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Nagendra Prasad Luitel

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Evaluation of **the integration of mental health services** into the primary and community healthcare system in Nepal

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LIST OF ACRONYMS

AHW	Auxiliary Health Worker
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
AUD	Alcohol Use Disorder
AUDIT	Alcohol Use Disorder Identification Test
BACE	Barriers to Access to Care Evaluation
BAI	Beck Anxiety Inventory
BDI	Beck Depression Inventory
CA	Constituent Assembly
CAP	Counseling for Alcohol Problem
CBS	Central Bureau of Statistics
CIDT	Community Informant Detection Tool
CMC	Center for Mental Health and Counseling
CVICT	Center for Victims of Torture
DALY	Disability Adjusted Life Year
DD	Depressive Disorder
DHO	District Health Office
DPHO	District Public Health Office
ENACT	ENhancing Assessment of Common Therapeutic Factors
ES	Effect Size
FCHV	Female Community Health Volunteer
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HAP	Healthy Activity Programme
HP	Health Post
ICC	Intra-class Correlation Coefficient
INGO	International Non-Governmental Organization
IPD	In-patient Department
LIMIC	Low and Middle Income Country
MCHW	Maternal and Child Health Worker
MHCP	Mental Health Care Plan

mhGAP-IG	Mental Health GAP Action Program Intervention Guide
MoF	Ministry of Finance
MoHP	Ministry of Health and Population
MNS	Mental Neurological and Substance use
NGO	Non-governmental Organization
NHRC	Nepal Health Research Council
NHTC	National Health Training Center
OPD	Out-patient Department
OR	Odds Ratio
PCL-C	PTSD Civilian Version
PHC	Primary Health Care
PHCC	Primary Health Care Center
PHQ	Patient Health Questionnaire
PNC	Post-natal Care
PPV	Positive Predictive Value
PRIME	PRogramme for Improving Mental Health Care
PTSD	Post Traumatic Stress Disorder
RCT	Randomized Controlled Trial
SD	Standard Deviation
SDG	Sustainable Development Goal
SHP	Sub-health Post
STP	Standard Treatment Protocol
ToC	Theory of Change
TPO	Transcultural Psychosocial Organization
TUTH	Tribhuvan University Teaching Hospital
UMN	United Mission to Nepal
UN	United Nations
VDC	Village Development Committee
WHO	World Health Organization
WHODAS-II	World Health Organization Disability Assessment Schedule-II

Table of Contents

Section one: **Introduction**

Section two: **Mental health problems in Nepal**

Section three: **Situation of mental healthcare in Nepal**

Section four: **Development of mental healthcare plan**

Section five: **Outcomes of the mental healthcare plan**

Section six: **Implementation process, barriers and facilitators of the mental healthcare plan**

Section Seven: Discussions, lessons learned and recommendations

SECTION-ONE

Introduction

CHAPTER-ONE

Context, problem statement and dissertation structure

1.1 Context and historical background

Nepal, one of the poorest countries in South Asia, is situated between India and China. Nepal as a nation was born in 1768 when King Prithivi Narayan Shah conquered the city of Kathmandu and its surrounding territory and declared the land a Unified State. Shah's descendants ruled as hereditary monarchs until 1846, when another family, the Ranas, took over absolute power and ruled as hereditary prime ministers for more than a century (The Carter Center, 2014). The Rana Regime collapsed in 1950, and a multi-party democracy was established for the first time in Nepal in 1951. The multi-party demography collapsed in 1962, and a party-less Panchayat system was introduced by King Mahendra. The historical people's movement restored multi-party democracy in 1990 and the King became constitutional. In 1996, the Unified Communist Party of Nepal (Maoist) announced a 'People's War' against the government, out of dissatisfaction with gender and caste inequality and low-quality governance (Thapa & Sijapati, 2004). In June 2001, the royal family of Nepal including King Birendra and Queen Aishwarya were shot and killed inside the royal palace. Following the death of his elder brother late King Birendra, Ganendra Shah became the new King of Nepal on 4 June 2001. In 2002, King Ganendra collapsed the multi-party democracy and took all political powers. A historical mass movement in April 2006 abolished the monarchy and established the Democratic Republic of Nepal. The Maoist conflict was also formally ended with a peace agreement between the government of Nepal and Maoists in November 2006 (MoPE, 2017). In April 2008, elections for the Constituent Assembly (CA) were held and the Communist Party of Nepal (Maoist) established as the largest political party in the CA. The first CA failed to draft a new constitution and the new CA elections were held again in November 2013. The second CA promulgated a new constitution on 20 September 2015. In May 2008, the first constituent assembly officially declared Nepal as a Federal Democratic Republic Nepal. Nepal is enormously diverse by all measures, including geography, ethnicity, religion and language. It is a land-locked country in South Asia covering the areas of 147181 sq. km. that provide habitat to 126 ethnic groups. It has a total population of approximately 28.4 million (Ministry of Population and Environment, 2017). The new constitution has proposed three autonomous governments: the federal (national), the provincial, and the local level. Each of these levels has an elected assembly with powers to frame law, raise appropriate revenue and manage affairs. Nepal has been divided into seven provinces including 6-Metropolitan Cities, 11-sub-Metropolitan Cities, 276-Municipalities and 460-Rural Municipalities (Acharya, 2018). Throughout its history, Nepal was never colonized by an external power.

Like in many low and middle countries (LMICs), agriculture is an important sector in the national economy of Nepal. In 2014, agriculture contributed a share of 35.12% to the

National Gross Domestic Product (GDP) (MoF, 2014). Nepal also largely depends on external agency development funds and remittance. Due to poverty, limited employment opportunities, deteriorating agricultural productivity and political instability, the number of people leaving Nepal for work is increasing every year. As a result, remittances have become an important source of income for both migrant households and the nation as a whole. In 2016, remittances contributed almost 30% to the country's total GDP (MoF, 2016). Recently, cooperatives are emerging as key players at the grassroots level by organizing small farmers and small business, providing financial services, and saving the poor through organizing and empowering them for the creation of jobs and income (National Planning Commission, 2017).

1.2 Health care delivery system in Nepal

Despite a three-decade-long political transition as described above, Nepal has made notable progress in health care delivery and health outcome indicators. This was particularly achieved through building and repairing physical infrastructure, and medical equipment, increasing human resources for health, reforming procurement and supply chain management, improving quality of care at the point of delivery, strengthening decentralized planning and budgeting, and improving sector management and governance (MoHP, 2015). Life expectancy has steadily increased over the past decade. For example, the life expectancy of females increased from 59 to 73 years and 58 to 69 years for males between 1990 to 2017 respectively (Nepal Health Research Council, Ministry of Health and Population, & Monitoring Evaluation and Operational Research, 2019). Nepal's progress in reducing maternal mortality (i.e. maternal mortality ratio from 901 per 100,000 live-births in 1990 to 239 in 2016) and child deaths (i.e. under-five mortality rates of 140.4 per 1000 live birth in 1990 to 33.7 in 2017) have also been admired internationally, although the maternal mortality remains the highest in South-East Asia. However, the aggregated improvements in health outcomes mask the large urban-rural, gender, poverty, and caste/ethnic inequities (World Health Organization, 2018b). Although the constitution of Nepal preserves the right to all citizens to healthy living and access to health services as a fundamental human right, it is reported that 60% of the total healthcare expenditure is privately funded, and 80% of which is out of pocket (World Health Organization, 2014b).

Nepal has a mixed health service delivery system, comprised of the public sector, private for-profit sector, and non-governmental organizations (NGOs). Due to difficult geographical terrain and poor road infrastructure, people in many rural areas are deprived of basic healthcare services. Female Community Health Volunteers (FCHVs) are the first contact point to access public health services in the community. FCHVs are playing an important role in the implementation of community-based maternal and child health programs such as the National Immunization Program, Birth Preparedness Package, Community-Based Integrated Management of Neonatal and Childhood Illness (CB-IMNCI), Integrated Management of Acute Malnutrition, Infant and Young Child Feeding, and Family Planning program (Khatri, Mishra, & Khanal, 2017). Sub-health Posts (SHPs) are the first institutional contact point for the basic health services, which provides essential healthcare packages and also monitor the activities of FCHVs and other community-level healthcare activities. Recently, the government of Nepal decided to upgrade all the SHPs to health posts (HPs), but physical infrastructures and human resources remain the same. Health Posts are the next tier of healthcare facilities, and they offer the same package of essential healthcare services as SHPs, with an additional service of birthing facilities. SHPs and HPs are not staffed by medical doctors but are staffed by Health Assistants (HAs), and Auxiliary Health Workers (AHWs). In addition, the Auxiliary Nurse Midwives (ANMs), and Maternal and Child Health Workers (MCHWs) are responsible for conducting outreach clinics, immunizations, and maternal and child health care, especially antenatal and postnatal care. The third tier of the healthcare facility comprises the Primary Health Care Center (PHCC), which is an upper-level health care facility established in each electoral area, as a first referral point. The major services delivered within PHCCs are general medical care, family planning, maternal and child health, basic laboratory investigations and provision of the basic healthcare services that are available in HPs and SHPs. PHCC's are staffed by medical doctors as well as non-paramedics. The district hospital is the highest level healthcare institution within a district and District Public Health Office (DPHO) or District Health Office (DHO) is responsible for coordinating healthcare activities in a particular district. In the new federal system, the newly created 753 local governments are responsible to oversee more than 4000 healthcare facilities all over the country. Within the new governance structure, accountability, budgetary decisions and programme implementation have been divided among three tiers of governments, and the local level government is responsible for the bulk of responsibilities (Thapa, Bam, Tiwari, Sinha, & Dahal, 2019)

1.3 Mental health: global context and Nepal situation

Mental, neurological and substance use (MNS) disorders are one of the leading causes of disability, contributing to 10.4% of global disability-adjusted life years (DALYs) (Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). These disorders are often co-morbid with physical disease (Prince et al., 2007). Only 1% of the global health workforce provide mental health care while it is believed that 1 in 10 people has disabling mental health problems (World Health Organization, 2010). It is reported that more than 80% of people with mental disorders live in Low and Middle-Income Countries (LMICs) (World Health Organization, 2004), and access to mental health treatment is limited and expensive in those settings (Knapp et al., 2006). The recent WHO world mental health survey indicated that 86.3% of people with anxiety, mood or substance disorders in lower-middle-income countries received no treatment in the past 12 months (Evans-Lacko et al., 2018), and among those who receive treatment for mental health conditions, only a few receive adequate treatment (Wang et al., 2007). For example, a recent study conducted in 21 countries reported that one out of 27 persons living with major depressive disorder in LMICs received minimally adequate treatment (Thornicroft et al., 2017). The most commonly reported barriers for seeking mental health care included lack of resources and services (Saxena, Thornicroft, Knapp, & Whiteford, 2007); low perceived need (Andrade et al., 2014); cost of treatment (Bruwer et al., 2011); lack of knowledge on available mental health services (Jack-Ide & Uys, 2013), poverty (Lund et al., 2010) and traditional and religious practices (Burns & Tomita, 2015). The WHO estimates that there is a need for 1.18 million mental health workers to move forward with closing the mental health treatment gap (Fulton et al., 2011). In most of the LMICs mental health services are scarce, and the utilization of the available services is also very low due to various reasons, including geographic, cultural and financial barriers (Murthy, 2011; van Ginneken et al., 2013).

Available data shows that Nepal is not exceptional to the global situation on burden of mental health problems. The first national mental health survey of Nepal, conducted recently, reported that 10% of the sample had experienced at least one mental disorder throughout their life, while the current prevalence rate was only 4.3% (NHRC, 2020). However, studies conducted with specific populations or populations affected by humanitarian emergency show very high, and a large variation, in the reported prevalence rates of depression (ranging from 6% to 81%) (Kohrt et al., 2012; Risal, Manandhar, Linde, Steiner, & Holen, 2016; Tol et al., 2010), anxiety (ranging from 6 to 85.6%) (Kohrt et al., 2012; Luitel, Jordans, Sapkota, et al., 2013; Risal et al., 2016; Thapa & Hauff, 2005; Tol et al., 2010; Van Ommeren et al., 2001) and alcohol use disorder (ranging from 1.5 to 25%) (Jhingan, Shyangwa, Sharma, Prasad, & Khandelwal, 2003; Luitel, Jordans, Murphy, Roberts, & McCambridge, 2013; World Health Organization, 2014a). Prevalence rates of mental health problems are high among females, older adults, Dalit caste, and those who are widow/widower or separated (Kohrt et al., 2012; Kohrt et al., 2009; Tol et al., 2010). There has been a lack of studies published on the treatment gap on mental health care in Nepal. Considering the scarcity of mental health services in most part of the country, the treatment gap is likely to be much higher in Nepal compared to many other LMICs.

1.4 Mental health services in Nepal

The first psychiatric out-patient department (OPD) service was started in 1961 at Bir Hospital (General Hospital), Kathmandu when the first psychiatrist of Nepal returned after completing his Diploma in Psychological Medicine from England. The OPD service was extended to five-bedded in-patient services in 1965 and, 12 beds in 1971. Psychiatric services were started in Tri-Chandra Military Hospital Kathmandu in 1976 for the army personnel and their family members (Upadhyaya, 2015). In 1984, the 12-bedded psychiatry department at Bir Hospital was separated to provide specialized mental health care, which was then shifted to the current site at Lagankhel, Patan in 1985. Currently, the Mental Hospital Lagankhel operates a 50-bedded specialized and referral center for a population of 30 million. Psychiatric outpatient department (OPD) and in-patient department (IPD) services were begun in Tribhuvan University Teaching Hospital (TUTH) in 1986. Currently, there are 0.52 psychologists and 0.36 psychiatrists for every 100,000 people, mostly working in larger cities and are not easily accessible to those in rural areas (World Health Organization, 2018a).

In Nepal, community-based mental health services were initiated by the United Mission to Nepal in 1984. The UMN and TUTH established community mental health programs in Kaski, Banke, and Syanja districts in 1992. The first national mental health policy was endorsed in 1996 which also emphasizes the integration of mental health services into the primary healthcare system. Although, the mental health policy committed to providing basic mental health services to the whole population by 2000; it is yet to be implemented (MoHP, 1997). In 2001, Kopila Nepal, a non-governmental organization, initiated community mental health programs in Gorkha, Lamjung, Syangja, Tanahu, and Kaski districts. The Center for Mental Health and Counseling (CMC) Nepal was founded in 2003 which began implementing the project that was established by the UMN and TUTH. The Transcultural psychosocial organization (TPO) Nepal began its community based mental health programmes, particularly, for children and families affected by the Maoist conflict in Western Nepal in 2005. In 2009, the Center for Victims of Torture (CVICT) began their community mental health programmes in three conflict-affected districts namely Dang, Tanahu and Chitwan. Similarly, the KOSHISH, an advocacy organization, began their community mental health programs in Dhading, Bhaktapur and Tanahu districts in 2009. Similarly, the Livelihoods Education and Development Society (LEADS) began community mental health services that covered 39 VDCs in Baglung and Myagdi districts. In 2010, mental health was included in the "essential healthcare package" in the Nepal Health Sector Support Program-II (NHSSP-II) (MoHP, 2010). Although, community mental health programmes in Nepal initiated more almost 3-decade ago; none of these programmes has systematically evaluated, and formally integrated within the government healthcare system.

1.5 Initiatives to minimize the treatment gap

In recent years, a large body of evidence has been generated indicating that mental health services can be delivered effectively by trained primary and community health care workers through community-based programs (Cohen, 2001; Mutamba, van Ginneken, Smith Paintain, Wandiembe, & Schellenberg, 2013; Patel et al., 2010; Weinmann & Koesters, 2016). This is also known as a task-sharing approach, where the specialist mental health workers (i.e. psychiatrists and psychologists) are involved in designing and managing mental health services, building the clinical capacity of the primary health care workers, and providing supervision and quality assurance of mental health services (Eaton et al., 2011; Patel, 2009). The task-shifting approach has been designated to improve the efficiency of available human resources for mental health by transferring selected roles of mental health specialists to lower-level healthcare providers, especially the primary and community health care workers (World Health Organization, 2007). This approach has increasingly been used in various healthcare settings in both high and low-income countries and has been found effective and cost-saving (Hoeft, Fortney, Patel, & Unutzer, 2018; Seidman & Atun, 2017). This was a product of decade long investment in interdisciplinary research and practices in diverse settings, series of publication and the ongoing advocacy for scaling-up of the mental health services (Patel et al., 2018). Studies have documented several benefits of this approach including better health outcomes, reduction of mental health stigma; improved access to care; reduced chronicity of problems; protection of human rights of mentally ill persons and better care than that are provided in psychiatric hospitals (Funk, Saraceno, Drew, & Faydi, 2008; WHO & Wonca, 2008).

In an effort to minimize the treatment gap, the World Health Organization (WHO) launched its Mental Health Gap Action Program (mhGAP) in 2008 (World Health Organization, 2008), and the mhGAP Intervention Guide (IG) in 2010 (World Health Organization, 2010), to provide evidence-based clinical guidance to primary health care workers for detection and management of mental disorders in primary care. The mhGAP-IG is a set of user-friendly clinical guidelines for providing evidence-based practices (EBPs) developed for use by health care providers working in non-specialized health care settings. While the mhGAP-IG has been used by various stakeholders including ministries, non-governmental organizations and academic institutions for scaling up of mental health services in more than 90 countries (World Health Organization, 2016); it has, to date, not been systematically evaluated to assess its effectiveness in real-world settings. Most of the studies conducted so far have focused on the specific components such as the effectiveness of mhGAP IG in clinical practice, training evaluation, economic modelling and local adaptation (Keynejad, Dua, Barbui, & Thornicroft, 2018).

The Programme for Improving Mental health care (PRIME) was established in 2011 to generate new evidence on implementation and scaling up of mental health programmes in the existing primary and community health care systems, in five low and middle-income countries - namely Ethiopia, India, Uganda, South Africa and Nepal (Lund et al., 2012). As a part of PRIME, a district mental health care plan (MHCP) was developed and implemented in each of PRIME countries which were evaluated through a series of studies. Multiple research methods were used to evaluate the effectiveness of the district mental health care plan in five different dimensions: (a) change in population-level contact coverage; (b) detection of mental disorders in primary care; (c) initiation of minimally adequate treatment subsequently after correct diagnosis; (d) impact on patients' clinical and functional outcomes and (e) implementation process barriers, and facilitators of the MHCP (De Silva et al., 2016).

PRIME was implemented in Chitwan, a district in southern Nepal. The MHCP in Nepal, as in the other countries, consisted of intervention packages delivered at community, health facility and health organization platforms (Jordans, Luitel, Pokhrel, & Patel, 2016). The community-level packages included a mass sensitization program, pro-active case detection using a contextual vignette, and adherence support through home-based care. The health facility level packages included training and supervision of primary health care workers (medical officers, health assistants, auxiliary health workers) to detect, diagnose and manage mental disorders based on the WHO mhGAP-IG (World Health Organization, 2010). Both psychological and pharmacological services are included in the health facility level care packages. Finally, the health service organization level package included human resource mobilization, procurement and supply of psychotropic medicines through the existing health care system and referrals for specialized care (Jordans et al., 2016). This dissertation systematically described the methods and process used for the development, implementation and evaluation of the district mental health care plan in Nepal.

