGAP-IG

Authors	Country	Study design	Participants	Sample size	Intervention details	Evaluation details	Summary of findings
Ayano 2016[24]	Ethiopia	Survey of experiences, strengths and challenges of integrating mental health in PHC. Phase 1 (scale up): PHC staff trained in priority disorders (alcohol, depression, psychosis, epilepsy)	PHC workers in 180 institutions	360 staff 1576 patients	No detail on training	Strengths: political commitment; system-wide approach with health extension workers, referral network, infrastructure, support and supervision; medication available in a proportion of health centres; developed infrastructure. Challenges: staff turnover; lack of understanding of the programme by regional health bureaus; inadequate promotion and follow-up of mhGAP scale-up by stakeholders; inadequate supportive supervision for trainees; limited budget for supervision and mentoring; interrupted medication supply; inadequate demand.	In 9 months, 1576 cases were identified and treated by trained PHC staff in 3 regions. The commonest disorder was epilepsy, followed by psychosis and alcohol use disorders.
Grelotti 2015[25]	Haiti	Retrospective chart review of outpatient assessments using mhGAP-IG as a reference, during a pilot mental health service expansion.	Patients referred to NGO-run psychiatry clinics.	65	mhGAP-IG used to orient an oversees psychiatrist and local non-specialist staff, to the model. Clinicians consulted the mhGAP-IG clinically. Patients referred by local PHC staff to clinics run on 16 days, or self-presented. Psychiatrist conducted evaluations and/or supervised psychologists and physician evaluations, with Haitian Creole translation.	Nil	49 patient records reviewed (75%) diagnosed an mhGAP-IG condition, 15 (23%) had headache and 3 (5%) reported earthquake-related distress. 59 patients (90%) were recommended follow-up and 45 (69%) prescribed medication. Only 13 patients (29%) who were prescribed medication had ever been prescribed medication for their diagnosis before. 8 patients reported non-adherence due to costs of psychiatrist clinics, medication and travel.
Hanlon 2016[26]	Ethiopia	A randomised, controlled, non-inferiority trial will be carried out in a predominantly rural area of Ethiopia	People with severe mental disorder (SMD; psychotic or affective disorders) recruited from population cohort study and nurse-led out-patient clinic.	324	Task-sharing model of locally-delivered MHC for people with SMD, integrated into PHC for 18 months. TaSCS intervention: PHC-based health centre nurses and health officers will be trained to deliver mhGAP-IG MHC, supported by community-based health extension workers. 4 day mhGAP-IG base course, 5 days' on-the-job training. Active control arm: established,	Hypothesis: people with SMD who receive MHC integrated into PHC will show non-inferior clinical outcome (mean Brief Psychiatric Rating Scale score no more than 6 points higher than controls) after 12 months. Service satisfaction, quality of care, cost-effectiveness evaluation performed. Sustainability and cost-effectiveness evaluated at 18 months.	Protocol

					specialist nurse-led hospital outpatient MHC. 2 days' refresher training for psychiatric nurses in mhGAP-IG.		
Jordans 2016[27]	Nepal	Mixed methods formative study. Routine monitoring and evaluation data, including client flow and satisfaction, obtained from patients during pilot-testing phase in 2 health facilities.	Patients and health workers	135 patients (clinical) 45 patients (evaluation) 11 health workers (evaluation) 28 patients (drop-outs)	Multifaceted intervention: formative research, pilot mental health care plan (MHCP), theory of change workshops, in-depth interviews, focus groups. Routine monitoring obtained for all patients during pilot phase; evaluation questionnaires given to random selection. MHCP includes 2 day training for all staff on service provider awareness and stigma reduction. Clinical staff then trained using mhGAP-IG. All PHC staff trained in basic psychosocial support and psychoeducation.	Most patients somewhat/very satisfied. Large majority (87%, n = 39) would seek help again from this health facility. A subgroup (15 - 22% (n = 7-10) rated relevance and appropriateness of care and overall satisfaction low. Main reason: unavailability of medicines. Satisfaction with privacy lower than other indicators: almost 64% (n = 29; many consultations in waiting areas. Health worker evaluations showed that providing MHC was not easy. 36% (n = 4) 'somewhat distressed' and perceived additional time spent as burdensome. 73% (n = 8) somewhat/very satisfied with outcomes of care provided.	Diagnoses by PHC staff trained in mhGAP-IG use: depression (37%), psychosis (24%). Dropping out (21%) commonest for alcohol use disorders (36%, n = 10), epilepsy, psychoses (both 25%, n = 7) and depression (14%, n = 4). 79% attended at least 1 follow-up (basic, focused or advanced psychosocial care/ pharmacological treatment): average 4.24 (s.d. = 3.35, median 4.0) health facility visits. High rates of treatment of depression, psychosis, epilepsy and alcohol use disorders. Patients receiving community counselling (n = 35) attended average 5.5 sessions; 37% termination rate. Reasons for dropping out (n = 28) included side-effects (antipsychotic and anti-epileptic medication; n = 6), time constraints (n = 5), unavailability of medication (n = 5), believed they can solve the problem (n = 4), improved (n = 4), denied symptoms (n = 3) and distance (n = 1).