1.6 Aims and Research Questions

This dissertation aims to describe the systematic process and steps that were followed in the development, implementation and evaluation of a district mental health care plan (MHCP) to evaluate the integration of mental health services into the primary and community health care system in Nepal.

The following research questions have been addressed in each of the chapters of this dissertation:

Chapter 2:	What is the prevalence of common mental health problems among the population affected by the Maoist conflict in selected districts of Nepal?
Chapter 3:	What is the prevalence of depression and alcohol use disorder among adults attending primary health care facilities, and the factors associated with poor mental health?
Chapter 4:	What is the treatment gap for mental health care in Nepal? In addition, what are possible barriers to seeking mental health services among people with depression and alcohol use disorder?
Chapter 5:	What is the situation of mental health care in Nepal? In addition, what are the possible barriers to the transformation of the existing mental health care system?
Chapter 6:	How to develop a district mental health care plan? In addition, is it feasible and acceptable for primary health care workers to deliver mental health services? Is it acceptable for people with mental illness to receive mental health services delivered by trained primary health care workers?
Chapter 7:	What is the impact of the district mental health care plan on improving treatment contact coverage? What is the impact of the district mental health care plan on improving detection and initiation of evidence-based treatment in primary care? What is the impact of the district mental health care plan on patients' level clinical outcomes?
Chapter 8:	What are the perceptions of service users and their caregivers on primary care-based mental health services in Nepal? What are the barriers to initiation and continuation of primary care-based mental health services?
Chapter 9:	What are the barriers and facilitators for successful implementation of the district mental health care plan? What lessons were learned from the implementation and evaluation of the district MHCP?

1.7 Structure of the dissertation

After describing the context, problem statement and rationale for integration of mental health services in routine health care system in the current chapter, the dissertation continues with describing the burden of mental health problems among population affected by conflict and help-seeking populations (chapter 2 and chapter 3); assessment of the treatment gap and possible barriers for mental health care (chapter 4); situation of mental health services in Nepal and barriers for development of district mental health care plan (chapter 5); development process and the content of the district mental health care plan (chapter 6); outcomes of the integrated district mental health care plan in the community, health facility and individual levels (chapter 7); perception of people receiving mental health services (service users), and their caregivers on primary care-based mental health services (chapter 8); the implementation process, barriers and facilitators for successful implementation of the MHCP (chapter 9), ending with a concluding discussion and recommendations (chapter 10).

Chapter two describes the prevalence of common mental health problems (i.e. depression, anxiety and post-traumatic stress disorder) among the general community following the 10-year long Maoist conflict. This study has highlighted the burden of mental health problems in the general population affected by conflict, as well as risk factors for mental health problems. The study was conducted with 720 randomly selected adults from 3 districts one-year after the peace agreement between the government of Nepal and the Communist Party of Maoists. The districts were chosen based on the extent of the conflict; i.e. one district from highly affected areas (Dang), one district from moderately affected areas (i.e. Chitwan) and one district from low affected areas (Tanahu).

Chapter three describes the prevalence and determinants of depression and alcohol use disorder among adults attending primary health care services. The study was conducted with 1499 adults from 10 primary health care facilities in the Chitwan district. Data were collected between September 2013 and February 2014. The study was conducted as part of the PRIME facility detection survey, which aims to evaluate the changes in detection and initiation of evidence-based treatment for people with depression and AUD in the primary health care system before and after introducing the district mental health care plan.

Chapter four describes the treatment gap and barriers for mental health care among people with depression and alcohol use disorder. This study was conducted with 1983 randomly selected adults from 10 village development committee (VDC) in Chitwan district. Participants who were screened positive for depression and alcohol use disorder were asked if they had accessed services for those conditions in the past 12 months preceding the study. Barriers to seeking mental health services were assessed using the Barriers to Access to Care Evaluation Scale (BACE).

Chapter five describes the situation of mental health care in Nepal, before the introduction of a district-wide mental health care plan, assessing five key domains: (a) policy and legislative framework; (b) formal mental health services; (c) human resources; (d) mental health in the PHC; (e) public education and link with other services, and (f) monitoring and supervision. The situation analysis was conducted using a standardized tool developed by PRIME research programme consortium (PRIME 2012). The situation analysis tool was developed for collecting relevant information to develop a district mental health care plan. This chapter also discussed the potential barriers for development of a district mental health care plan and how the barriers were overcome while developing the mental health care packages.

Chapter six describes how the district level mental health care plan was developed and the content of the care plan. A wide range of stakeholders, including primary health care workers; people with mental illness and their family members; mental health specialists and policymakers were involved in the development of the district MHCP. The MHCP consisted of intervention packages delivered in the community, health care facilities and health organization platforms. The mhGAP-IG was at the heart of the care system and was translated and adapted to train primary health care workers on detection and management of mental health problems in primary health care facilities.

Chapter seven describes the impact of the district mental health care plan on the community, health facility and individual level. The impact of the MHCP on treatment coverage and barriers to mental health care was assessed using a repeat community survey (N=1983 in the baseline and N=1499 in the follow-up) before and three years after the implementation of the MHCP. The change in detection and initiation of evidence-based treatment for depression and alcohol use disorder was assessed using a facility-based survey (N=3627 in all 3-waive of facility surveys) before implementation of the MHCP, six months after the training and 3 years after the training to health workers. Individual-level outcomes were assessed through cohort studies. Four cohorts (Depression=137, AUD=175, psychosis=95 and epilepsy=42) were followed up over a one-year period to assess the effectiveness of the treatment provided by trained primary health care workers on symptom reduction and improving functional impairments.

Chapter eight describes the perception of service users (people with depression, psychosis, AUD and epilepsy), and their caregivers on the mental health services provided by trained primary health care workers. A qualitative study was conducted with 43 service users and 38 caregivers one year after their engagement in the services. Participants were asked about their perception of the skills and competencies of the primary health workers, types of services they received, satisfaction with the services, and the barriers to initiation and continuation of services.

Chapter nine describes the implementation process, barriers and facilitators for the successful implementation of the MHCP. This process evaluation used the collected through the quarterly facility and community profiles; monthly implementation log, training and supervision data, and a qualitative study conducted with service providers, service users and their caregivers. This chapter also describes how the contextual and other socio-political factors influence the implementation of the care plan and how barriers were overcome.

Chapter ten summarizes the main results, lessons learned, and formulates recommendations for future research and programmes implementation, particularly, for improving the integration of mental health services into primary healthcare systems.

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SECTION-TWO

Mental health problems in Nepal

CHAPTER-TWO

Conflict and mental health: a cross-sectional epidemiological study in Nepal

This chapter is based on Nagendra P. Luitel, Mark J. D. Jordans, Ram P. Sapkota, Wietse A. Tol, Brandon A. Kohrt, Suraj B. Thapa, Ivan H. Komproe & Bhogendra Sharma (2013). Conflict and mental health: a cross-sectional epidemiological study in Nepal.

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Abstract

Purpose: The aim of this epidemiological study was to identify prevalence rates of mental health problems, factors associated with poor mental health and protective and risk factors in a post-conflict situation in Nepal.

Methods: This cross-sectional study was conducted among 720 adults in 2008. A three-stage sampling procedure was used following a proportionate stratified random sampling strategy. The outcome measures used in the study were locally validated with Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Post-Traumatic Stress Disorder (PTSD) —Civilian Version (PCL-C), and locally constructed function impairment scale, resources and coping.

Results: Of the sample, 27.5% met threshold for depression, 22.9% for anxiety, and 9.6% for PTSD. Prevalence rates were higher among women (depression, OR 2.14 [1.52 - 3.47]; anxiety, OR 2.30 [1.45 – 3.17] and PTSD, OR 3.32 [1.87 – 5.89]); and older age categories (depression, OR 1.02 [1.01 – 1.04]; anxiety, OR 1.04 [1.03 – 1.05] and PTSD, OR 1.02 [1.0 – 1.03]). Respondents who perceived more negative impact of the conflict (e.g. hampered the business/industry; hindered in getting medical treatment etc.) in their communities were more at risk for depression (OR 1.1 [1.06 – 1.14]), anxiety (OR 1.05 [1.01 – 1.09]), and PTSD (OR 1.09 [1.04 – 1.14]). Other risk factors identified in the study were ethnicity, district of residence and poverty (lack of clothing, medicine and information via radio at home).

Conclusion: Overall, the prevalence rates of depression and anxiety in the sample are comparable to, or lower than, other studies conducted with populations affected by conflict and with refugees. However, the findings underscore the need to address the current lack of mental health care resources in post-conflict rural Nepal, especially for marginalized populations.

Key words: political violence, mental health, PTSD, risk factors, Nepal

Background

In 1996, the Unified Communist Party of Nepal (Maoist) (hereafter Maoists) announced a 'People's War' against the government of Nepal, out of dissatisfaction with gender and caste inequality and low quality governance in rural areas (Thapa & Sijapati, 2004). Common to international trends in armed conflicts, the Maoist insurgency in Nepal was an intra-state conflict, mainly affecting civilian-populated areas beset by chronic poverty (Tol et al., 2010). It formally ended in November 2006 with a comprehensive peace agreement between an alliance of political parties and Maoists, which stipulated the participation of the CPN-M in government and the monitoring of weapons by a United Nations Mission in Nepal.

During the 10 years of conflict, especially people in the countryside lived in fear of reprisals from both sides on suspicion of having aided the other side. From the start of the Maoist insurgency in 1996 through the signing of the Comprehensive Peace Agreement (CPA) in 2006, it has claimed over 16,000 lives (International Crisis Group Nepal, 2010) and there were serious human rights violations committed by both security forces and members of the Maoists, including extra-judicial executions, disappearances, torture, arbitrary arrests and detention on the part of the police. Nepal had the highest number of "disappearances" in the world in 2003 (Singh, Dahal, & Mills, 2005).

Globally, mental health problems constitute a serious public health problem, contributing 14% to the global burden of disease (Prince et al., 2007). In recent years, a large number of studies have been conducted on mental health of refugees and populations affected by conflict, presenting a large variation on rates of depression (3% - 85.5%), PTSD (0% - 99%) (Steel et al., 2009); and anxiety (6% - 72.2%) (Cardozo et al., 2004; de Jong, Komproe, & Van Ommeren, 2003; Roberts, Ocaka, Browne, Oyok, & Sondorp, 2008; Shrestha et al., 1998; Van Ommeren et al., 2001)

In Nepal, very few epidemiological studies have been conducted among the general population; no such study has been conducted in the context of the conflict, despite a number of qualitative and quantitative studies documenting the impacts of political violence (Tol et al., 2010). A study conducted by Kohrt and colleagues (Kohrt, 2009) reported rates for depression (33.7%) and anxiety (27.7%) among the general population in Jumla district based on data collected in 2000. There have been a few epidemiological studies conducted to estimate the incidence and prevalence of mental disorders within specific populations. Shrestha and colleagues conducted a case control-study with 1,052 randomly selected tortured and non-tortured Bhutanese refugees, reporting rates for PTSD (14%), depression (25%) and anxiety

(43%) among tortured refugees and PTSD (3%), depression (14%) and anxiety (43%) among non-tortured refugees (Shrestha et al., 1998). Van Ommeren and colleagues reported even higher rates of PTSD (43%), yet lower generalized anxiety and depressive disorder (6% and 8% respectively) among tortured Bhutanese refugee (Van Ommeren et al., 2001). Thapa and Hauff reported rates for PTSD (53.4%), anxiety (80.7%) and depression (80.3%) among displaced people during the conflict with data collected in 2003 (Thapa & Hauff, 2005). Tol and colleagues found high rates for PTSD (59.7%); depression (81.1%) and anxiety disorder (85.6%) among torture survivors in highly conflict-affected areas in mid-western rural Nepal with data collected in 2003 (Tol et al., 2007). Finally, a study with former child soldiers and children never conscripted by armed groups found that former child soldiers suffered more symptoms of depression (53.2%), anxiety (46.1%) and PTSD (55.3%) than children who were never conscripted by armed groups (24.1%, 37.6% and 20% respectively) (Kohrt et al., 2008). This large range of prevalence rate could be due to difference in the methodology of the studies.

In Nepal, mental health resources are scarce, with no formal mental health care in rural areas where more than 85% of the total population resides. Less than 1% of the national health budget is allocated to mental health in Nepal (World Health Organization, 2006). A national mental health policy was adopted in 1997 in which mental health is proposed as an element of primary health care, but little progress has been made on implementing this policy framework. Though mental health services are scarce in Nepal, a few non-governmental organizations (NGOs) are providing mental health services for specific population groups (e.g. victims of torture, refugees, conflict-affected children and survivors of trafficking). NGO services and government service provision have been implemented rather independently of each other and for shorter periods of time. The primary aim of the study was to identify prevalence rates of mental health problems, factors associated with poor mental health and protective and risk factors in post conflict rural Nepal to inform subsequent program development.

Methods

Setting

Nepal, a land-locked country situated between India and China, is the poorest country in South-Asia. It has a total population of approximately 27.5 million. Nepal is predominantly rural, with about 14% of the population living in urban areas. Geographically, it is divided into three regions: the northern mountains, the middle hills and the southern plains. For administrative purposes, it has been divided into 5 development regions, 14 zones, and 75 districts. This study was conducted in three districts of Nepal (Chitwan, Tanahu and Dang), representing the central, western and mid-western regions, respectively. The rationale behind selecting three districts was to develop and implement a pilot community mental health promotion program (CMHP) after research had taken place in these districts, which could be replicated in other areas of Nepal. The study districts were selected to represent the geographic and population diversity of Nepal as well as the relative impact of armed conflict. In general, all three districts were directly affected by the conflict. However, their relative impact in terms of conflict- related incidents such as abduction, killings and destruction of private and public properties somewhat varied. Dang was the most affected, whereas Tanahu and Chitwan were moderately affected. The average mortality per district was 180 people. Tanahu and Chitwan are districts that had comparable or lower total conflict mortality, with 95 people in the Tanahu district and 196 people in Chitwan district being killed due to war-related violence (0.03% and 0.04% of the districts' populations respectively). In contrast, Dang is a district with among the highest war-related mortality: 686 people were killed during the war, 0.15% of the district population (INSEC, 2008). Five village development committees (VDCs)/Municipalities from each district were purposively selected based on: 1) rural versus urban areas, 2) extent of being affected by violence (high/ moderate / low), and 3) caste and ethnicity (homogeneous vs. heterogeneous VDCs). Information on socio-demographic, economic characteristics and impact of violence was collected from field research assessors, local organizations, and published reports. All the municipalities and the district headquarters were considered as urban areas and all the VDCs were considered rural areas. Municipalities/VDCs where there were recorded incidents of cross-firing or killing, abduction and 'donation' requests by Maoists, Maoists' requests for food and shelter, and destruction of private and public properties were taken as highly affected; municipalities/VDCs where there were recorded incidents of abduction, asking for donations, asking for food and shelter and threatening but not cross-firing or killing, and destruction of private and public properties were taken as moderately affected; municipalities/VDCs where there were no incidents of cross-firing or killing, or abduction or threatening, but only rare incidents of asking for donations, asking for food and shelter, and destruction of private and public properties were taken as less affected (INSEC, 2008).

Nepal's population comprises more than 60 caste and ethnic groups; broad categorizations comprise Brahmin and Chhetri (high- caste groups), Dalit (low caste groups, historically referred to as 'untouchable') and Janajati, (ethnic minority groups, more likely to be speakers of Tibeto-Burmese languages and more likely to be Buddhist) (Bista, 1967). The major caste/ethnic groups in Chitwan District are Brahmin/Chhetri (40.26%), Tharu (12.7%), Tamang (7.36%) and Gurung (6.7%) whereas in Tanahu, Magar (26.5%) are on top followed by Brahmin/Chhetri (25.9%), Gurung (12.5%) and Newar (7.98%). Brahmin/Chhetri (33.5%), Tharu (31.9%) and Magar (12.1%) are major caste/ethnic groups in Dang.

Study Participants and Sampling

A cross sectional study design was used. The inclusion criteria for the study were at least 18 years of age and having resided in the VDCs/municipalities for at least 6 months prior to the study. A three- stage sampling technique was used following a proportionate stratified random sampling strategy. Five VDCs/municipalities were selected from each district based on the geographical diversity and extent of impact of conflict. A household was defined as a unit for sampling. The samples were drawn from five VDCs/municipalities proportionate to the relative total adult population of each selected VDC/municipality in each district. The most recent available data sources (updated voter list 2006 and census 2001) were used and triangulated to maximize the accuracy of sampling. We used both census and voter lists for sampling to determine the proportionate number of each VDC's/municipality's population in five broad age groups (18-24, 25-34, 35-44, 45-54, 55+) to ensure proportionate representation of different age groups in the sample. Once households were selected, it was randomly determined which age-group and gender (50% male, 50% female) would be needed from that household. In cases where there was no one of the requested gender and age group, the interviewer would go to the nearest neighboring household considering the inclusion criteria. Only one person from each household was included in the study. In case there was more than one member in a household in a particular age and sex category, one member was selected using a simple random a sampling method. The sample size of the study was 720 (240 in each district).

Instruments

The study used several outcome measures which included four standardized instruments: World Health Organization Disability Assessment Scale-II (WHODAS-II), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), and PTSD—civilian version (PCL-C). We also used locally constructed instruments to measure mental health related problems not covered in existing instruments to identify participants' perceptions of the impact of conflict in the community, level of exposure to traumatic events, and the protective factors for emotional support. Socio-demographic characteristics such as age, education, caste/ethnicity, marital status; occupation, ownership of land, access to basic needs (food, clothes, shelter, medicine, drinking water, etc.) and number of family members were also assessed. The standardized instruments BDI, BAI and PCL-C were already validated for use in Nepali using a five-step translation method for cross cultural research (Kohrt, Kunz, Koirala, Sharma, & Nepal, 2002, 2003; Thapa & Hauff, 2005). WHODAS-II was developed for global use, and for this study we used the South Asia specific cut-off score. Test-retest reliability of the instruments was determined among an additional sample of 25 participants over a week period in Dang and Chitwan district.

WHODAS-II

Function impairment was assessed using the WHODAS-II (WHO, 2001). The WHODAS-II consists of 12-items in a five-point rating scale ranging from 12 to 60. The internal consistency (Cronbach's alpha) of the WHODAS-II in this study was 0.81 with test-re-test reliability of 0.89 (Spearman Brown Coefficient) (in the remainder of this paragraph, the instruments' response categories, score range, internal and test-retest reliability are mentioned, respectively, in parentheses).

Beck Depression Inventory (BDI)

Depression symptoms were assessed using the 21-item Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); (4; 0-63; 0.83, 0.96).

Beck Anxiety Inventory (BAI)

BAI is a widely used self-report scale to measure the severity of anxiety (Beck, Epstein, Brown, & Steer, 1988). The scale has 21-items and the respondent is asked to score 21 common symptoms of anxiety in the past 2 weeks; (4; 0-63; 0.90, 0.90). BDI and BAI have been translated and validated in Nepali. The BDI was validated in Nepal with the external criterion of a clinical diagnosis of major depressive disorder using a mixed sample of adult clinic patients at a teaching hospital outpatient department in Kathmandu and community-dwelling adults in rural Nepal (Kohrt et al., 2002). The BAI was validated with the same population using a diagnosis of generalized anxiety disorder as the external criterion (Kohrt et al., 2003). The clinical diagnoses were made by Nepali psychiatrists or by an expatriate psychiatric resident who collected the case histories and reviewed them with the Nepali psychiatrists at the teaching hospital (for further details see (Kohrt et al., 2002, 2003). The validated cutoff for depression symptoms and anxiety symptoms at the moderate severity level were ≥20 (sensitivity = 0.73 and specificity = 0.91) for the BDI and ≥17 (sensitivity = 0.77 and specificity = 0.81) for the BAI, respectively (Kohrt et al., 2009). As with the use of the BDI and BAI use in other settings, the instruments are used here to evaluate depression and anxiety symptom severity with the cutoff indicating moderate or greater level of symptom severity to severe symptom presentation. The BDI and BAI cutoffs as applied in this study are used to bifurcate the sample into those with no or mild depression versus those with moderate to severe depression, with the split point indicating the need for clinical treatment in the context of Nepal. The cutoffs are not used to make diagnoses of major depressive disorder or generalized anxiety disorder.

Post-traumatic stress disorder

PTSD—civilian version (PCL-C) was used to measure PTSD symptoms (Weathers, Litz, Huska, & Keane, 1994). The PCL-C has 17 items that correspond with the symptoms of PTSD specified by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM IV) (5; 17-85; 0.90, 0.77). A condition for probable PTSD disorder in this study was ≥50 (sensitivity =0.80 and specificity = 0.80) score on PTSD—civilian version (PCL-C) (Thapa & Hauff, 2005).

Based on the findings of an explorative qualitative study, additional context-specific instruments were developed to measure the level of exposure to traumatic events, function impairment, and psychosocial and mental health problems not covered in BAI and BDI, impact of the conflict in the community and protective factors. Focus group discussions (FGD) (N=36) and key informant interviews (KII) (N=72) were conducted to explore community perception on the above mentioned themes prior to the survey in all three districts. In the first step, qualitative data were transcribed immediately after field work. Second, among the available 36 FGDs and 72 KIIs, only 18 KIIs and 6 FGDs (6 KIIs and 2 FGDs from each district) were randomly selected for the analysis due to feasibility reason. The selected KIIs and FGDs were read thoroughly and the relevant words/expressions/sentences were highlighted; the highlighted information was then categorized and compiled under each of the selected themes district- wise. Third, the frequencies of each of the items were reviewed to ensure its commonality within all three districts. Finally, based on the frequency of the items; four context- specific instruments were developed to measure psychosocial problems not covered in BAI and BDI, function impairment, level of exposure to traumatic events, coping and perceived impact of the conflict. Items with at least three frequencies in each district were considered in the final selection.

Our context specific function impairment scale consists of ten items in four-point rating scale with a range of 0-30, which was developed following a procedure developed by Bolton & Tang (Bolton & Tang, 2002), and includes tasks common to men and women (separate scales) in terms of individual functioning (3 items, e.g. getting up in the morning, taking meal/breakfast and maintaining personal hygiene), family functioning (3 items, e.g. doing farm related work, helping household activities, and taking care of children), community functioning (3 items, e.g. attending community meeting, attending religious activities and festivals, and helping neighbours), and one open item. A 17-item psychosocial and mental health symptoms scale was developed as a 4-point response scale, which ranges from 17 to 68. The perceived impact of the conflict on various aspects in the community was assessed using a 19-item questionnaire with a four-point response scale. Of the 19 items, 11 items were about negative impact (such as hampered the business/industry; hindered in getting medical treatment; created problems on social work; increased looting and robbery, etc) and 8 were about positive impact of the conflict (such as increased women's participation and empowerment; decreased racial discrimination; decreased gender discrimination, helped women to be aware of their rights, etc.). Whether respondents were exposed to conflict induced traumatic events such as witnessing destruction of public property, people being harassed, people being killed, people being physically hurt and witnessing a bomb blast and/or cross firing in the last six month reference period was asked in a five-point scale. Further, a 15-item resource and coping scale was used to explore the coping behaviors of participants. Of the 15 items, 9 were related to individual-level coping methods like interaction with general community members; keeping oneself busy (i.e. distraction); and sharing feelings with others. The other 6-items were related to receiving and providing community-level support such as listening to others; receiving advice from others and receiving financial support. In the 4-points response scale, 1 is 'never' and 4 'always'. The total score of individual- level and community-level coping scale ranges from 9-36 and 6-24 respectively; a higher score indicated more use of resources.

Procedures

The study was jointly conducted by Transcultural Psychosocial Organization (TPO) Nepal and Centre for Victims of Torture (CVICT) Nepal from December 2007 to January 2008. It was conducted 1 year after the peace accord. Nine research assistants (three from each district) having at least intermediate levels of education and previous experience on mental health research were selected for data collection. Two- and- a half weeks of training covering structured interviewing, rapport building, ethical considerations, informed consent, inclusion/exclusion criteria and scoring was provided. Research assistants visited the respondents' place of residence for the interviews. The study received technical and ethical approval from the Nepal Health Research Council (NHRC). Each study participant was asked to sign a written informed consent prior to enrolment in the study. Each interview lasted approximately an hour.

Analysis

Inconsistencies and missing values in the data were changed manually. Altogether, 31 cells were identified blank throughout the entire data. Since we could not identify any patterns in missing data, we assumed they were distributed randomly and replaced missing values with group (district) means. We tested associations between the outcome measures depression, anxiety and PTSD (probable *vs.* unlikely disorder), with logistic regression analysis. Pre-defined risk factors were age, sex, education, caste, place of residence, marital status, availability of own land, access to food, clothing, medicine, and radio, perception on impact of conflict, exposure to traumatic events and use of resources and coping (both individual and community). We tested multivariate models to adjust the estimates of the pre-defined risk factors. Risk factors that had no significant association with the mental health outcomes in the multivariate models are not discussed nor presented in the table. To assess the effect of cluster sampling design, we conducted intra-class correlation coefficient (ICC) to better interpret outcome. We calculated the ICC on the basis of the outcome of ANOVAs in SPSS 16.0 via the formula: $\rho = (MS_b - MS_w)/(MS_b + (k-1)\,MS_w)$, in which ρ = ICC; MS_b = mean between group variance, MS_w = mean within group variance, and k = mean observations per group. Statistical significance was defined as $p < 0.05$. Data entry and statistical analysis was performed using Statistical Package for the Social Science (SPSS) version 16.0.

Results

Demographics

The age of the respondents ranged from 18 to 89 years with a mean of 37 years (SD= 16.1). More than two-fifths (41%) were Brahmin/Chhetri, followed by Janajati (Gurung, Magar, Newar, Shrestha, Lama, Rai, and Tamang) (ethnic minority groups) (32%), Tharu (15%, an indigenous group to the southern plane of Nepal) and Dalit (11.8%, such as Bishwokarma, Sunar, Dhaulagiri, Nepali, Yogi, Pariyar, and Gandharya). Tharus were analyzed separately because it was the second largest group after Brahmin/Chhetri. Of the sample, a large majority (90%) was Hindu and close to one-fifth (21%) were illiterate. About half (49%) were farmers followed by housewives (15.4%), students (12.4%) and businessmen (8%) (See Table 1).

TABLE 1: Socio-demographic characteristics of the respondents (n=720)

	N	%
Sex		
Male	367	51.0
Female	353	49.0
Place of residence (District)		
Chitwan	240	33.3
Dang	240	33.3
Tanahu	240	33.3
Age		
Below 24	207	28.8
25 – 34	172	23.9
35 – 44	131	18.2
45 years and above	210	29.2
Caste/Ethnicity		
Brahmin/Chhetri	294	40.8
Tharu	110	15.3
Janajati (Gurung, Magar, Newar, Shrestha, Lama, Rai, and Tamang)	231	32.1
Dalit (Bishwokarma, Sunar, Dhaulagiri, Nepali, Yogi, Pariyar, and Gandharya)	85	11.8
Literacy status		
Literate	570	79.2
Illiterate	150	20.8
Marital status		
Unmarried	136	18.9
Currently married	539	74.9
Widow/widower/separated	45	6.9
Mother tongue		
Nepali	499	69.3

Tharu	100	13.9
Magar/Gurung	99	13.7
Other	22	3.1
Number of family members		
Less than five	169	23.4
5 – 7	361	50.2
8 and more	180	25.0
Not stated	10	1.4
Occupation		
Agriculture	352	48.9
House wife	111	15.4
Student	89	12.4
Business	57	7.9
Job/service	38	5.3
Unemployed	30	4.2
Others	43	6.0

In terms of exposure to traumatic events, it was found that 73% of the sample was exposed to people being killed 6 months prior to the survey, followed by people being physically hurt (70%), witnessed people being harassed (68%) and destruction of property (60%). About 38% of the sample reported that they were frequently exposed to bomb explosions and/or a cross firing in the 6-month period.

Table 2 presents the prevalence rates of depression, anxiety and PTSD in the sample. Of the sample, 27.5% were above the Nepali BDI cutoff for moderate severity of depression; 22.9% for moderate severity of anxiety, and 9.6% for PTSD. The prevalence rates vary based on sex, age, literacy status; place of residence, marital status and caste/ethnicity. Prevalence rates are highest among women, the oldest age group (aged 45 years or above), those who are illiterate, and those who are widow/widower or separated. Rates of psychopathology are highest in Dang district and lowest in Tanahu. There was a strong positive correlation between disability (assessed by WHODAS-II) and all outcome measures: anxiety ($r = 0.624$, $p<0.001$), depression ($r = 0.616$, $P<0.001$) and PTSD ($r = 0.499$, $p<0.001$). The intra-class correlation coefficient between districts ranges from 0.04 to 0.096 (PTSD 0.094, depression 0.096 and anxiety 0.042).

TABLE 2: Prevalence of mental health problems

Outcome measures	N	Anxiety (95%, CI)	Depression (95%, CI)	PTSD* (95%, CI)
Districts				
Dang	240	32.1 (26.3 – 38.4)	43.3 (37.0 – 49.9)	14.6 (10.9 – 19.8)
Tanahu	240	17.1 (12.6 – 22.6)	16.7 (12.3 – 22.1)	6.7 (3.9 – 10.8)
Chitwan	240	19.6 (14.9 – 25.3)	21.7 (16.7 – 27.5)	7.5 (4.6 – 11.8)
Sex				
Men	367	18.0 (14.3 – 22.4)	21.5 (17.5 – 26.2)	5.4 (3.5 – 8.4)
Women	353	28.0 (23.5 – 33.1)	33.1 (28.3 – 38.4)	13.9 (10.5 – 18.0)
Age				
Up to 24	207	12.6 (8.5 – 18.0)	18.8 (13.9 – 25.0)	7.7 (4.6 – 12.5)
25 – 44	303	20.5 (16.2 – 25.5)	25.1 (20.4 – 30.4)	9.2 (6.3 – 13.2)
45 – 59	124	36.3 (28.0 – 45.5)	37.9 (29.5 – 47.1)	8.9 (4.7 – 15.7)
60+	86	37.2 (27.2 – 48.4)	39.5 (29.3 – 50.7)	16.3 (9.5 – 26.2)
Literacy status				
Illiterate	150	41.3 (33.5 – 49.7)	44.0 (36.0 – 52.3)	14.0 (9.1 – 20.8)
Literate	570	18.1 (15.1 – 21.5)	23.3 (20.0 – 27.1)	8.4 (6.3 – 11.1)
Caste/Ethnicity				
Brahmin/Chhetri	294	21.8 (17.3 – 27.0)	26.5 (21.7 – 32.0)	10.9 (7.7 – 15.2)
Tharu	110	19.1 (12.5 – 27.9)	34.5 (25.9 – 44.3)	8.2 (4.1 – 15.4)
Janajati	231	19.5 (14.7 – 25.3)	19.0 (14.3 – 24.8)	6.1 (3.5 – 10.2)
Dalit	85	41.2 (30.3 – 52.4)	42.4 (31.9 – 53.5)	16.5 (9.6 – 26.4)
Marital status				
Never married	136	8.8 (4.8 – 15.2)	15.4 (10.0 – 22.9)	6.6 (3.3 – 12.6)
Currently married	539	24.9 (21.3 – 28.8)	28.0 (24.3 – 32.0)	9.5 (7.2 – 12.3)
Widow/widower / separated	45	42.2 (28.0 – 57.8)	53.3 (38.0 – 68.1)	20.0 (10.1 – 35.1)
Total	720	22.9 (20.0 – 26.2)	27.5 (24.3 – 31.0)	9.6 (7.6 – 12.0)

* PTSD Post- Traumatic Stress Disorder

About two-thirds of the sample did not have any psychopathology, whereas nearly 11% had moderate severity of depression and anxiety disorder. The percentages of the sample having only depression, only anxiety and only PTSD symptoms were 8.3%, 5.1% and 1.3% respectively. The proportion of the sample having high score in all three symptom domains was 1.7%.

Table 3 presents the odds ratios of risk factors for anxiety, depression and PTSD from multivariate logistic regression models. Four variables: being a female, older age, not having sufficient clothes and more perceived negative impact of the conflict in the community, were significantly associated with all three mental disorders. District of residence (Dang and Chitwan) was associated with higher levels of depression and anxiety symptoms, whereas more use of individual resources was predictive of increased levels of anxiety and PTSD symptoms. No access to medicines and widowed/separated were associated with depression only (Table 3).

TABLE 3: Variables associated with depression, anxiety and PTSD

	Likelihood of anxiety		Likelihood of depression		Likelihood of PTSD	
	Adjusted OR	**P value**	**Adjusted OR**	**P value**	**Adjusted OR**	**P value**
Sex						
Men	1	-	1		1	-
Women	2.30 (1.53 – 3.47)	<0.001	2.14 (1.45 – 3.17)	<0.001	3.32 (1.87 – 5.89)	<0.001
Age						
Per year increases	1.04 (1.03 – 1.05)	<0.001	1.02 (1.01 – 1.04)	0.001	1.02 (1.0 – 1.03)	0.036
Caste/ethnicity						
Brahmin/Chhetri	1	-				
Tharu	0.68 (0.36 – 1.29)	0.238	-		-	-
Janajati	1.42 (0.82 – 2.46)	0.218				
Dalit	2.62 (1.42 – 4.84)	0.002				
Marital status						
Widow/widower/separated			1			
Currently married	-		0.30 (0.11 – 0.82)	0.019	-	-
Single			0.41 (0.19 – 0.88)	0.022		

	Likelihood of anxiety		Likelihood of depression		Likelihood of PTSD	
	Adjusted OR	P value	Adjusted OR	P value	Adjusted OR	P value
Access to clothing						
Yes	1	-			1	-
No	3.28 (2.08 – 5.16)	<0.001	3.17 (2.03 – 4.96)	<0.001	4.13 (2.30 – 7.41)	<0.001
Access to Radio at home						
Yes	1	-				
No	2.24 (1.46 – 3.44)	<0.001	-		-	-
Access to medicine						
Yes	-		1			
No			1.98 (1.25 – 3.13)	0.004	-	-
Place of residence (District)						
Tanahu	1	-	1			
Dang	2.13 (1.21 – 3.73)	0.009	1.93 (1.16 – 3.22)	0.012	-	-
Chitwan	2.40 (1.31 – 4.38)	0.004	2.61 (1.58 – 4.31)	<0.001		
Perceived impact of conflict						
Per unit increase score on negative impact	1.05 (1.01 – 1.09)	0.013	1.1 (1.06 – 1.14)	<0.001	1.09 (1.04 – 1.14)	0.001
Use of individual coping mechanism						
Per unit increase on individual coping mechanism	1.11 (1.04 – 1.19)	0.001	-	-	1.13 (1.04 – 1.23)	0.004

* CI, 95% confidence intervals; PTSD = Post Traumatic Stress Disorder

Discussion

To the best of our knowledge, this is the first multi-site epidemiological study on mental health among the general population in rural post-conflict Nepal. It shows that the prevalence rates of depression in the sample are comparable to, or lower than, other studies conducted with refugees and populations affected by conflict, based on self-report questionnaires and probability sampling. Similarly, the rates of PTSD are relatively low compared to other studies (Steel et al 2009). Poorer mental health status was associated with being female, older age, being a widow/widower or being separated, being a Dalit (low- caste groups), residing in Dang and Chitwan districts, perceiving more negative impact of the conflict in the community and being of low socioeconomic status such as not having sufficient clothing, not having radio at home, and not having access to medicine.

Due to a lack of sufficient literature on mental health in Nepal, possibilities for comparison are limited (for example with data from before the conflict); yet, overall, the rates appear to be lower than from previous epidemiological studies conducted on specific populations. Prevalence rates of anxiety and depression in the sample were slightly lower than in a study with a community sample in Jumla, a western Himalayan district, which was conducted prior to conflict-related mortality in that area (Kohrt et al., 2009). The rates in our study were dramatically lower than that observed by Kohrt and colleagues after the war using the same instruments for depression, anxiety, and PTSD (Kohrt et al., 2012) and lower in persons internally displaced during the conflict (Thapa & Hauff, 2005), torture survivors in highly conflict- affected areas (Tol et al., 2007) and former child solders (Kohrt et al., 2008). The rate of depression found in this study was consistent with or lower than that of tortured Bhutanese refugees, although the anxiety rate among the refugees was higher (Shrestha et al., 1998; Van Ommeren et al., 2001). The prevalence of PTSD in the sample was relatively low in comparison with specific vulnerable populations in Nepal (Kohrt et al., 2009; Shrestha et al., 1998; Thapa & Hauff, 2005; Tol et al., 2007; Van Ommeren et al., 2001) and lower than the 14.1% community-level prevalence observed in north-western Nepal (Kohrt et al., 2012).

When we compare the findings with other conflict setting; the rate of depression and anxiety in this study are comparable or lower than those found in Sri Lanka (Somasundaram & Jamunanatha, 2002), Algeria and Cambodia (de Jong et al., 2003) and Afghanistan (Cardozo et al., 2004). However, the rates of depression and anxiety in our sample are higher than those in conflict affected- populations in Ethiopia and Palestine (de Jong et al., 2003). The rate of PTSD in the sample is low compared to other post conflict settings (Roberts et al., 2008; Somasundaram & Jamunanatha, 2002).

Generally, mental health problems are reported to vary widely among populations exposed to mass conflict and displacement. Both methodological and contextual factors are reported to be major contributing factors in the variability of prevalence across epidemiological study (Rodin & van Ommeren, 2009; Steel et al., 2009). The reason behind mostly lower rates of mental health problems in our sample can be explained by both contextual and methodological factors. Stigma and discrimination associated with some mental health problems are not uncommon in Nepal. Self–disclosure of traumatic events is stigmatized (Kohrt & Hruschka, 2010). Kohrt and Hruschka have shown that PTSD symptoms may be underreported because of the cultural connection between experiencing traumatic events and having bad *karma* (personally having done bad deeds in a former life or a family ancestor having done bad deeds, thus leading to negative consequences in this life). Therefore, disclosing that one has experienced a traumatic event is socially stigmatized, because it reflects badly on the person and his family. This may lead to minimization of traumatic event reporting or of the psychological sequelae of trauma (Kohrt & Hruschka, 2010). Moreover, Steel et al in their meta-analysis reported that non-probability sampling and small survey (sample size) yield higher prevalence rates (Steel et al., 2009). We have applied random sampling with a fairly large sample size which may have an effect on the level of significance of the rates of mental health outcomes.