Khoja 2016[28]	Afghanistan	Android-based mobile application using mhGAP-IG, pre-tested for functionality and acceptability at Aga Khan Health Services, Pakistan and Afghanistan. Cluster randomisation in 4 intervention and 3 control districts: 70-90 intervention district, 40–60 members in each control district.	550 surveys across study. 329 young adults surveyed about effectiveness of SMS text messages. 95 PHC staff surveyed about mhGAP-IG use and referrals.	345 intervention

205 control | mhGAP-IG app via project-provided smart phones used by ~100 PHC staff, 25 facility-based PHC staff. App features: patient registration, blended learning capability, interactive mhGAP-IG for screening and management, teleconsultation capability. mhGAP-IG adapted, with input from MoPH. Mental health incorporated into existing community meetings. Brief, informative mental health-related SMS messages developed by a consultant psychiatrist, approved by AKHSA and MoPH, periodically sent to young adults using automated program. | Survey of 95 community- and facility-based healthcare providers in intervention districts. App found useful, easy to use, and changed clinical practice (77%). Helped screen high-risk patients in remote areas and refer more quickly to facility-based providers in district- and provincial-level centres. Some individuals attended by specialists by using web/mobile-based live/store-and-forward teleconsultations. | App used for 3000 screenings and 600 referrals. 82% of PHC staff found the information relevant and up-to-date for their practice, compared to their perception vs 53% in the baseline survey (chi2 = 14.3; p = 0.001). Mid-term evaluation showed significant reduction in stigma towards mental health in general community, improvement in awareness about mental health, and PHC staff knowledge. High degree of acceptance of conventional and technology interventions by communities, young adults, and health providers. |
| Musyimi 2016[29] | Kenya | Adult patients recruited from 4 rural public health facilities in Kenya using systematic random sampling over 3 months and screened for depression. | Nurses/clinical officers with at least diploma level training and 2+ years' experience working in healthcare. | 14 health care workers

1664 patients | Health care workers trained on 2 days to ensure clinical duties could be covered. 14 health care workers trained to screen for depression and comorbidities using mobile based mhGAP-IG and electronic data transfer. 2 focus group discussions between 6 participants and 2 Key informant Interviews held with all health care workers, to evaluate feasibility. | 4 themes identified by health care workers with respect to mobile based mhGAP-IG application: (1) simple application; (2) fast application due to branching logic and real-time data transfer; (3) consultation and travel time saved and costs reduced, and (4) patient access to health services. | Depression prevalence 25%; suicidal behaviour: commonest comorbidity (67.1%; OR 22.0; p < 0.0001). Older age, personal and family history of mental disorder significantly correlated with depression. At least 1 psychotic symptom in 61.8% of depressed patients. Mobile based screening feasible and affordable, therefore sustainable. Branching logic technique saved skipping steps for depression screening, ensured response to all items, enabled communication with specialists and real-time data transfer for monitoring. Saved consultation time, travel and improves access to quality screening in the existing health system. |