A number of significant associations of independent variables were found with the outcomes of depression, anxiety and PTSD disorder after adjusting for the effects of demographic, exposure, and coping variables. The prevalence rates were higher in women, which is consistent with findings of other post- conflict epidemiological studies (Cardozo et al., 2004; Farhood & Dimassi, 2012; Murthy & Lakshminarayana, 2006; Roberts et al., 2008). Women were two to three times more likely than men to have anxiety, depression and PTSD. This is comparable to the gender difference in a study conducted in 2000 in rural Nepal that found women were 2.3 times more likely than men to endorse high symptom severity on the BAI (Kohrt & Worthman, 2009). There are various possible explanations for higher prevalence rates among women. Kohrt et al. (Kohrt & Worthman, 2009) reported that women were at higher risk due to the experience of domestic violence and other stressful events related to their intimate partners. In addition, the qualitative study conducted prior to this study also documented how women suffered more during the conflict. During the conflict, the situation was not favorable for men to stay at home; many men either became involved in outside activities or migrated to India or other countries for work. Women reported that both security personnel and Maoists frequently asked them about the status of male members in the household. Females were also threatened with death if they did not give accurate information about male household members who were not at home. Females were forced to cook food for Maoists at night but the security personnel would come next day and threaten them, asking why they cooked food for

Maoists (Human Rights Watch, 2004). Finally, a study has also demonstrated that suicide was the first leading cause of death among women in the reproductive age in Nepal (MOHP, 2009).

Other variables associated with poorer mental health outcomes were older age, lower/marginalized caste, being a widow/widower or separated, not having sufficient clothing, not having access to medicine and not having radio at home. Except older age, all these variables are linked with poverty, which may have influence for reporting relatively higher mental health problems (Rodin & van Ommeren, 2009). The finding of this study is also consistent with other studies in non-conflict setting where poverty was associated with worse mental health (Myer, Stein, Grimsrud, Seedat, & Williams, 2008). The qualitative exploratory study found that, during the conflict, Dalit (low caste groups) were victimized by the government more than other castes/ethnic groups because government forces assumed that people of these classes were mostly Maoist. Likewise, Kohrt and colleagues also found worse mental health among Dalit groups compared with upper caste Brahmin/Chhetri groups in Jumla district (Kohrt, 2009). Regarding the place of residence, respondents from Dang and Chitwan districts demonstrated more problems. This is not surprising because the impact of the conflict in these two districts was much greater than in Tanahu (INSEC, 2011).

Individuals who perceived a negative impact of the conflict on their communities had worse mental health than those who thought that conflict had a positive impact, which may indicate actual events, political opinion, or a demoralized stance that may affect mental well-being. There is evidence to assume that negative views of the conflict are associated with poorer mental health (Kohrt et al., 2008); however, a reverse causality can also be argued such that poorer mental health results in a more demoralized stance towards politics or the conflict. Unexpectedly, we found a positive association between poor mental health and use of resources and support system (i.e. use of more coping strategies was associated with worse mental health). This may be explained by individuals with increased mental health complaints using more coping strategies, but that these coping strategies do not effectively decrease mental health complaints. A previous relation with Nepali speaking Bhutanese refugees was found in support of this possible explanation (Emmelkamp, Komproe, Van Ommeren, & Schagen, 2002).

Unexpectedly, this study found no association between recent traumatic events and level of PTSD symptoms, which contrasts with other studies (Cardozo et al., 2004; de Jong et al., 2003; Roberts et al., 2008). There are possible explanations regarding the lack of association between exposure to trauma and mental health outcomes, especially PTSD, in our sample. We only asked about respondents' level of exposure to traumatic events for 6 months preceding the survey, therefore we did not have information about exposures during the war itself. Second, the study was conducted 1 year after the signing of the comprehensive peace accord; hence the trauma memory may have changed over time which was also found in a Bosnian refugee population (Eytan, Guthmiller, Durieux-Paillard, Loutan, & Gex-Fabry, 2011; Mollica, Caridad, & Massagli, 2007). Third, the level of exposure to traumatic events was also very low; only few respondents reported being directly exposed to traumatic events, but most of them reported that they had either heard about or seen such events on television.

There are limitations in this study. First, it was conducted in three districts representing three development regions; due to the diverse ethnic and cultural composition of Nepal, however, the results of the study might not be representative of the whole country. Second, specific idioms of distress associated with mental health problems were not assessed in this study. Third, this study was conducted a year after the formal peace agreement between the government and the Maoists, even though, many people were still frightened and so they may not have openly shared their experiences. Fourth, the study relied on self-reports, which has been shown to predict inflated rates of mental health problems in a recent meta-analysis (Steel et al., 2009). Fifth, there was a possibility that people felt inhibited to share negative effects of armed conflict. However, this is the first study of the general population conducted by using both validated and locally constructed instruments and the sample size represents diverse regions and ethnic groups of Nepal. Finally, the test-re-test reliability of the instruments was conducted only with 25 respondents.

Conclusion

In summary, this is the first epidemiological study on mental health with a large community sample in Nepal. It provides prevalence rates of mental health problems and associated risk and protective factors in rural communities. The prevalence rates of mental disorders are high especially among women, elderly, widows/widowers or people who are separated from their partner. Dalit (low caste groups), those residing in Dang and Chitwan districts and those who perceived a negative impact of the conflict in the community were also more vulnerable to the development of mental health problems. The prevalence rates of depression and anxiety in the sample are high compared to epidemiological studies in high-income settings and comparable to, or lower than, the prevalence rates found in other conflict- affected settings. Still, the presented problems among the study population raises concern for the provision of immediate mental health care, because there is no provision of formal mental health system in rural Nepal, with suicide already identified as one of the leading causes of death among women in the reproductive age in Nepal. Therefore, first, capacity building and training program should be conducted in collaboration with private sectors or NGOs/INGOs to overcome the current chronic scarcity of trained human resources, especially in the rural areas. Second, immediate action should be taken to incorporate mental health services into the existing public health- care system. Third, an awareness program should be conducted to increase the current low public knowledge and awareness on mental health and to minimize stigma and discrimination associated with mental health. Finally, more attention should be given to the most vulnerable groups such as women, older age, and widow/widower or separated, low caste groups and those residing Dang and Chitwan districts.

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CHAPTER-THREE

Prevalence and correlates of depression and alcohol use disorder among the adults attending primary health care services in Nepal

This chapter is based on Nagendra P. Luitel, Emily C. Baron, Brandon A. Kohrt, Ivan H. Komproe & Mark J.D. Jordans (2018). Prevalence and correlates of depression and alcohol use disorder among adults attending primary health care services in Nepal: a cross sectional study.

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Abstract

Background: Although depression and alcohol use disorder (AUD) are expected to be common among patients presenting to primary health care setting, there is limited research on prevalence of depression and AUD among people attending primary health care services in low-income countries. The aim of this study was to assess the prevalence of depression and AUD among adults attending primary care facilities in Nepal and explore factors associated with depression and AUD.

Methods: We conducted a population-based cross-sectional health facility survey with 1474 adults attending 10 primary healthcare facilities in Chitwan district, Nepal. The prevalence of depression and AUD was assessed with validated Nepali versions of the Patient Health Questionnaire (PHQ-9) and Alcohol Use Disorder Identification Test (AUDIT).

Results: 16.8% of the study sample (females 19.6% and males 11.3%) met the threshold for depression and 7.3% (males 19.8% and females 1.1%) for AUD. The rates of depression were higher among females (RR=1.48, P=0.009), whereas rates of AUD were lower among females (RR= 0.49, P=0.000). Rates of depression and AUD varied based on education, caste/ethnicity, occupations and family income.

Conclusions: In Nepal, one out of five women attending primary care services have depression and one out of five men have AUD. Primary care settings, therefore, are an important setting for detection and treatment initiation for these conditions. Given that "other" occupation is at increased risk for both conditions, it will be important to assure that treatments are feasible and effective for this high risk group.

Key words: Depression, Alcohol Use Disorder, Primary Health Care, Nepal

Introduction

Mental, neurological and substance use (MNS) disorders are one of the leading causes of disability worldwide (Whiteford et al., 2013), contributing to 14% of the global burden of disease (Prince et al., 2007) . The magnitude of depression and alcohol use disorder varies across different regions and age groups; however, depression and AUD have been reported to be the second and third leading cause of years lived with disability (Ferrari et al., 2013; Lim et al., 2012; Vos et al., 2012). The recent World Health Survey conducted with 245,404 adults from 60 countries reported a 3.2% ICD-10 prevalence of depression (Moussavi et al., 2007). The prevalence rates of depression were reported to be higher in low and middle income countries (LMICs) such as 5.5% in Nigeria (Adewuya et al., 2018), 17.5% in Ethiopia (Molla et al., 2016), 10.3% in Malaysia (Kader Maideen, Sidik, Rampal, & Mukhtar, 2014), 45.9% in Pakistan (Muhammad Gadit & Mugford, 2007); 15.1% in India (Poongothai, Pradeepa, Ganesan, & Mohan, 2009) and 17.4% in Uganda (Ovuga, Boardman, & Wasserman, 2005). Similarly, AUDs are amongst the most prevalent mental disorders worldwide (Cargiulo, 2007). For example, the reported prevalence rates for AUD were 9% in Colombia (Rincon-Hoyos, Castillo, & Prada, 2016), 18.4% in Brazil (Reisdorfer, Buchele, Pires, & Boing, 2012), 6.7% in Thailand (Katulanda et al., 2014) and 8.5% in India (Sau, 2017). The prevalence of mental disorders can be even higher among people attending primary health care facilities (Ansseau et al., 2004; Roca et al., 2009); however, a large variation has been found in the reported rates of depression (4.5% to 47.8%) and AUD (8.2% to 28.7%) among primary care attendees (D'Costa et al., 2007; Kullgren, Alibusa, & Birabwa-Oketcho, 2009; Manthey, Probst, Hanschmidt, & Rehm, 2015; Obadeji et al., 2015; Senarath, Wickramage, & Peiris, 2014; Sujiv et al., 2015; Udedi, 2014). Despite the high burden of depression and AUD, it is reported that more than half (56%) of people with depression (De Silva et al., 2014; Kohn, Saxena, Levav, & Saraceno, 2004; Lora et al., 2012; Patel et al., 2010) and 78% persons with alcohol abuse and dependence (Kohn et al., 2004) have not received care.

In Nepal, few studies have been conducted to estimate prevalence of depression and alcohol use disorder. Available data show a large variation in reported rates of depression (ranging from 6% to 81%) (Kohrt et al., 2012; Luitel, Jordans, Sapkota, et al., 2013; Tol et al., 2010) and alcohol use disorder (ranging from 1.5% to 25%) (Jhingan, Shyangwa, Sharma, Prasad, & Khandelwal, 2003; Luitel, Jordans, Murphy, Roberts, & McCambridge, 2013; WHO, 2014), however these studies have been conducted with high risk groups (e.g., torture survivors and refugees) or in communities immediately post-conflict. Recent prevalence studies reported the rates of depression (11.7% and 27.5%) and AUD (5%) in the community sample (Luitel, Jordans, Kohrt, Rathod, & Komproe, 2017; Risal, Manandhar, Linde, Steiner, & Holen, 2016).

In clinics treating diabetes and hypertension, two out of five patients scored above locally validated thresholds for depression (Neupane et al., 2015; Niraula et al., 2013). As depression and alcohol use disorders are often associated with physical health problems in Nepal (Kohrt et al., 2005) , there is a possibility that a significant proportion of the patients attending primary health care facilities may have depression and/or alcohol use disorder in Nepal. However, no systematic studies have been conducted yet to estimate prevalence of depression and alcohol use disorder among people attending primary care in Nepal.

In Nepal, there is scarcity of population-wide mental health services. Across the country, there are about 440 in-patient beds allocated for mental illness, which accounts to 1.5 beds per 100,000 people. Specialized mental health services are limited to few hospitals located in the large cities with 0.22 psychiatrists and 0.06 psychologists per 100,000 people. Community mental health has only been initiated by non-governmental organizations; however, these services are limited and constrained by issues such as lack of regular supply of medicines and supervision (Luitel et al., 2015).

Evidence has acquired that mental health treatment can be provided in primary and community health care settings by trained health workers using the task sharing approach (Benegal, Chand, & Obot, 2009; Linde et al., 2015; Patel, Simon, Chowdhary, Kaaya, & Araya, 2009). However, feasibility of detection and initiation of evidence based treatment in primary care have not been widely studied (Lund et al., 2012). This study was conducted as a part of PRIME (PRogramme for Improving Mental health carE) research program consortium which aims to generate evidence on implementation and scale-up of mental health treatment in primary and maternal health care contexts in low resource settings (Lund et al., 2012). The purpose of this study was to estimate the target population and demographic risk factors of the affected population in order to most effectively design and deliver interventions that will reach the populations most in need (De Silva et al., 2016; Jordans, Luitel, Pokhrel, & Patel, 2016) . This article presents the prevalence of depression and AUD and risk factors for these conditions among adults attending primary health care facilities in southern Nepal.

Methods

Setting

Nepal is one of the poorest countries in South-Asia and has a total population of approximately 26.4 million with 69.1 years life expectancy at birth. The United Nations ranks Nepal 145th out of the world's 188 countries on the Human Development Index (HDI) (United Nations

Development, 2015). Primary health care services in Nepal are provided at the district level through sub-health posts (SHPs), health posts (HPs) and primary health care centers (PHCCs). Sub-health posts are the first institutional contact point for basic health services in the community. Sub-health posts provide essential health care packages and also monitor the activities of female community health volunteers (FCHVs) as well as community-based activities through PHC outreach clinics. Health posts (HP) are the next tier of the health care system and they offer the same package of essential health care services as SHPs, with the additional services of birthing centers. Health posts also monitor the activities of SHPs. SHPs and HPs are staffed by health assistants (HA), auxiliary health workers (AHW), auxiliary nurse mid-wife (ANM) and maternal and child health workers (MCHW). The third tier of health care system is primary health care centers (PHCCs). The services delivered within PHCCs are general medical care, family planning, maternal and child health, basic laboratory investigations and provision of basic health care services that are available in the SHPs and HPs. PHCCs are staffed by medical officer, HAs, AHWs, ANMs and MCHWs (Luitel et al., 2015). This study was conducted in Chitwan, a southern district in Nepal. The total population of Chitwan is 579,984 (male 279,087 and female 300,897) with about 132,462 households. There are 41 health facilities (2 hospitals, 3 primary health care centers and 36 health posts/sub-health posts) in the Chitwan district. This study was conducted in 10 primary health care facilities (9 health posts/sub-health posts and one primary health care center) in order to most effectively design and deliver the PRIME interventions. Data were collected between September 2013 and February 2014.

Study design

This study was a population-based cross-sectional health facility survey conducted before implementation of the district Mental Health Care Plan (MHCP).

Sample size and sampling

The total sample of the study was 1474 adults who attended the 10 primary healthcare clinics. The sample size was determined to allow detection of change in diagnosis of depression and AUD in the primary care clinics between the baseline and subsequent follow up studies, with 80% statistical power and two-sided alpha of 0.05. The expected increases in the detection rate of depression and AUD were 0 to 1% at the baseline to between 20 to 25% in the end-line. The calculated sample size was allocated to the 10 primary healthcare clinics based on the clients' flow in each clinic in the past 3 months preceding the survey. We invited any eligible person attending the health facility for the study. When there was more than one person attending simultaneously, we randomly selected one person. For this purpose, first, the field workers prepared a list of all eligible participants when entering the clinic. Second, a member of the group drew a name randomly from the list by using a piece of paper. Finally, field workers conducted the interview with the selected participant while waiting for services. As the client flow was very low in most of the health facilities i.e. most of the time only one participant visited clinics at any given time, in most of the cases we recruited participants individually and randomization was not needed. The inclusion criteria for participation in the study included age of 18 years or above, fluency in Nepali language, time and availability to complete full survey which was administered orally by research assistants to the respondents, and willingness to provide informed consent. Exclusion criteria were incapability to provide informed consent, currently experiencing an acute medical issue. Of the total invited participants, 58 participants did not agree to participate or dropped out from the interviews.

Data collection

The interviewers were 12 Nepali speaking research assistants who had completed at least an undergraduate degree. The research assistants received one-month training covering the topics of interviewing skills, rapport building, informed consent, ethical consideration, inclusion/exclusion criteria, content of the questionnaire, as well as field testing. Android tablets with a questionnaire application were used for data collection (Mobenzi, 2017). Interviews were conducted in separate rooms within the health facilities or in the ground within the primary health care facilities. Data collection was done in two parts: before the consultation with PHC workers (screening and treatment history) and post consultation to assess if diagnosis of depression or AUD was provided or not.

Instruments

We assessed depression, Alcohol Use Disorder (AUD) and treatment history for both depression and AUD. Details of the instruments have been presented elsewhere; in this section we have described the tools which are related to this paper.

Patient health questionnaire (PHQ9): The PHQ9 is a self-report screening tool designated for use in various medical settings. PHQ9 has been widely used and validated in primary care, medical outpatients, and specialist medical services (Gilbody, Richards, Brealey, & Hewitt, 2007). It has 9-items and the respondents were asked to score nine common symptoms of depression in the past 2 weeks. It has a 4-points rating scale from 0 'not at all' to 3 'always'. The PHQ9 has been translated and validated in a primary care population in Chitwan, Nepal: the validated cutoff score of ≥10 (sensitivity =0.94, specificity = 0.80, positive predictive value (PPV) = 0.42, negative predictive value (NPV) = 0.99, positive likelihood ratio = 4.62 and negative likelihood ratio = 0.07) has been recommended for moderate to severe depression symptom (Kohrt, Luitel, Acharya, & Jordans, 2016). After completing the PHQ9, each participant was also asked an additional question to assess depressive episodes in the past 12-month period.

Alcohol use disorder identification test (AUDIT): the AUDIT was developed by the World Health Organization (WHO) as a screening tool for alcohol use disorder in primary health care (Saunders, Aasland, Amundsen, & Grant, 1993). The AUDIT has been validated in Nepal using DSM-IV diagnostic categories (alcohol use and alcohol dependence) as the gold standard to calculate the diagnostic parameters of the AUDIT, and a cutoff score of ≥9 has been recommended for alcohol dependence or alcohol abuse for both males (sensitivity 96.7, specificity 91.7, PPV 90.3 and NPV 97.2) and females (sensitivity 94.3, specificity 91.4, PPV 80.1 and NPV 97.8) (Pradhan et al., 2012) .

Data Analysis

Descriptive statistics were used to report on the demographic characteristics of the sample. We presented age, sex, education, caste/ethnicity, occupation, marital status, religion and number of family members in the household. Second, we presented percentages of the participants who met thresholds for depression and AUD. Finally, we analyzed association of depression and AUD with socio-demographic variables, and presented risk ratio (RR), 95% confidence interval (CI) and P value by using a Generalized Liner Model (GLM). We conducted the analysis using Stata version 13.0 (StataCorp, 2013). If a participant was screened positive for both depression and AUD, then that participant was counted as positive for both disorders.

Results

A total of 1474 adults were screened for depression and AUD. Table 1 provides descriptive statistics of socio-demographic characteristics of the study participants. About two-third (65.8%) of the participants were females; the age of the respondents ranged from 18 years to 83 years with a mean of 39.4 years. One in every six participants (15.9%) was illiterate; a large majority was married (84.5%) and Hindus (84.7%). About a half of the sample was from Brahmin/Chhetri caste, followed by Dalit (23.7%) and Janajati (22.2%).

Of the total, 39.9% (males 70.8% and females 23.8%) reported that they consumed alcohol sometimes in their life whereas this percentage was 29.6% (males 55.8% and females 16%) for the past 12 months. Of the total, 16.8% met the threshold for depression and 7.3% for AUD. Percentages of positive screens for depression were higher for females (19.6%) than males (11.3%). On the other hand, the percentage of AUD was higher among males (19.8%) than females (1.1%) (Table 1).

TABLE 1: Percentages met threshold for depression and AUD

	Socio-demographic characteristics of the sample		Percentages met threshold	
	N	%	Depression % (N)	Alcohol Use Disorder % (N)
Sex				
Male	504	34.2	11.3 (57)	19.8 (100)
Female	970	65.8	19.6 (190)	1.1 (11)
Age				
Up to 24	250	17.0	10.8 (27)	4.4 (11)
25-59	1034	70.1	17.2 (178)	7.6 (79)
60 and above	190	12.9	22.1 (42)	11.1 (21)
Education				
Not schooling	235	15.9	36.6 (86)	9.4 (22)
Literate/less than primary	295	20.0	21.1 (62)	6.4 (19)
Primary	312	21.2	11.2 (35)	9.9 (31)
Secondary	546	37.1	10.6 (58)	6.8 (37)
College /University	86	5.8	7.0 (6)	2.3 (2)
Marital status				
Single	126	8.5	10.3 (13)	7.1 (9)
Married	1245	84.5	15.9 (198)	7.3 (91)
Others (widow/ divorced/separated)	103	7.0	34.9 (36)	10.8 (11)
Caste/Ethnicity				
Brahmin/Chhetri	723	49.0	14.4 (104)	3.6 (26)
Janajati	327	22.2	14.1 (46)	11.6 (38)
Dalit	349	23.7	24.6 (86)	12.6 (43)
Others	75	5.1	14.7 (11)	5.3 (4)

Religion				
Hindu	1249	84.7	17.6 (218)	6.5 (81)
Buddhist	179	12.2	12.3 (22)	16.2 (29)
Others	46	3.1	15.2 (7)	2.2 (1)
Occupation				
Agriculture	906	61.5	17.0 (154)	6.3 (57)
Service/Business	150	10.2	11.3 (17)	10.0 (15)
Unemployed	307	20.8	13.7 (42)	3.9 (12)
Others	111	7.5	30.6 (34)	24.3 (27)
Number of family members				
1-4	575	39.0	18.1 (104)	6.6 (38)
5-7	685	46.5	15.9 (109)	7.2 (49)
More than 7 people	214	14.5	15.9 (34)	11.2 (24)
Family income sufficient to manage foods for the period of				
Up to six months	122	8.3	36.1 (44)	9.8 (12)
6-9 months	248	16.8	22.6 (56)	8.1 (20)
9-12 months or more	1104	74.9	13.3 (147)	7.2 (79)
Total	1474	-	16.8 (247)	7.5 (111)

Table 2 presents the risk ratios for depression and AUD from a Generalized Liner Model (GLM). The rates of positive screens for depression and AUD varied based on sex, education, caste/ethnicity, occupation, religion and family income. Results show that females, having no or low level of education, "other" occupations and people with insufficient family income for foods had significantly higher risk of developing depression. By contrast, males, Dalit caste, Buddhists, and participants reporting "other" occupations had significantly higher risk for having AUD.

TABLE 2: Variables associated with depression and AUD

		Likelihood of Depression		Likelihood of AUD	
Variables	**N**	**Adjusted RR (95% CI)**	**P value**	**Adjusted RR (95% CI)**	**P value**
Sex					
Male (Ref)	504	1	-	1	-
Female	970	1.48 (1.11 – 1.99)	0.009	0.49 (0.26 – 0.91)	0.000
Age					
Up to 24 (Ref)	250	1	-	1	-
25-59	1034	1.13 (0.71 – 1.78)	0.605	1.84 (0.72 – 3.72)	0.205
60 and above	190	1.05 (0.61 – 1.82)	0.858	1.19 (0.42 – 3.38)	0.747
Education					
Not schooling (Ref)	235	1	-	1	-
Literate/less than primary	295	0.62 (0.46 – 0.82)	0.001	0.70 (0.41 – 1.19)	0.186
Primary	312	0.36 (0.25 – 0.53)	0.000	0.63 (0.38 – 1.04)	0.069
Secondary	546	0.39 (0.27– 0.55)	0.000	0.48 (0.28 – 0.82)	0.007
College /University	86	0.28 (0.12– 0.66)	0.004	0.27 (0.07 – 1.11)	0.069
Marital status					
Single (Ref)	126	1	-	1	-
Married	1245	0.87 (0.46 – 1.64)	0.666	1.14 (0.41 – 3.18)	0.807
Others (widow/ divorced/separated)	103	1.22 (0.58 – 2.53)	0.600	1.39 (0.43 – 4.51)	0.586
Caste/Ethnicity					
Brahmin/Chhetri (Ref)	723	1	-	1	-
Janajati	327	0.98 (0.67 – 1.41)	0.896	1.77 (0.93 – 3.35)	0.080
Dalit	349	1.22 (0.93 – 1.61)	0.147	2.99 (1.82 – 4.91)	0.000
Others	75	0.85 (0.49 – 1.49)	0.571	1.04 (0.37 – 2.91)	0.937
Religion					
Hindu (Ref)	1249	1	-	1	-

Buddhist	179	0.78 (0.48 – 1.26)	0.307	2.08 (1.20 – 3.61)	0.009
Others	46	0.68 (0.37 – 1.27)	0.231	0.24 (0.04 – 1.44)	0.119
Occupation					
Agriculture (Ref)	906	1	-	1	-
Service/Business	150	1.00 (0.63 – 1.58)	0.994	1.22 (0.72 – 2.06)	0.454
Unemployed	111	1.01 (0.73 – 1.41)	0.930	1.50 (0.79 – 2.87)	0.218
Others	307	1.72 (1.22 – 2.41)	0.002	2.11 (1.37 – 3.24)	0.001
Number of family members					
1-4 (Ref)	575	1	-	1	-
5-7	685	0.88 (0.69 – 1.12)	0.311	1.07 (0.73 – 1.56)	0.727
More than 7 people	214	0.92 (0.57 – 1.30)	0.637	1.29 (0.85 – 1.96)	0.238
Family income sufficient to manage foods for the period of					
Up to Six months (Ref)	122	1	-	1	-
6-9 months	248	0.88 (0.62 – 1.25)	0.474	1.25 (0.69 – 2.28)	0.467
9-12 months or more	1104	0.60 (0.44– 0.83)	0.001	1.23 (0.55 – 2.14)	0.458

Discussion

The results indicated that one in every 6 people (16.8%) attending primary health care services in Chitwan district had depression and one in every 14 (7.5%) had AUD. When evaluating by gender, one out of five women (19.6%) had depression and one out of five (19.8%) men had AUD. As can be among a population of health care attendees, these rates are higher than the prevalence rates reported in the community survey (depression =11.2% and AUD =5%) in Chitwan (Luitel et al., 2017). However, these rates are lower than the rates found among the population affected by conflict in Chitwan, Tanahu and Dang (Luitel, Jordans, Sapkota, et al., 2013) , Jumla (Kohrt et al., 2012), among Bhutanese refugees (Luitel, Jordans, Murphy, et al., 2013), earthquake affected populations (Kane et al., 2017) and persons seeking specialty care for non-communicable diseases such as hypertension (Neupane et al., 2015) and diabetes (Niraula et al., 2013).

We found significant association between a number of socio-demographic variables with both depression or AUD. Females have a 1.5 greater risk of depression compared to males, which is consistent with previous studies in Nepal (Kohrt et al., 2009; Luitel, Jordans, Sapkota, et al., 2013; Rathod et al., 2016; Thapa & Hauff, 2005; Tol et al., 2010) and other LMICs (Cardozo et al., 2004; Murthy & Lakshminarayana, 2006; Roberts, Ocaka, Browne, Oyok, & Sondorp, 2008). On the other hand, females were less likely to have AUD than males, again consistent with the study conducted among the general population in Chitwan (Rathod et al., 2016), Bhutanese refugees (Luitel, Jordans, Murphy, et al., 2013), people living in the squatter settlements of Kathmandu Valley (Thapa & Mishra, 2016), the population affected by the earthquake (Kane et al., 2017), and other LMICs (Al-Otaibi et al., 2007; Pothen, Kuruvilla, Philip, Joseph, & Jacob, 2003; Udedi, 2014). Traditionally, females in Nepal drink less than males; therefore, males have higher risk for alcohol use disorder (Aryal KK et al., 2013; Luitel, Jordans, Murphy, et al., 2013). Similarly, Dalit castes have greater risk for AUD than Brahmin/Chhetri, which could be due to the fact that, historically, Brahmin/Chhetri castes do not drink alcohol, as opposed to Janajati and Dalit caste, for which drinking alcohol is culturally acceptable (Dhital R, Subedi G, Gurung YB, & Hamal P, 2001). Moreover, people having any level of education have lower risk for depression compared to those with no education; however, only those with secondary level of education have lower risk for AUD compared to those with no education. In addition to this, the reason for a lack of association between college/university level of education and AUD could be the fact that only a few participants with AUD (N=2) have college/university level of education. Finally, participants reporting "other" occupations and those with insufficient family income to manage foods for more than six months in a year have greater risk for depression. Our finding regarding greater risk of depression among occupational groups is also consistent with our prior studies using community samples (Kohrt et al., 2009; Luitel, Jordans, Sapkota, et al., 2013).

This study found no association between depression and age of the participants which contrasts with previous studies (Kohrt et al., 2012; Luitel, Jordans, Sapkota, et al., 2013), where older age was significantly associated with depression. This is likely due to the fact that community based studies likely include healthier young/middle-age adults, whereas young/middle-age adults in primary care are biased toward those with physical health problems. Multivariate analysis also suggests no association between marital status and depression which also contrasts with the findings of previous studies (Kohrt et al., 2012; Luitel, Jordans, Sapkota, et al., 2013), where widows/widower/separated had greater risk for depression than their married and single counterparts. This may also be due to confounding factors related to who is more likely to seek primary care services, i.e., older adults with greater burdens of physical health problems.

The findings of this study may have several implications; especially for making sure that mental health services are accessible to those who have greater risk for depression or AUD. First, the study has provided an indication on the prevalence of depression and AUD among people attending primary health care clinics. As a significant proportion of the patients attending primary care reported depression or AUD; this could be useful for policy makers and mental health professionals to estimate the amount of human resources and time needed to dedicate depression/AUD care in the primary health care clinics. Moreover, the results of this study could be also useful to estimate drugs needed for depression and AUD treatment. Second, one out of five women attending primary care services have reported depression and one out of five men have AUD; the existing human resources may be inadequate to address this; therefore, placing midlevel mental health workers at the health facility could be transformative in addressing this burden of mental health problems. The district mental health care plan (MHCP) which was developed, implemented and evaluated in Chitwan (Jordans et al., 2016) has put in place the community counselors as mid-level health workers to provide focus psychosocial counseling, especially the Healthy Activity Program (HAP) and Counseling for Alcohol Problems (CAP). Moreover, a trial evaluating the added value of community counselors for providing mental health treatments is underway. Third, previous study indicated that only 1.3% people with AUD and 1.8% with depression receive treatment from primary health care facilities in Chitwan (Luitel et al., 2017) ; the PHQ-9 and AUDIT could be feasibly administered in the routine health system to improve detection of depression and AUD. However, considering the limited number of existing health care workers, universal screening may not be feasible in Nepal. The PHQ-9 validation in primary care settings in Nepal included a 2-part tiered algorithm that first screens for a local idiom "heart-mind problems" associated with functional impairment, then is followed by the full PHQ-9 for those who screen positive. We have found that with an algorithm comprising of two screening questions (i.e. presence of heart-mind problems and function impairment due to heart-mind problems) to determine who should receive the full PHQ-9, the number of patients requiring administration of the PHQ-9 could be reduced by 50%, PHQ-9 false positives would be reduced by 18%, and 88% of patients with depression would be correctly identified (Kohrt et al., 2016). Therefore, the heart-mind problems screener could be an effective strategy to detect people with depression in the routine health care system along with PHQ9.

Fourth, the results indicated a significant association between depression and AUD and socio-demographic characteristics of the participants. Future intervention, especially awareness and sensitization program should be targeted to those sub-populations who are more at risk for having depression and AUD. Finally, due to labor/education migration, a large number of males are outside of the country and the females' population is pre-dominantly high in most part of the country. In Nepal, generally females are engaged in the household level activities such as cooking, taking care of children and looking after cattle; therefore, it is often challenging for females to travel to another district for treatment of their mental health conditions. Further, the prevalence of depression is also very high among females; therefore, integration of mental health services into the primary health care system could be an appropriate strategy to make sure that mental health services are accessible to those having problems with travel for seeking health care.

Several limitations should be considered in interpreting the results. First, the study sites were chosen for implementation and evaluation of PRIME mental health care plan, and were not intended to represent a specific cultural context or geographical territory in Nepal. Second, we relied on self-reports which has been shown to predict inflated rates of mental health problems (Steel et al., 2009). The PHQ-9 has a false positive rate of approximately 4-6 false positive depression cases per 10 primary care patients identified with PHQ-9 scores above cut-offs (Manea, Gilbody, & McMillan, 2012; Mitchell & Coyne, 2007). In Nepal, the false positive rate with the PHQ-9 is also approximately 6 false positives per 10 patients screening positive for depression (Kohrt et al., 2016), with a fewer than one per hundred false negatives. This also points towards the need to minimize the risk of false positives in clinical programs, such as through the use of tiered algorithms and appropriate clinical supervision. Third, cultural factors might have influenced AUDIT scores. For example, women or high caste people are not socially sanctioned to drink; they might have underreported their drinking. Fourth, we included adults (age 18 years or above) only in the study so it does not provide any information about children/adolescents' mental health; nevertheless, they are the key population receiving services from primary health care clinics in Nepal. Fifth, there was significantly high proportion of female participant in the sample. The large proportion of the female sample in the study could be explained by a high out-migration (mainly to Gulf countries) of male populations in the area of study. If we look at the out-migration trend in Nepal over the census period, of the total population, the 1991 census recorded an absent population of 3.4% (658,290, of which 83.2% were male and 16.8% were female); the 2001 census recorded an absent population of 3.2% (762,181, of which 89.2% were male and 10.8% were female) and the 2011 census recorded an absent population of 7.3% (1,921,494, of which 87.6% were male and 12.4% were female) (Central Bureau of Statistics, 2014). Finally, the specialists' mental health services are available in both district hospital and private hospitals; therefore, the prevalence of depression and alcohol use disorder could be even higher in other districts where the availability of mental health services is more limited than in Chitwan.

Conclusion

This study shows that depression (16.8%) and alcohol use disorders (7.3%) are common among adults attending primary health care services in Nepal. The rates found in this study are higher than the prevalence rates reported in the community sample in the same population. Very few people (1.3% people with AUD and 1.8% with depression) receive treatment from primary health care facilities in Chitwan (Luitel et al., 2017). Detection and treatment of people with mental health problems in primary health care clinics has been recommended as one of the effective strategies to minimize treatment gap; therefore, we argue for the importance of mental health training to primary health care workers in detection and initiation of evidence based treatment in primary health care settings. In Nepal, the existing human resources in primary care may be inadequate to address high burden of mental health problems; therefore, placing midlevel mental health workers at the health facility could be transformative in addressing this burden.

Ethics approval and consent to participate

Written and oral information was provided to each of the study participants about the objectives and process of the study. Participants provided a signature to confirm their participation. The study protocol was approved by Nepal Health Research Council (NHRC). Patients with severe depression, AUD and suicidality were referred to psychiatric department in the district hospital for service.

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SECTION-THREE

Situation of mental healthcare in Nepal

CHAPTER-FOUR

Treatment gap and barriers for mental healthcare: a cross-sectional community survey in Nepal

This chapter is based on Nagendra P Luitel, Mark J.D. Jordans, Brandon A. Kohrt, Sujit D. Rathod, Ivan H. Komproe (2017). Treatment gap and barriers for mental health care: a cross-sectional community survey in Nepal.

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Abstract

Context: There is limited research on the gap between the burden of mental disorders and treatment use in low- and middle-income countries.

Objectives: The aim of this study was to assess the treatment gap among adults with depressive disorder (DD) and alcohol use disorder (AUD) and to examine possible barriers to initiation and continuation of mental health treatment in Nepal.

Methods: A three-stage sampling technique was used in the study to select 1,983 adults from 10 Village Development Committees (VDCs) of Chitwan district. Presence of DD and AUD were identified with validated versions of the Patient Health Questionnaire (PHQ-9) and Alcohol Use Disorder Identification Test (AUDIT). Barriers to care were assessed with the Barriers to Access to Care Evaluation (BACE).

Results: In this sample, 11.2% (N=228) and 5.0% (N=96) screened positive for DD and AUD respectively. Among those scoring above clinical cut-off thresholds, few had received treatment from any providers; 8.1% for DD and 5.1% for AUD in the past 12 months, and only 1.8% (DD) and 1.3% (AUD) sought treatment from primary health care facilities. The major reported barriers to treatment were lacking financial means to afford care, fear of being perceived as "weak" for having mental health problems, fear of being perceived as "crazy" and being too unwell to ask for help. Barriers to care did not differ based on demographic characteristics such as age, sex, marital status, education, or caste/ethnicity.

Conclusions: With more than 90% of the respondents with DD or AUD not participating in treatment, it is crucial to identify avenues to promote help-seeking and uptake of treatment. Given that demographic characteristics did not influence barriers to care, it may be possible to pursue general population-wide approaches to promoting service use.