| Musyimi 2017a[30] | Kenya | Longitudinal non-randomized interventional study of adults seeking care from traditional health practitioners (THPs). Over 3 months, THPs identified patients with depression using mhGAP-IG, who were screened at 0, 6, 12 weeks Beck Depression Inventory. | THPs. | 377 | THPs trained to identify depression and deliver evidence-based mhGAP-IG psychosocial interventions to patients screening positive on the BDI. Training on causes of depression and mental illness to alleviate misconceptions that might interfere with treatment. 2 day training involved highly interactive experiential learning with small group work and role-plays. (Musyimi et al. 2017b) Psychosocial interventions included cognitive behaviour therapy and problem solving, as listed in the mhGAP-IG depression module. | Only efficacy for patient depression (no evaluation) | 19% attrition over 3 months' follow-up, related to non-attendance or unavailability in scheduled assessment week. Patients lost to follow-up if missed assessment by >1 week. To reduce bias, all patients with at least one assessment after baseline were included. Analysis of Variance (ANOVA) to determine change in depression scores over three time periods. Mean BDI 26.52 pre-intervention reduced significantly at 6 (13%) and 12 (35%) weeks follow-up. 58 and 78% of patients showed reduction in depressive symptoms at 6 and 12 weeks. |
| Musyimi 2017b[31] | Kenya | All adult patients seeking care from trained THPs over a period of 3 months screened for depression using the mhGAP-IG and sociodemographic characteristics recorded. | 100 THPs. | 100 THPs 4071 patients | THPs' pre-training confidence about clinical practice, knowledge, and skills assessed. 2 day training involved highly interactive experiential learning with small group work and role-plays. Training included taking consent, gathering sociodemographic data and screening for depression using the mhGAP-IG depression module. THPs were later retrained using the same techniques and received monthly supportive supervision and mentorship. | Statistically significant (p < .0005) increase (12.27%) in THPs' confidence about their practice, knowledge, and skills, from M = 16.6, SD = 3.2 before training, to M = 19.2, SD = 2.4, 3 months after training. | Prevalence of depression among THP patients was 22.9%. Being older, female, single, divorced or separated, unemployment and lack of education were significant determinants of depression. Patients with depression frequently presented with suicidal behaviour (32.9%, OR = 5.94, p <.0001) compared to those with at least one psychotic symptom (26.3%, OR = 3.65, p <.0001). A measure of THP diagnostic accuracy for depression showed 86% specificity and 46% sensitivity; the area under receiver operating characteristics (ROC) curve was 0.686. |

| Sheikh 2017[32] | Zambia | Randomized control trial of mhGAP-IG brief family intervention for alcohol problems, recruiting from consecutive admissions at Chainama Hills Hospital, Lusaka, Zambia with 8-week follow-up post-discharge. | All consecutive admissions with primary alcohol problems agreed to take part, and provide follow-up information at 8 weeks. | 114 patients

58 intervention

56 non-intervention | Control: treatment as usual, with diazepam and vitamin detox. Intervention: treatment as usual plus brief relapse prevention intervention from mhGAP-IG with close family member. mhGAP-IG intervention involved single 20-minute interview with patient and carer. Intervention by diploma-trained psychosocial counsellor pre-discharge. Relatives asked to help patient remain abstinent and seek help if signs of relapse. | Nil | Intervention group: average time to first drink: 51 days (standard deviation = 14). Non-intervention group: average time to first drink: 10 days (standard deviation = 16). Significant difference between the groups: intervention group had long abstinence period ($t = 14.368$; $df = 112$; $p = 0.001$). Alcohol consumption assessed using first 3 items of AUDIT questionnaire (0 to 12). Average scores fell from 10.3 (SD = 1.6) to 1.3 (SD = 3.1) in the intervention and 8.9 (SD = 3.9) for non-intervention (effect size 1.5; $p < 0.001$). |

AKHSA, Aga Khan Health Services Afghanistan; MHC, mental health care; BDI, Beck Depression Inventory; DSM, Diagnostic and Statistical Manual; PFA, Psychological First Aid.

Table 3: Summary of included studies describing country-specific mhGAP-IG contextualisation