Background

Globally, there is a significant gap between the number of individuals in need of mental health care and those who actually receive treatment, with prior estimates suggesting that more than 56% of persons with depression (De Silva et al., 2014; Kohn, Saxena, Levav, & Saraceno, 2004; Lora et al., 2012; Patel, Maj, et al., 2010) and 78% of persons with alcohol abuse and dependence (Kohn et al., 2004) have not received care. A study of 21 countries with the World Health Organization (WHO) Mental Health Surveys found that 52.6% of persons with depressive disorder in low-income countries received any treatment in the past 12 months, and only 20.5% of persons with depressive disorder received minimally adequate treatment (Thornicroft et al., 2016). Studies have documented several adverse consequences of untreated mental illness including pre-mature mortality (Angst, Stassen, Clayton, & Angst, 2002; Cuijpers & Smit, 2002), unemployment (Butterworth, Leach, Pirkis, & Kelaher, 2012; Jefferis et al., 2011), poverty (Lund et al., 2010), homelessness (Folsom et al., 2005), co-morbid substance abuse and addiction (Grant et al., 2004; Jane-Llopis & Matytsina, 2006), poor physical health (McWilliams, Cox, & Enns, 2003; Penninx et al., 2001; Prince et al., 2007) and suicide (Hawton & van Heeringen, 2009). Some initiatives have been taken recently to reduce the treatment gap for mental health care (Chatterjee et al., 2014; Eaton et al., 2011; Patel, Weiss, et al., 2010; van Ginneken et al., 2013; World Health Organization, 2010). However, the gap is still high, especially in low and middle-income countries (LMICs) (De Silva et al., 2014; Kohn et al., 2004; Patel, Maj, et al., 2010; World Health Organization, 2008). Understanding the reasons people with mental disorders drop out of or fail to seek treatment could help in developing policies and plans to reduce these barriers to mental health treatment. Various factors are considered to impede mental health treatment including lack of perceived need, stigma, not knowing where to go for treatment, belief that the problem will resolve itself, desire to deal with the problem oneself, inability to afford treatment expenses, doubt regarding the effectiveness of the treatment, and lack of services (Demyttenaere et al., 2004; Edlund, Unutzer, & Curran, 2006; Saraceno et al., 2007; Sareen et al., 2007; Shidhaye & Kermode, 2013; van Beljouw et al., 2010).

In Nepal, few studies have been conducted on mental health. Most prior studies have focused on the mental health problems of populations affected by armed conflict, and none have attempted to estimate the treatment gap for mental health care or identify potential barriers to treatment (Kohrt et al., 2012; Luitel, Jordans, Sapkota, et al., 2013; Tol et al., 2010). In addition, there is a scarcity of population-wide mental health services in Nepal. Existing mental health resources are allocated unequally; mental health services are restricted to a small number of hospitals located in few big cities (Luitel et al., 2015). This study was conducted as a part of PRIME (PRogramme for Improving Mental health carE) research program consortium, which aims to study the implementation and scaling up of treatment programs for priority mental disorders in the primary health care context (Lund et al., 2012). In this study we aimed to assess the treatment gap, as we expected this to be even more pronounced than in other LMICs (Patel, Maj, et al., 2010), and to better understand the barriers that contribute to the treatment gap, anticipating that these barriers are more prominent in a fragile-state setting (Jonnalagadda Haar R. & Rubenstein L.S., 2012; Philips & Derderian, 2015). The aims of this paper are to describe the treatment gap among adults with DD and AUD, examine possible barriers to initiating mental health treatment, and investigate demographic predictors of reporting treatment barriers in Nepal.

Materials and Methods

This study was conducted as a part of PRIME research program consortium (Lund et al., 2012) to estimate the prevalence and treatment contact coverage for DD and AUD in four LMICs (Nepal, India, Ethiopia and Uganda) (Rathod et al., 2016). Details of the PRIME evaluation methodology can be found in a separate publication (De Silva et al., 2016).

Setting

This study was conducted in Chitwan, a district in southern Nepal. Nepal, one of the poorest countries in South Asia, has a total population of approximately 26.4 million with 69.1 years life expectancy at birth. The United Nations ranks Nepal 145th out of the world's 188 countries on the Human Development Index (HDI) (United Nations Development, 2015). The total population of Chitwan is 579,984 (279,087 male and 300,897 female) with about 132,462 households. The literacy rate of Chitwan district is 78.9%, which is higher than the national average of 67% (Central Bureau of Statistics, 2011). In Nepal, mental health services are restricted to a few government hospitals located in big cities and private hospitals; however, in Chitwan mental health services including treatment for AUD (both inpatient and outpatient services) are also available in the district hospital and medical colleges operating in the district. Evidence suggests that the availability of specialized mental health services alone will not be effective in minimizing the treatment gap (Lora et al., 2012). Involvement of primary health care (PHC) workers in detection and management of mental health problems has been recommended as one of the most effective and resource-efficient strategies for reducing the treatment gap for mental heath care, especially in the LMICs (World Health Organization, 2010). Therefore, we selected Chitwan district in order to assess the treatment gap and barriers to initiating treatment among a community sample where specialists services are available in the district hospital and private hospitals.

Study Participants and Sampling

A three-stage sampling technique was used in the study to select one adult from each of 1983 households across 90 wards in Chitwan district. Information about the ward populations was collected from the Village Development Committees, which are the local governing structures below the district level. First, the total target sample was stratified in proportion to the population size of each of the 90 wards. Second, households from each ward were selected using a systematic random sampling technique. The field workers then used a (simple) random selection procedure to select one adult from each household. In this procedure, the field workers first prepared a list (roster) of all members living in each household including names, age, sex and so forth. The survey inclusion criteria of age 18 years or above, resident of the implementation area, ability to provide informed consent and fluency in the Nepali language was applied and a separate list was prepared from the roster to reflect the inclusion criteria. Finally, a member of each household drew a name of an eligible participant from within that household. If no one was found at the household after three visits, or no one was willing to participate in the study or the selected adult was not willing to participate in the study, then the interviewers would go to the nearest neighboing household to assess its members for the inclusion criteria.

Instruments

The questionnaire administered to participants had several sections, including: sociodemographic characteristics, screening for depression, screening for alcohol use disorder, suicide ideation and behaviors, mental health treatment history, barriers for mental health treatment, disability, and mental health literacy. Details of all the instruments used in the study have been presented elsewhere (Rathod et al., 2016). The instruments used in gathering data reported in this paper are described below.

Patient health questionnaire (PHQ9): The PHQ9 is a self-reported screening tool designated for use in various medical settings. PHQ9 has been widely used and validated in primary care, medical outpatient, and specialist medical services (Gilbody, Richards, Brealey, & Hewitt, 2007). It has nine items and the respondents are asked to score their experience of nine common symptoms of depression in the past 2 weeks. It has a 4-point rating scale where 0 indicates 'not at all' and 3 indicates 'always'. The PHQ9 has been translated and validated in Nepal. A cutoff score of ≥10 has sensitity of 0.94 and specificity of 0.80 to detect a current episode of moderate to severe depression (Kohrt, Luitel, Acharya, & Jordans, 2016). After completing the PHQ9, each participant was asked an additional question to assess depressive episodes in the past 12 months period. Participants were asked, "Apart from these past two weeks, during the past 12 months, did you have other episodes of two weeks or more when you felt depressed or uninterested in most things, and had most of the problems we just discussed about?" We considered those with an affirmative response to the additional question or a score of 10 or more on the PHQ9 to have depressive disorder.

Alcohol use disorder identification test (AUDIT): AUDIT was developed by World Health Organization (WHO) as a screening tool in primary health care (Saunders, Aasland, Amundsen, & Grant, 1993). AUDIT has been validated in Nepal using DSM-IV diagnostic categories (alcohol use and alcohol dependence) as the gold standard to calculate the diagnostic parameters of the AUDIT and a cutoff score of ≥9 has been recommended for alcohol dependence or alcohol abuse for both males (sensitivity 96.7, specificity 91.7) and females (sensitivity 94.3, specificity 91.4) (Pradhan et al., 2012).

Barriers to Access to Care Evaluation (BACE): BACE scale was originally developed by involving both experts and service users (Clement et al., 2012). The BACE is a 30-item self-reported instrument, where respondents are asked whether each listed barrier has ever stopped, delayed or discouraged them from receiving or continuing care for their mental health problems. It includes some barriers related to stigma and discrimination. BACE has been translated and validated in other settings (Silva et al., 2013). It has a four-point response scale ranging from 0 ('not at all') to 3 ('a lot'). Results for each barrier can be presented in three ways: mean score for the item, barrier to any degree (i.e. the percentage circling 1, 2 or 3) or major barrier (i.e. the percentage circling 3). We followed a systematic approach that has been developed in Nepal for translation and adaptation of standardized tools for translation and contextualization of BACE in Nepali language (van Ommeren et al., 1999). In addition, we conducted pilot testing of the Nepali version of BACE with different populations (such as general community members and the help seeking population in primary health care facilities) to assess its understandability and acceptability in the Nepalese context. Furthermore, we found excellent internal consistency (i.e. Cronbach's alpha 0.91) of BACE in the sample.

Treatment contact coverage for depression or AUD: Respondents who were considered to have depression or alcohol use disorder were subsequently asked whether they had sought treatment for that disorder in the past 12 months. A cut off score of ≥10 in PHQ9 and a cut off score of ≥ 8 in AUDIT were set in the device application used for data collection; hence, the devices automatically directed field workers to continue the subsequent treatment section with those who scored above these cut off points. Service providers were categorized into three groups: specialist mental health providers (psychiatrist, psychologist, counsellor, mental health nurse), generalist health providers (medical doctor, health assistant, auxiliary health worker, community medical assistant), or traditional providers (traditional healer or religious leader). In this study, contact coverage is defined using the framework described by Tanahashi

(Tanahashi, 1978), which is the proportion of individuals with depressive disorder or alcohol use disorder who accessed a health care provider for that condition in the past one year.

Procedure

The interviewers were twelve Nepali-speaking research assistants who had completed an undergraduate degree. Two months of training covering the topics of interviewing skills, rapport building, informed consent, inclusion/exclusion criteria and content of the questionnaire, as well as field testing were organized. Android tablets with a questionnaire application were used for data collection. The interviews were conducted in the respondents' place of residence or in a confidential place upon respondents' request. The study received ethical approval from the ethical review board of the World Health Organization (WHO) and the Nepal Health Research Council (NHRC). Written informed consent was acquired from literate study participants to enrol in the study. As taking fingerprints is not always culturally appropriate in Nepal, only verbal informed consent was obtained from the illiterate participants. Selections of the dataset may be made available to researchers via the PRIME consortium Expression of Interest form, which is available at http://www.prime.uct.ac.za/contact-us.

Analysis

First, the design-based analysis was adjusted for the stratified sampling procedure, where households were randomly selected from within strata of VDCs (Village Development Committee) and wards. Participant data was weighted according to the inverse probability of sampling (i.e. 1 / (probability of selecting a household within the ward X probability of selecting an adult within the household). We report frequency of socio-demographic characteristics of the sample, percentage of the participants who met the thresholds for DD and AUD, and the percentage who sought treatment from mental health professionals and other service providers.

The BACE scale was analysed in two steps. First, frequency data for each BACE item was calculated separately for DD and AUD. For each BACE item we calculated the percentage of respondents who reported that they had experienced that barrier to any degree (i.e. the percentage reporting 'sometimes' to 'a lot') and as a major barrier (i.e. the percentage reporting 'a lot'). In addition, we assessed if the total BACE score was associated with socio-demographic characteristics of the participants. We report the means and p values for t-test and One-way ANOVA. Further, we conducted post-hoc analysis (Bonferroni) if One-way ANOVA results were significant to indicate which socio-demographic variables were significantly different than other groups. Data analysis was conducted in Stata 13.1 (StataCorp, 2013), with all of the aforementioned estimates adjusted for complex sampling design.

Results

Table 1 describes the characteristics of the total sample and the adults who screened positive for DD and AUD. The majority of participants in the sample (60.1%) and the majority of those who screened positive for DD (64.4%) were females, whereas this proportion was only 6.5% among those who screened positive for AUD. The age of the respondents ranged from 18 to 88 years with a mean of 39.8 years (SD 15.4).

TABLE 1: Socio-demographic characteristics of the sample.

Variables	Total sample % (n)*, N=1983	Screened positive for depression % (n)*, N =228	Screened positive for alcohol use disorder % (n)*, N=96
Sex			
Male	39.9 (703)	35.6 (71)	93.5 (89)
Female	60.1 (1280)	64.4 (157)	6.5 (7)
Age (years)			
18-24	18.4 (296)	18.9 (34)	16.5 (15)
25-59	68.1(1418)	63.6 (156)	71.4 (67)
60 and above	13.5 (269)	17.5 (38)	12.1(14)
Mean (SD)	39.8 (SD, 15.4)	41.0 (SD,16.9)	43.4 (SD,13.5)
Education			
Not schooling	13.2 (275)	20.9 (43)	17.2 (18)
Literate/less than primary	14.9 (315)	18.5 (45)	13.6 (12)
Primary	17.6 (360)	17.4 (41)	24.4 (24)
Secondary	41.6 (822)	33.2 (81)	39.1(37)
College /University	12.7 (211)	10.0 (18)	5.7 (5)
Marital status			
Single	13.6 (215)	14.3 (27)	12.8 (11)
Married	81.5 (1645)	77.7 (179)	83.5 (80)
Others (widow/ divorced/separated)	4.9 (123)	8.0 (22)	3.7 (5)

Caste/Ethnicity			
Brahmin/Chhetri	47.9 (941)	35.1 (82)	23.7 (25)
Janajati	27.2 (534)	25.8 (65)	31.0 (27)
Dalit	24.9 (508)	39.1 (81)	45.3 (44)
Religion			
Hindus	80.3 (1604)	81.8 (179)	75.3 (74)
Non-Hindus	19.7 (379)	18.2 (49)	24.7 (22)
Occupation			
Agriculture	62.9 (1299)	67.4 (157)	54.8 (54)
Service/Business	15.9 (293)	9.0 (19)	14.4 (15)
Students/Unemployed	17.4 (315)	18.1 (39)	18.9 (15)
Others	3.8 (76)	5.5 (13)	11.9 (12)

* %, sample weighted percent; n, non-weighted sample size

The adjusted percentage of those who screened positive for DD and AUD in the sample was 11.2% (N=228) and 5.0 (N=96) respectively. Details of those who screened positive in the sample have been presented elsewhere (Rathod et al., 2016). Table 2 presents percentages of participants who had sought and received treatment from a specialist, generalist, or other health care provider for symptoms related to DD and AUD in the last one-year period. For example, 8.1% of those with DD and 5.1% of those with AUD reported that they had received treatment from any provider in the past 12 months.

TABLE 2: Treatment seeking by adults with depression or alcohol use disorder in the past 12 months

	Depression (N=228) % (n)*	AUD (N=96) % (n)*
Receiving treatment in the past year from any providers	8.1 (18)	5.1 (5)
Type of service providers		
Generalists (e.g. Doctors and PHC workers)	1.8 (5)	1.3 (2)
Mental health specialists (e.g. psychiatrists, psychologists)	3.6 (9)	0
Others (Traditional healers, religious leaders)	4.2 (8)	4.5 (4)

* %, sample weighted percent; n, non-weighted sample size

Table 3 presents perceived treatment barriers (barrier to any degree or major barrier) and mean scores for each BACE item among adults who screened positive for DD or AUD. For DD, the individual item proportion for experiencing "any degree of barriers" ranges from 55% (item -"concerns about the treatment available e.g. medicine side effect") to 92.8% (item –"not being able to afford the financial costs involved"). For AUD, the individual item proportion for experiencing "any degree of barriers" ranges from 45.2% (item -"concerns about the treatment available e.g. medicine side effect") to 96.5% (item –"not being able to afford the financial costs involved"). The proportion of the participants reporting these as major barriers is relatively low i.e. 0 to 24.8% only. The five most frequently reported major barriers for DD were: not being able to afford the financial cost (22.5%); concern that I might be seen as 'crazy' (11.0%); dislike of talking about own feelings, emotions or thoughts (10.7%); concern that I might be seen as weak for having mental health problems (9.9%); and having no one who could help me get mental health care (8.3%). Similarly, the five most commonly reported major barriers for AUD were: not being able to afford the financial cost (24.8%); being unsure where to go to get mental health care (13.1%); concern that I might be seen as 'crazy' (12.2%); concern that it might harm my chances when applying for jobs (10.9%) and concern that I might be seen as weak for having mental health problems (10.3%).

The mean scores of each BACE item range from 0.67 to 1.84 for DD and 0.52 to 1.99 for AUD. The lowest and highest mean scores for both DD and AUD are for the same barriers, that is, concerns about the treatments available and not being able to afford the financial costs involved, respectively. There was no significant association between BACE total score and treatment seeking (P=0.361) among participants with DD and AUD.

TABLE 3: Barriers to mental health care among people with DD or AUD who have not received treatment from any providers in the past one year.

	Screened positive for depression (N=210)			Screened positive for alcohol use disorder (N=91)		
Barriers to mental health care	**Item mean**	**Barrier to any degree % (n)***	**Major barrier % (n)***	**Item mean**	**Barrier to any degree % (n)***	**Major barrier % (n)***
Stigma-related barriers						
Concern that I might be seen as weak for having a mental health problem	1.45	90.0 (186)	9.9 (24)	1.40	88.3 (78)	10.3 (13)
Concern that it might harm my chances when applying for jobs	1.20	78.0 (162)	5.2 (16)	1.14	71.6 (63)	10.9 (11)
Concern about what my family might think, say, do or feel	1.15	78.2 (168)	6.5 (16)	0.94	70.0 (61)	3.2 (4)
Feeling embarrassed or ashamed	1.30	87.1 (179)	1.4 (13)	1.34	90.5 (81)	6.1 (7)
Concern that I might be seen as 'crazy'	1.48	85.3 (183)	11.0 (25)	1.30	79.5 (71)	12.2 (12)
Concern that I might be seen as a bad parent	1.10	82.0 (167)	3.6 (8)	0.77	62.0 (58)	2.0 (3)
Concern that people I know might find out	1.30	84.0 (174)	6.1 (13)	0.98	66.0 (62)	5.4 (6)
Concern that people might not take me seriously if they found out I was having mental health care	1.14	82.2 (170)	4.0 (10)	1.01	74.0 (66)	4.5 (6)

Not wanting a mental health problem to be on my medical records	0.84	58.0 (116)	4.9 (11)	0.60	42.5 (42)	6.1 (6)
Concern that my children may be taken into care or that I may lose access or custody without my agreement	0.89	61.8 (130)	3.4 (8)	0.73	58.0 (51)	0 (0)
Concern about what my friends might think, say or do	1.24	82.5 (174)	6.3 (16)	1.04	73.0 (64)	6.0 (8)
Concern about what people at work might think, say or do	1.19	80.0 (167)	4.5 (9)	1.09	75.1 (67)	6.8 (8)
Non-stigma-related barriers						
Being unsure where to go to get mental health care	1.28	80.3 (165)	8.2 (21)	1.42	83.5 (73)	13.1 (15)
Wanting to solve the problem on my own	1.21	81.5 (168)	7.5 (14)	1.12	74.3 (67)	7.7 (7)
Fear of being put in hospital against my will	0.98	69.1 (144)	3.2 (7)	0.85	69.2 (61)	2.6 (3)
Problems with transport or travelling to appointments	0.90	61.8 (133)	3.8 (14)	0.74	55.4 (47)	4.7 (5)
Thinking the problem would get better by itself	0.93	63.4 (135)	6.1 (13)	0.81	62.5 (57)	1.9 (2)
Preferring to get alternative forms of care (e.g. traditional/religious healing or alternative/complementary therapies)	1.05	74.7 (153)	3.5 (8)	1.15	80.4 (74)	10.1 (11)

Not being able to afford the financial costs involved	1.84	92.8 (197)	22.5 (53)	1.99	96.5 (87)	24.8 (27)
Thinking that mental health care probably would not help	0.84	66.3 (138)	1.9 (6)	0.73	64.9 (58)	0 (0)
Mental health care from my own ethnic or cultural group not being available	0.75	57.0 (113)	0.8 (3)	0.65	51.0 (46)	0.5 (1)
Being too unwell to ask for help	1.30	87.0 (181)	8.1 (17)	1.18	80.1 (70)	7.8 (9)
Dislike of talking about my feelings, emotions or thoughts	1.35	85.4 (179)	10.7 (22)	1.15	75.8 (71)	5.9 (6)
Concerns about the treatments available (e.g. medication side effects)	0.67	55.0 (110)	1.5 (2)	0.52	45.2 (44)	1.4 (1)
Having had previous bad experiences with mental health staff	0.97	67.5 (141)	5.0 (14)	0.80	62.5 (57)	3.0 (3)
Preferring to get help from family or friends	1.12	79.0 (163)	6.2 (12)	0.88	65.2 (58)	0 (0)
Thinking I did not have a problem	1.17	80.0 (166)	7.4 (13)	1.05	74.7 (68)	6.4 (7)
Difficulty taking time off work	0.90	65.2 (132)	2.7 (9)	0.82	63.3 (56)	2.1 (3)
Having problems with childcare while I receive mental health care	0.88	63.0 (129)	2.7 (7)	0.72	57.5 (50)	1.1 (2)
Having no one who could help me get mental health care	1.44	89.3 (186)	8.3 (25)	1.26	80.0 (73)	6.5 (7)

* %, sample weighted percent; n, non-weighted sample size

Table 4 presents results from the t-test and one-way ANOVA. Except occupation, there were no significant differences in mean score for barriers to treatment (BACE) among those with DD or AUD by socio-demographic characteristics. Occupation was significantly associated with mean score of barriers to treatment (BACE) for DD (P=0.015). Post-hoc comparison using the Bonferroni indicated that the mean score of laborers and people with low earning (mean, 46.5) was significantly higher than that of participants who selected 'service/business' (mean, 32.0, P, 0.029) and 'unemployed/students' (mean 30.1, P, 0.011) for their occupation. However, the mean score of those who selected 'agriculture' (mean, 33.5, P, 0.070) did not significantly differ from the mean score of laborers or people with low earning.

TABLE 4: Comparisons of mean score on barriers to care evaluation with socio-demographic characteristics among adults with depression or AUD who have not received treatment from any providers in the past one year

Socio-demographic characteristics	Depression		Alcohol Use Disorder (AUD)	
	Mean (95% CI)	*p*	Mean (95% CI)	*p*
Sex				
Male	32.5 (29.0 – 35.9)	0.491	30.2 (27.8 – 32.6)	0.785
Female	33.9 (31.9 – 36.0)		28.5 (16.5 – 40.5)	
Religion				
Non-Hindu	35.8 (32.2 – 39.3)	0.164	32.5 (27.8 – 37.2)	0.244
Hindu	32.9 (30.9 – 34.8)		29.3 (26.6 – 32.0)	
Age				
Up to 24	30.1 (25.4 – 34.9)	0.203	33.0 (26.5 – 39.6)	0.333
25-59	34.6 (32.5 – 36.6)		29.0 (26.4 – 31.6)	
60+	32.7 (29.1 – 36.3)		32.8 (26.2 – 39.4)	

Education				
No schooling	31.5 (27.8 – 35.2)	0.697	27.1 (20.9 – 33.3)	0.681
Primary or less than primary	34.3 (31.8 – 36.8)		30.6 (26.6 – 34.7)	
Secondary	33.7 (30.0 – 37.5)		31.2 (27.6 – 34.8)	
College /University	33.1 (28.7 – 37.5)		28.0 (19.6 – 36.4)	
Marital status				
Single	30.4 (24.9 – 36.0)	0.085	32.4 (25.6 – 39.2)	0.230
Married	34.4 (32.6 – 36.2)		30.0 (27.4 – 32.6)	
Other (widow/divorced/ separated)	29.0 (23.7 – 34.4)		25.5 (20.1 – 30.9)	
Caste/Ethnicity				
Brahmin/Chhetri	33.5 (31.2 – 35.9)	0.878	29.6 (26.0 – 33.2)	0.414
Janajati	34.1 (30.4 – 37.7)		32.5 (28.2 – 36.9)	
Other	32.8 (29.9 – 36.0)		28.5 (25.0 – 32.5)	
Occupation				
Agriculture	33.5 (31.4 – 35.6)	**0.015**	28.8 (25.5 – 32.0)	0.447
Service/Business	32.0 (28.0 – 35.9)		29.2 (22.6 – 35.7)	
Unemployed/Students	30.1 (25.0 – 35.2)		31.7 (27.5 – 36.0)	
Other (laborers etc.)	46.5 (37.0 – 54.0)		35.0 (27.4 – 42.5)	

Note: Figures presented in the table are adjusted for the sampling design

Discussion

To the best of our knowledge, this is the first study conducted among the general population to assess barriers to help seeking among people who screened positive for depressive disorder and alcohol use disorder in Nepal. The prevalence of DD and AUD in the sample is relatively lower than that found in studies conducted with specific groups (Luitel, Jordans, Murphy, Roberts, & McCambridge, 2013; Thapa & Hauff, 2005; Tol et al., 2010) or populations affected by conflict (Kohrt et al., 2012; Luitel, Jordans, Sapkota, et al., 2013) in Nepal. A possible reason for the lower prevalence rates for DD and AUD found in this study could be the fact that all of the previous studies were conducted with specific populations such as refugees, torture survivors, populations displaced by conflict, or populations affected by conflict. The current study was conducted with a representative sample from the general population.

Overall, the treatment gap reported in the sample for both DD and AUD is very high (91.5% and 94.9%). This is considerably higher than the gap reported in other low-income countries, where 52.6% of persons with DD received any treatment in the past 12 months (Thornicroft et al., 2016). Moreover, the treatment gap in Nepal could be even greater in other districts where the availability of mental health services is lower than in Chitwan. The treatment gap reported in this sample was smaller than in China (Shen et al., 2006), Korea (Cho et al., 2009) and North India (Mathias et al., 2015), whereas it was larger than that found in a study conducted in 8 developed and 6 less developed countries between 2001 to 2003 (Demyttenaere et al., 2004). Considering the fact that formal mental health services are limited to a few district or zonal hospitals in Nepal (Luitel et al., 2015), these figures exceed our hypothesized estimates for the baseline measurement. We found that treatment seeking was not only low for biomedical services but also for traditional healing. Traditional healers are commonly considered the first point of contact for treatment of general health problems in most of Nepal (Luitel et al., 2015); thus we were surprised to note that relatively few people reported that they visited traditional healers for treatment of DD (4.0%) and AUD (4.5%) in the past 12 months.

A large proportion of the participants who had not received treatment in the past 12 months reported that they had experienced all of the 30 barriers to some degree, while within this group only 10-20% reported that they had experienced those as major barriers. The most frequently reported major barriers (>10%) were lacking financial means to afford care; fear of being perceived as crazy; lack of information about treatment places; fear of being perceived as weak for having mental health problems; lack of interest in talking about one's feelings, emotions or thoughts; and preferring alternative treatment. The major barriers in this study are also consistent with the barriers reported in studies conducted in the United States

(Alang, 2015), United Kingdom (Dockery et al., 2015), Nigeria (Jack-Ide & Uys, 2013) and India (Shidhaye & Kermode, 2013). We did not find any association between barriers to care and demographic characteristics except for occupation. Laborers and people with low earning had more perceived barriers for depression care compared to other groups. This finding contrasts with those of previous studies conducted in Nepal where age, gender, caste/ethnicity, or marital status had strong associations with mental health outcome (Brenman, Luitel, Mall, & Jordans, 2014; Kohrt & Worthman, 2009; Luitel, Jordans, Murphy, et al., 2013; Luitel, Jordans, Sapkota, et al., 2013; Tol et al., 2010). The lack of association between socio-demographic characteristics and total barriers score (BACE score) can be explained by the fact that mental illness is highly stigmatized in the community, and its services are restricted to few government hospitals located in the big cities or private hospitals. In addition to this, poor mental health literacy (even among educated people) may have added barriers to seeking mental health treatment. There was not much difference in reported perceived barriers between those with DD and those with AUD. For example, lacking financial means to afford care, fear of being perceived as crazy, and fear of being perceived as weak for having mental health problems were the most commonly reported major barriers for treatment of both DD and AUD. On the other hand, lack of information about treatment places and preferring alternative treatment were major barriers to treatment seeking and staying in treatment for AUD, whereas not being interested in talking about one's feelings, emotions or thoughts was a major barrier for depression. In general, AUD is not considered a health problem in Nepal; this could be the reason many participants reported lack of knowledge about treatment places or preferring alternative sources for treatment of alcohol use disorder. We found that both stigma-related and non-stigma-related barriers were equally reported for both DD and AUD. For example, of the 5 major perceived barriers for DD, 3 barriers were not related to stigma and 2 were stigma-related. Similarly, of the 5 major perceived barriers for AUD, 3 were related to stigma and 2 were not stigma-related.

The findings of this study have several implications for the development and implementation of programs to reduce barriers for mental health care and the treatment gap. First, a comprehensive stigma reduction program should be developed. Prior qualitative studies have highlighted mental health stigma as one of the key underlying factors affecting demand for and access to mental health services not only at the community level, but also at the health facility level in Nepal (Brenman et al., 2014; Kohrt & Harper, 2008; Kohrt & Hruschka, 2010). Therefore, the stigma reduction program should also target stigma at the level of service providers. Research has demonstrated that interventions can improve attitudes and competencies of health care providers (Corrigan, Morris, Michaels, Rafacz, & Rusch, 2012). Recently we have initiated a program to reduce stigma among service providers and improve clinical care: Reducing Stigma among Healthcare Providers in Mental Health (RESHAPE-mh, clinicaltrials.gov: NCT02793271). Second, the lack of financial means to afford care was the top most reported barrier for both DD and AUD. In the case of Nepal, this is not a surprise because out-of-pocket payment constitutes more than 60% of total health expenditure including fees levied for consultation, investigation, hospitalization, medicines and other supplies (Adhikari, 2013), and people living in the remote areas have to pay a significant amount for transportation. Availability and accessibility of services is an important indicator to improve health-seeking behavior of people; therefore, one strategy to minimize out-of-pocket expenses and encourage people to receive treatment could be integrating mental health services within the routine health care system and including basic mental health drugs in the free drugs list. Finally, the results indicate that demographic characteristics do not influence barriers to care. Therefore, population-level approaches and strategies can be used to reduce barriers to treatment and improve access to care.

Our study has some limitations. We found a surprisingly low proportion of participants who screened positive for DD during the early data collection phase. After reviewing possible reasons for the low prevalence of DD reported, we changed the Nepali translation of the term ‘mental health’ to a more locally relevant term, ‘heart mind problem’, in the informed consent and questionnaire instructions after completion of the targeted sample of 1500. There was a significant increase in affirmative responses to the PHQ-9 for the last 500 participants who followed the revised consent and instructional material. It is likely that we have underestimated the prevalence of depression in this study. This will be further explored in a separate publication, currently being prepared. Second, there was a significantly high proportion of female participants (59.8%) in the study whereas the proportion of female population of Chitwan district is 51.9% only (Central Bureau of Statistics, 2011). The large proportion of females in the sample could be explained by a high out-migration rate among men in Chitwan (Bohra & Massey, 2009). Hence, generalizability of the findings may be limited among those adults who were not in the district during the survey. Finally, the BACE scale we used to measure barriers to care has not been validated in Nepal.

Conclusion

Despite the availability of mental health services in both public hospital and medical colleges, the treatment gap for DD and AUD is high in Chitwan, especially in the primary health care setting. This indicates that the treatment gap is likely to be even more pronounced in other districts where formal mental health services are non-existent. This study revealed the perceived barriers for seeking mental health services likely to contribute to the large treatment gap. The major reported barriers for treatment were lacking financial means to afford care, fear of being perceived as weak for having mental health problems, fear of being perceived as crazy, having no one to help in seeking mental health care, and being too unwell to ask for help. However, there was not much difference between stigma- and non-stigma-related barriers, and the perceived barriers also did not differ by socio-demographic characteristics and type of mental health problem. These results warrant immediate efforts to address barriers to mental health treatment. The results in this study may be useful for policy makers and mental health professionals in developing a strategy to minimize barriers to care and the treatment gap. Except occupation, socio-demographic characteristics did not appear to be related to barriers to care, supporting the possibility of pursuing general population-wide approaches to promoting service use. Mental health services should be integrated within the routine health care system to make sure that basic services are available and accessible, and a strategy should be developed to reduce stigma associated with mental health and improve clinical care.

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CHAPTER-FIVE

Mental health care in Nepal: Current situation and challenges for development of district mental healthcare plan

This chapter is based on Nagendra P Luitel, Mark J. D. Jordans, Anup Adhikari, Nawaraj Upadhaya, Crick Lund & Ivan H. Komproe. Mental health care in Nepal: current situation and challenges for development of a district mental health care plan

***Conflict and Health, 9*, 3**

Abstract

Background: Globally mental health problems are a serious public health concern. Currently four out of five people with severe mental illness in Low and Middle Income Countries (LMIC) receive no effective treatment. There is an urgent need to address this enormous treatment gap. Changing the focus of specialist mental health workers (psychiatrists and psychologists) from only service delivery to also designing and managing mental health services, building clinical capacity of the primary health care (PHC) workers and providing supervision and quality assurance of mental health services may help in scaling up mental health services in LMICs. Little is known however, about the mental health policy and services context for these strategies in fragile-state settings, such as Nepal.

Method: A standard situation analysis tool was developed by the PRogramme for Improving Mental health carE (PRIME) consortium to systematically analyze and describe the current gaps in mental health care in Nepal, in order to inform the development of a district level mental health care plan (MHCP). It comprised six sections; general information (e.g. population, socio-economic conditions); mental health policies and plans; mental health treatment coverage; district health services; and community services. Data was obtained from secondary sources, including scientific publications, reports, project documents and hospital records.

Results: Mental health policy exists in Nepal, having been adopted in 1997, but implementation of the policy framework has yet to begin. In common with other LMICs, the budget allocated for mental health is minimal. Mental health services are concentrated in the big cities, with 0.22 psychiatrists and 0.06 psychologists per 100,000 populations. The key challenges experienced in developing a district MHCP included, overburdened health workers, lack of psychotropic medicines in the PHC, lack of mental health supervision in the existing system, and lack of coordinating body in the Ministry of Health and Population (MoHP). Strategies to overcome these challenges included involvement of MoHP in the process, especially by providing psychotropic medicines and appointing a senior level officer to facilitate project activities, and collaboration with National Health Training Center (NHTC) in training programs.

Conclusions: This study describes many challenges facing mental health care in Nepal. Most of these challenges are not new, yet this study contributes to our understanding of these difficulties by outlining the national and district level factors that have a direct influence on the development of a district level mental health care plan.

Keywords: Mental health, situation analysis, integration of mental health into PHC, Mental health care plan, Nepal

Introduction

Globally, mental health problems are a serious public health concern accounting for 7.4% of disability adjusted life years (DALY), and 22.9% of all years lived with disability (YLD) (Whiteford et al., 2013). It is estimated that four out of five people with mental illness in Low and Middle Income Countries (LMIC) receive no effective treatment and mental health is often one of the lowest health priorities in those settings (Kohn, Saxena, Levav, & Saraceno, 2004; World Health Organization, 2008). Studies have documented several adverse consequences of untreated mental illness, including poverty (Lund et al., 2010), and premature death (Teferra et al., 2011). One of the major barriers to scaling up mental health services in LMIC is the scarcity and unequal distribution of specialist mental health professionals (Kakuma et al., 2011). For example, the median number of psychiatrists per 100,000 populations in LMIC is 0.05 whereas this number is 8.59 in high-income countries (World Health Organization, 2011). There is estimated to be a shortage of 1.18 million mental health workers in LMICs alone (Kakuma et al., 2011). In recent years, a number of initiatives have been taken to reduce the treatment gap for mental health problems (Eaton et al., 2011; Patel et al., 2010). Evidence is accumulating that mental health services can be delivered effectively by primary health care workers through community-based programs and task sharing approaches (Cohen, 2001; van Ginneken et al., 2013). Changing the role of specialist mental health workers (i.e. psychiatrists and psychologists) from a predominant focus on service delivery to also designing and managing mental health services, building clinical capacity of the primary health care (PHC) workers, and providing supervision and quality assurance of mental health services, could help in scaling up mental health services in the LMIC (Eaton et al., 2011; Patel, 2009). The World Health Organization (WHO) launched the mental health Gap Action Programme (mhGAP) for prioritizing mental, neurological and substance use disorders in 2008 (World Health Organization, 2008). The aim of mhGAP is to facilitate the delivery of evidence based interventions by non-specialized health workers in primary health care settings; in addition, mhGAP also advocates scaling up of mental health care through integration of mental health into primary health care (World Health Organization, 2008).

Recently, Nepal emerged from a decade long conflict which claimed the lives of more than 16,000, while many more were subjected to torture, intimidation, extortion, and abduction. Nepal had the highest number of forced "disappearances" in the world in 2003 (Singh, Dahal, & Mills, 2005).The conflict also had an impact on the mental health system of Nepal. During the period of conflict, health staffs were intimidated and tortured by both the Government forces and insurgents. Vehicles carrying medicine and equipment were stopped so delivery of essential supplies was disrupted (Singh, 2004) , which impeded efforts to strengthen the health system and provide quality health services (MoHP, 1997). Despite the deterioration caused by the conflict, Nepal has made significant progress over the last few years, in terms of improved health status and living standards of the population. The National Health Policy of Nepal, 1991, emphasized the importance of decentralizing the primary health care system to the rural population and providing services in an integrated manner - from the tertiary to sub-health post level – in order to bring about health improvements (MoH, 1991). Community participation is ensured at all levels of health care through the activities of Female Community Health Volunteers (FCHV). In Nepal's health care system, Sub Health Posts (SHPs) are the first institutional contact point for basic health services. Altogether, there are 3,129 SHPs in the country which provide essential health care packages and also monitor the activities of FCHVs and other community level health care activities. Health Posts (HP) are the next tier of the health care system and they offer the same package of essential health care services as SHPs with an additional service of birthing centers. Health Posts also bear responsibility for monitoring the SHPs activities. Altogether there are 676 HPs in the country. SHPs and HPs are not staffed by medical doctors but instead are staffed by Health Assistants (HA), Community Medical Assistant (CMA) and Auxiliary Health Workers (AHW), are responsible for out-patient department (OPD) and emergency management in the HPs and SHPs. In addition, the Auxiliary Nurse Mid-wife (ANM), Village Health Workers (VHW) and Maternal and Child Health Worker (MCHW) are responsible for conducting out-reach clinics, immunizations, and maternal and child health, especially antenatal and postnatal care. The third tier of health care comprises the primary Health Care Centers (PHCC), are an upper-level health care facility established in each electoral area, as a first referral point. The major services delivered within PHCCs are general medical care (including mental health services); family planning, maternal and child health, basic laboratory investigations and provision of the basic health care services that are available in HPs and SHPs. PHCC's are staffed by medical doctors. The district hospital is the highest level health institution within a district. The District Public Health Office (DPHO) or District Health Office (DHO) is responsible for coordinating health care activities in a particular district area.