Authors	Country	Study design	Participants	Sample size	Intervention details	Evaluation details	Summary of findings
Abdulmalik 2013[33]	Nigeria	Presentation of the process of contextualization and adaptation of the mhGAP-IG for Nigeria, and lessons learnt.	PHC staff (nurses, CHOs, CHEWs), doctors, social workers, senior staff.	19 PHC workers 3 GPs 3 psychiatrists 1 paediatric neurologist 1 social worker 5 trainers	Step I: Situational analysis in Osun state Step II: 8 focus group discussions with PHC providers Step III: preliminary review of mhGAP-IG Step IV: national 5-day consultative workshop Step V: pilot testing of adapted manual in Osun, training of PHC providers Step VI: second workshop to evaluate training, modifications and adaptations for a final manual.	Training evaluated using pre- and post-test assessments, using the WHO knowledge assessment test. Language was simplified and adapted to suit the context. Participants (trainers and trainees) provided feedback on using mhGAP-IG. Asked if adapted guide was a feasible tool, specifically in regard to applicability for routine use in primary care. Verbal feedback during interactive sessions and written comments after post-training test.	The contextualization experience described provides a pragmatic step-by-step guide for potential users of the mhGAP-IG. It details what needs to be done to optimize the use of this tool in a given context.
Gavlak 2016[34]	Gaza, West Bank, Libya	Descriptive report	Mental health workers in Gaza and the West Bank	Not stated	Description of new stand-alone community mental health centres (13 in West Bank, 6 in Gaza), use of mhGAP-IG, Master's degree in psychotherapy, Libya adaptation.	Nil	Description of mhGAP-IG impact in the region (includes use in Afghanistan, Egypt, Hordan, Kuwait, Lebanon, Pakistan, Qatar, Somalia, Syria, Tunisia) and several additional activities.
Jha et 2013[35]	Nepal	Review of dementia care in Nepal to propose mhGAP-based dementia protocol for hospital/clinic settings, with post-diagnostic advice for dementia caregivers.	No participants mentioned		Adapted mhGAP dementia-IG and Montreal Cognitive Assessment (MoCA) for Nepalese context, with Mild Cognitive Impairment diagnosis guidance. Model of post-diagnostic education and training for people with dementia and family caregivers, based on mhGAP-IG	Nepalese protocol adapted to suit the local context and workforce training limitations. Evaluation of acceptability and suitability, and impact on caregiver burden and quality of life is planned. Plan for presentation at Psychiatric Association of Nepal annual conference, and discussion at stakeholder meetings before routine clinical use.	No evaluation data

CHO, Community Health Officer; CHEW, community health extension worker.

Table 4: Summary of included studies using the mhGAP-IG to conduct economic modelling

Authors	Country	Study design	Participants	Sample size	Intervention details	Evaluation details	Summary of findings
Birbeck 2012[36]	Zambia	All direct costs associated with epilepsy care provision, cost of healthcare worker training and social marketing estimated based on mhGAP-IG. Model for epilepsy care delivery by PHC staff developed. Used varied sources to develop as comprehensive as possible a cost estimate for actual implementation and maintenance. Sensitivity analyses to understand how changes in costs for individual aspects impact overall.	Group consensus including Zambian clinicians, health service researchers, neurologists healthcare economists.	6	Nil	Sensitivity analyses to determine which items/activities, subject to reasonable variability, would substantially change overall programme costs	Even after including the costs of healthcare worker retraining, social marketing and capital expenditures, epilepsy care can be provided at less than $25.00 per person with epilepsy per year. This is substantially less than for drugs alone for other common chronic conditions. Implementation of epilepsy care guidelines for patients receiving care at the primary care level is a cost effective approach to decreasing the epilepsy treatment gap in high gap, low income countries.
Nanda 2016[37]	India	mhGAP-IG was used to programme resource need and health impact for key MNS disorders and interventions into the United Nations-One Health Tool. Parameters were adapted to reflect local data, experiences and priorities, enabling potential health system implications of scaled-up mental health services to be reviewed.	Nil	Nil	United Nations-One Health Tool (UN-OHT), for mental, neurological and substance use (MNS) disorders used to address resource adequacy for mental health service and system scale-up.	Nil	Per capita total expenditure of $1.70 over six years from 2014-2020 to scale up care packages for psychosis and depression, would gain 1519 healthy life years per million people.
Chisolm 2016[38]	Ethiopia India Nepal South Africa Uganda	An adapted mhGAP-IG for local district needs in each country site was used to indicate interventions. Resource quantities associated with each site's mhGAP-IG care package were identified and costed at current and target coverage.	Nil	Nil	A new mhGAP costing tool was used to estimate resource requirements and costs of intervention packages at 5 sites (tool available from authors on request). Disease-specific costing tool for short/medium-term planning forecasts human and financial resource needs (at national/subnational level), based on methodology to derive global cost estimates for scaling	Programme costs of training, supervision and management added 5–15% to baseline cost estimates, except in India (28%). Hospital-based services added 8–13% to baseline costs of Ethiopian, Nepalese and Ugandan districts but double the costs in Indian and South African districts Sensitivity analysis assessed the impact of inflation. Over 15 years of scale up, inflation of 3% increases final year costs by 50%, whereas 6% inflation more than doubles them.	The cost of the care package at target coverage ranged from US$0.21 to 0.56 per head of population in four of the districts (in the higher-income context of South Africa, it was US$1.86). In all districts, the additional amount needed each year to reach target coverage goals after 10 years was below $0.10 per head of population.

					up interventions. Estimated total and incremental costs of scaled-up provision, broken down by different mhGAP-IG diagnoses, type of expenditure, year of scale up.		

Table 5: Summary of included studies reporting other uses of the mhGAP-IG

	Authors	Country	Study design	Participants	Sample size	Intervention details	Evaluation details	Summary of findings
C O N T R O L I N T E R V E N T I O N	Sikander 2015[39]	India and Pakistan	2 randomised controlled trials: 1 cluster trial in Rawalpindi. 1 individually randomised trial in Goa.	Pregnant women registered with lady health workers in the study area in Pakistan. Pregnant women attending outpatient antenatal clinics in India.	560 and 280 women in Pakistan and India, respectively.	Intervention arm: Thinking Health Programme Peer Delivered (THPP). 10 individual +4 group sessions (Pakistan) or 6–14 individual sessions (India) delivered by a peer (trained, supervised mother from same community). Control arm (enhanced usual care) will receive health care as usual, enhanced by adding the mhGAP-IG depression module to PHC/gynaecological treatment, providing women with their diagnosis and information on help-seeking.	In Pakistan, quality of sessions will be assessed using a specifically designed competency checklist based on 6 areas of THPP and the ENACT scale (18-item assessment for common factors in psychological treatments). In India, quality of sessions will be assessed using the therapy quality scale, an 18-item scale with 2 subscales: treatment-specific skills (e.g. reviews previous session, assigns homework, involves family members), and treatment approach skills: common counselling skills (e.g. active listening, appropriate language, collaborative approach).	Protocol. Primary outcomes: remission and severity of depression symptoms at 6 month postnatal follow-up. Secondary outcomes: remission and severity of depression symptoms at 3 month postnatal follow-up, functional disability, perceived social support, breastfeeding rates, infant height and weight, costs of health care at 3 and 6 month postnatal follow-ups.
	Madhombiro 2017[40]	Zimbabwe	Cluster randomised controlled trial at 16 HIV care clinics.	Treatment-seeking HIV positive adults who screen positive for alcohol use disorders (AUDs).	240 patients (120 intervention, 120 control). 15 participants randomly selected at each clinic from a patient number list.	Motivational interviewing and cognitive behavioural therapy based intervention for AUDs, adapted and piloted in Zimbabwe, administered to PLWHA with AUDs recruited at HIV clinics. Administered over 16 sessions at 8 HIV clinics. Control arm: equal attention control: mhGAP-IG adapted for Zimbabwean context. Booster sessions for both groups at 3 and 6 months.		Protocol: Primary outcomes: Alcohol Use Disorder Identification Test (AUDIT) score. Secondary outcomes: World Health Organisation Disability Assessment Schedule 2.0 (WHODAS 2.0), World Health Organisation Quality of Life (WHOQoL) HIV, viral load, and CD4 counts.
OTHER USES	Kohrt 2015[41]	Nepal	ENhancing Assessment of Common Therapeutic factors (ENACT) scale for training and supervision.	Specialists and non-specialists	41	ENACT scale piloted by rating role-play videotapes, patient session transcripts, and live observations of PHC staff training in mhGAP-IG use. mhGAP-IG coded to identify skills needed to implement task-sharing programmes. Holistic health assessment and assessment of suicidal behaviour and safety included because these responsibilities fall to non-specialists using the	2 Nepali expert therapists used ENACT to rate non-specialists conducting role-plays after mhGAP-IG training. Each rated 8 non-specialist role-plays. Focus group discussion (FGD) qualitatively explored validity, feasibility, reliability. Then 5 Nepali expert therapists rated 2 videotaped role-plays of Nepali expert therapists and participated in FGDs. 7 American psychiatrists with	Qualitative results in early stages, then quantitative inter-class correlations

						mhGAP-IG.	psychotherapy training viewed Nepali videos with subtitles and participated in a FGD.	

PLWHA, People living with HIV and AIDS.