Recently, a consortium of research institutions and Ministries of Health in five countries in Asia and Africa (India, Nepal, South Africa, Ethiopia and Uganda), with partners in the UK and the World Health Organization (WHO) established the PRogramme for Improving Mental health carE (PRIME) to study the implementation and scaling up of treatment programs for priority mental disorders in primary and maternal health care contexts (Lund et al., 2012). As part of formative work of PRIME, we conducted a situation analysis to systematically analyze and describe the current gaps in mental health care in Nepal and inform the development of a district level mental health care plan (MHCP). Some of the district level data (PRIME cross country paper) has been published elsewhere (Hanlon et al., 2014); this paper presents in depth data regarding the current mental health situation in Nepal and describes how the national context and district situation are influencing the development of the district level mental health care plan. The results have been interpreted in line with the World Health Organization recommendations for integrating mental health into the primary health care setting (WHO & Wonca, 2008; World Health Organization, 2001).

Method

Setting

Nepal, a landlocked country situated between India and China, is the poorest country in South Asia. The United Nations ranks Nepal 157th out of the world's 186 countries on the Human Development Index (HDI) with 69.1 years life expectancy at birth (UNDP, 2013). The total population of the country is approximately 28.5 million with the majority (86 %) of the total population living in rural areas. Nepal experienced ten years of violent insurgency from 1996 to 2006, initiated by the Communist Party of Nepal Maoist (CPN-M); this was in response to the party's dissatisfaction regarding gender and caste inequality, and low quality governance. The war formally ended in November 2006 with a comprehensive peace agreement between an alliance of political parties and the Maoists. In 2008, constituent assembly elections were held with the purpose of drafting a new constitution within the following two years. However, after four years, no constitution had been written and consequently the constituent assembly was dissolved in 2012. After a year of political deadlock, a new interim government was formed which successfully completed the election of a second constituent assembly in November, 2013 and handed over power to the newly elected representatives.

Instrument

A baseline situation analysis was conducted in the five PRIME study sites (Nepal, India, Ethiopia, Uganda and South Africa), to describe the factors relevant to the development and implementation of a district-level mental health care plan (Hanlon et al., 2014). This study used the situation analysis tool developed by the PRIME consortium (http://www.prime.uct.ac.za/index.php/research/tools.html) to collect baseline information relevant to developing a plan to implement and scale up mental health care in Nepal. Details of the development of the situation analysis tool have been reported but the essential components will be outlined in brief (Hanlon et al., 2014). The situation analysis tool emphasizes those factors which were identified by previous reports as being important for successful integration of mental health into primary health care (Thornicroft et al., 2010) and those that were required for implementation of the WHO's mhGAP-IG (World Health Organization, 2010) in the PHC setting. The instrument comprises six sections: Section 1 has 39 items which cover population, economic, health, and social indicators. Section 2 has 15 items including areas such as political support, budget, policy, plan, legislation, benefits and human resources for mental health care. Section 3 focuses on mental health treatment coverage in a district and consists of 19 items related to prevalence of MNS disorders, number of people receiving care and estimated treatment coverage. Section 4, with 62 items, explores district level information about general health services and human resources, mental health care delivered in primary care and health systems structures to support mental health care in PHC. Section 5 has 17 items to document community level information in a district such as socio-cultural aspects, non-health sector organizations and awareness-raising activities. Section 6 has 4 items related to health information reporting, monitoring and evaluation systems in a district. The national level data included within the situation analysis tool is initially used to inform the PRIME program being implemented in a single district, and later for discussions regarding the scale up of services beyond the initial district.

Process and analysis

The study was conducted between October and December 2011 by the Transcultural Psychosocial Organization (TPO Nepal) (www.tponepal.org). We relied mainly on information available in the public domain such as scientific publications, reports, project documents/reports, media reports and hospital records which was augmented by discussion with district and national level key stakeholders such as government officers, psychiatrists, hospital administration and other service providers including NGO staff. For example, we reviewed annual reports published by the Department of Health Services (DHO), and District Public Health Office (DPHO), Demographic and Health Survey reports (MoHP, ERA, & Inc, 2012), the WHO AIMS report for Nepal (World Health Organization, 2006), and publications from NGOs active in the area. All collected documents and reports explaining the mental health situation or services were reviewed. Information collected from these sources was cross-checked manually to examine the completeness and consistency of the data. Community level information collected through the secondary sources was verified from FCHVs, members of mother groups, NGO staff and traditional healers. Sources of information contributing to the situation analysis were documented, together with the date of data collection, allowing the document to be updated when new information was available. When discrepancies between data sources were noted these were cross-checked by the project coordinator, where possible. Information collected from different sources was reviewed and summarized in six broad themes following WHO's AIMS tool, in order to allow comparison. These themes were policy and infrastructure; mental health services; human resources; mental health in primary health care; public education and links with other sectors; and monitoring and supervision.

Results

The results of the situation analysis have been presented in Table 1.

Policy and legislative framework

A mental health policy for Nepal was developed by the government in 1997 with the commitment of providing basic mental health services to the entire population by integrating mental health care into the existing health care system. The policy framework however is yet to be implemented; as a result mental health services are essentially limited to a few hospitals located in the larger cities. The mental health policy proposes several strategies to develop human resources for mental health services and ensure basic human rights of people with mental illness. The mental health legislation which ensures the human rights of people with mental illness was drafted in 2006, but its endorsement by the government is still pending. No clear data were available on the budget amount allocated to mental health and how this money is being spent, because the expenditure occurs in several different ministries including the Ministry of Health and Population, Ministry of Education. Available data however, indicates that the budget allocated to mental health remains very small, i.e. latest available data reports that less than one percent of the total health budget is spent in mental health (Regmi, Pokharel, Ojha, Pradhan, & Chapagain, 2004) and that a substantial proportion of that budget goes to hospital-based services.

Mental health services

Specialist mental health services were found to be limited to Zonal- or District hospitals. Across the whole country, there are estimated to be around 440 in-patient beds for people with mental illness (combining both governmental, 112 and private hospital facilities, 327); which amounts to 1.5 beds per 100,000 population. No separate in-patient service is available for children with mental illness in Nepal. Due to the geographical circumstances and lack of reliable transportation, Kathmandu (the capital city) or adjoining Indian cities were often the only options available for people with mental illness living in remote districts. In the public sector, counseling or psychotherapeutic services were found to be difficult to access due to the limited number of clinical psychologists. General counseling services are being provided by trained para-professional counselors employed by NGOs; however, such services tend to be limited to specific population groups such as; people affected by conflict, survivors of human trafficking; victims of domestic and gender based violence, and refugees. No systematic data was available regarding the treatment of mental health problems by traditional and religious healers; however, traditional and religious healers are known to be the primary sources of treatment for (mental) health problems in the community (Pradhan, Sharma, Malla, & Sharma, 2013; Shrestha, Pradhan, & Sharma, 2011).

Mental health in primary health care

Mental health services are supposed to be included among the basic health services expected to be delivered in PHC; however, there is limited data indicating delivery of mental health services in the PHC setting in practice. The Management Division, part of the Department of Health Services (DOH), mental hospital and some non-governmental organizations (NGOs) have taken the initiative to train PHC workers in a few districts; the lack of refresher training and non-availability of essential psychotropic medicines, however, has meant that despite the training provided there continues to be a lack of availability of mental health services on a regular basis. Two psychotropic medications, phenobarbitone and amitryptyline, were found to be available in the primary health care centers (PHCC) and, more erratically, at the Health post (HP) level but no psychotropic medicine was available at the sub-health post (SHP) level. No counseling or psychotherapeutic services were available through the primary health care system. Due to the lack of clear referral mechanisms from primary to tertiary care, people with mental illness were not being identified and treated effectively, even in the health facilities where there were trained health workers. No standardized training manuals, screening tools or guidelines were available, particularly for the training of PHC workers in detection, diagnosis and treatment of common and severe mental disorders.

Human resources

The number of mental health specialists was found to be limited and concentrated in large urban areas. An estimated 25% of Nepali psychiatrists (N=60) are working outside of the country. Data on the number of PHC workers that have received mental health training is incomplete. Available data indicate that around 900 PHC workers, mostly from PHCC level (156 district hospital/ PHC doctors; 672 Health Assistants/Auxiliary Health Workers/Staff Nurse; and 39 ANMs) have received such training. Due to lack of timely supervision, refresher training and availability of psychotropic medications, most trained PHC workers are not delivering any mental health support services. Female community health volunteers (FCHVs), who are the first contact point of the current public health services, have not received mental health training.

TABLE 1: Mapping of results from situation analysis

Category	Situation of Nepal	Challenges for transformation
Policy framework and infrastructure	• National mental health policy developed in 1997 • Policy proposes establishing a separate mental health division in the MoHP • Policy aims to provide mental health services to all the population by 2000 • Mental health legislation has been drafted • Mental health is also included under Disability Act and ensures disability benefits to people with severe mental illness • Minimal health budget is allocated for mental health	• Lack of implementation of the policy framework into practice • Lack of endorsement of mental health legislation • No mental health division in the MoHP or Department of Health Services (DoHS) • Absence of a long-term mental health strategy and program • No sufficient budget allocation on mental health
Mental health services	• Mental health services available in the country are mostly institution based • Out of 75 districts, only 7 district hospitals provide mental health services • Mental health services are limited to psychotropic medication • About 450 mental health beds i.e. 1.5 per 100,000 populations (both government and private hospitals) in the country • Traditional healers or/and religious leaders are a primary source of mental health treatment in the community • NGOs provide community based mental health services to the specific population; mostly these services are in isolation with government services	• Lack of holistic treatment approach (community care to specialized care) for the treatment of mental health problems • Lack of integration of mental health services to other non-health sectors such as education, social welfare, and sports. • Lack of separate hospital for providing mental health services to children and elderly people • Lack of training and involvement of community volunteers (e.g. FCHVs and traditional healers) in identification and referral of people with mental illness

Mental health services in the PHC	• No systematic information available about the services of mental health in the PHCs • Mental health services are available in few districts where community mental health services are introduced by both government and NGOs • Number of PHC staff trained on mental health by NGOs and government in the country: General Doctors 156 (including doctors from district hospital); Health Assistants/Auxiliary Health Workers (AHWs)/Staff nurse 672; Nurse/auxiliary nurse mid wife 39 • Only few (i.e. phenobarbitone and amitryptyline) psychotropic medicines available in the PHCC and HP. No psychotropic medicine available in the SHP	• Lack of standardized mental health training manual for PHC workers • Lack of basic psychotropic medicines in the free drug list • Lack of formal referral mechanism from primary to secondary/tertiary care or vice versa • Lack of mental health supervision mechanism in the existing supervision system • Lack of referral system from primary to tertiary care or vice versa
Human Resource	• Mental health services are coordinated by different institutions in the center e.g. mental hospital, management division • Limited human resource on mental health: 60 psychiatrists (25% are reported to be out of the country); 25 psychiatrist nurses; 16 clinical psychologists; 400-500 para-professional counselors (trained by NGOs); 867 general doctors/PHC workers who have received short mental health training • Most of the psychiatrists, psychiatrists nurse and psychologists are working in private sector and in big cities • Community health volunteers are not trained on mental health issue	• Lack of designated person in the MoHP to coordinate mental health activities • Lack of specific strategy for developing human resources in mental health • Lack of mental health component in the existing curriculum of all cadres of PHC workers • No fulfillment of vacant position in the PHC for long time • High staff turnover and frequent transfer in another places

Public education and links with other sectors	• No mental health education carried out; hence, low/no public awareness on mental health among the general population • Mental health highly stigmatized in the community • Psychosocial and mental health services integrated in the hospital based one-stop crisis management center focusing for victims of gender based violence • Psychosocial and mental health incorporated in the care plan of children affected by HIV/AIDS • Mental illnesses is included under disability • Establishment of National Mental Health Network (NMHN) to advocate for mental issues with concerned stakeholders • Establishment of two organizations led by people with mental health and psychosocial disability	• Lack of mass sensitization program on mental health and psychosocial issues in the community • Lack of coordination and linkage with other non-health sectors such as education and social welfare • Lack of involvement of key community actors such as teachers, and youth clubs for identification and referral

Monitoring and supervision	• A morbidity form is available for outpatient clinics, from PHC level • Current HMIS system includes seven mental health indicators (such as Depression, Psychosis, Anxiety (coded as Neurosis), Mental Retardation, Conversion Disorder (Hysteria), Alcoholism and Epilepsy) in the PHC/ district level and 47 mental health problems and 13 self-harm related indicators in hospitals • The only national level mental hospital reports comprehensive data on mental health. Besides the above data, it also provides data on bed occupancy rate, mental health budget release and expenditure and leading causes of morbidity. • No separate monitoring and supervision system exists for mental health care • Small scale studies have been conducted with specific population to identify prevalence of mental health problems	• Lack of involvement of mental health specialists (psychiatrist and psychologist) in the supervision of the PHC workers • Lack of nationally representative epidemiological data on mental health • Lack of data use culture at the Health Facility level

Public education and link with other services

Mental health problems are highly stigmatized in the community. No mental health awareness programs have been carried out in the public health system. Some NGOs have taken the initiatives to run community awareness programs; nevertheless, these programs were targeted to specific populations with limited resources. Due to the lack of a coordinating body in the Ministry of Health and Population, NGO services are implemented in isolation from the public health system. Recently, the Ministry of Health and Population has established 'one-stop' crisis centers in some districts of Nepal to provide a comprehensive approach to people suffering from domestic and gender-based violence. Mental health care is a component of this service, but limited to basic psychosocial counseling services. The Ministry of Women, Children and Social Welfare has recently launched a National Minimum Standard (NMS) to ensure comprehensive care and support for survivors of human trafficking and victims of domestic and gender based violence, where psychosocial and mental health services are included as cross-cutting themes (MWCSW, 2012). Stigma and discrimination were found to be one of the major barriers for seeking mental health care in the community. Two national-level user organizations have been established in the recent past to advocate for mental health services and the human rights of people with mental illness. A network of most of the organizations working in mental health and psychosocial field has also been established for policy advocacy (http://mhnetworknepal.org/).

Monitoring and research

Mental health indicators have been included in the health management information system (HMIS) from the sub-health post level upwards; although mental health services are not available in either the health post (HP) or sub-health post (SHP). The process of data collection for general health indicators begins at the community level. The Female Community Health Volunteers (FCHVs) use a pictorial register to document health services provided to the community. As these lay health workers are not trained in mental health issues, to date there has not been reporting of any data on mental health. At the PHC and district level either the senior Health Assistant or a medical doctor see the mental health patients and keep records in the out-patient department (OPD) register. Seven different mental disorders, including Depression, Psychosis, Anxiety (coded as Neurosis), Intellectual Disability (coded as Mental Retardation), Conversion Disorder (Hysteria), Alcohol Use Disorder (Alcoholism) and Epilepsy are recorded in the OPD register and reported to the District Health Data Bank located at the District Public Health Office. The data is then reported to a central HMIS section through a HMIS web-portal. Mental health inpatient hospitals and other mental health wards, within the national, regional and zonal hospitals report mental health information to the national HMIS. The annual reports (2008/09, 2009/10 and 2010/11) published by Department of Health Services (DoHS) report data on 47 different mental health problems and 13 items related to self-harm categorized as per ICD-10 definitions. Similar to other health indicators, the quality and accuracy of mental health data collected through HMIS is questioned in regional and national reviews. There are delays in HMIS reporting, sometimes there is under reporting and private health facilities do not regularly report to HMIS. No national level epidemiological studies have been conducted; therefore, no estimates of the national prevalence of mental health problems are available. A few small-scale studies have been conducted mainly by NGOs to identify the prevalence of mental health problems within specific population groups. There is no information regarding the treatment gap for mental health care.

Discussion

Overall situation

This situation analysis demonstrates the scarcity of population-wide mental health services in Nepal. Services are restricted to a few specialists operating mainly in private and/or urban settings. Policies regarding the integration of mental health into primary health care are available; however, these have not been operationalized or implemented. Despite many potential strengths, including the existence of mental health indicators integrated within the national HMIS system, the initiatives of several NGOs to promote community mental health, and the active role of user groups on the advocacy front, the situation of the mental health system is still dire in Nepal. No nationally representative data regarding the prevalence of mental health problems in Nepal are available; however, the studies that have been carried out, show that the prevalence of mental disorders in Nepal does not appear to be different from global prevalence (Kohrt et al., 2008; Kohrt et al., 2009; Luitel et al., 2013; Thapa & Hauff, 2005; Tol et al., 2007). Lack of financial resources and low mental health literacy, in particular misconceptions about mental health problems and stigma associated with mental health problems, contribute to delay or obstruct access to treatment for individuals. In addition, poverty, conflict, displacement, and discrimination based on gender and caste/ethnicity, unemployment, and (labor) migration are found to be key risk factors for poor mental health in Nepal (Luitel et al., 2013; MoHP, 2009).

Improvements

Despite this bleak mental health situation, Nepal has made significant improvements in recent years in comparison to a situation analysis conducted by WHO (WHOAIMS) in 2006 (World Health Organization, 2006). For example, the total number of psychiatrists has increased considerably. The number of mental health beds per 100,000 populations was less than 1 (0.8) (World Health Organization, 2006); now it has been increased to 1.5 per 100,000 populations. The involvement of users groups in mental health care, prevention and advocacy have become more established and two national level organizations led by service users have been instituted. Community based mental health programs have been initiated in a few districts by both the government and NGOs (Raja et al., 2012; Upadhyaya, Nakarmi, Prajapati, & Timilsina, 2013). In recent years, some initiatives have been taken to include mental health in national health priorities. For example, mental health has been included in the second health sector support program (NHSSP-II); 'one stop' crisis management centers have been established, and psychosocial and mental health has been included in national minimum standards and standard operating procedures for the care and protection of trafficking survivors (MWCSW, 2012). Additionally, mental health and psychosocial components in the protection and care for children affected by HIV/AIDS (MoHP, 2012); and provision of psychotropic medicines in the revised drug lists are key policy level initiatives on mental health and psychosocial care.

Challenges in developing the district level mental health care plan

In spite of a significant improvement in the situation of mental health care in the last few years; there remain numerous challenges that have impeded the development of the district level mental health care plan. Here, we have highlighted key challenges that were identified in the situation analysis and how these challenges were addressed while developing the district mental health plan. First, like other LMIC, there are scarce mental health human resources for providing mental health services in Nepal (Saraceno et al., 2007). Integration of mental health services in the PHC is presented as a strategy to reduce treatment gaps, even though this approach will add more responsibilities to the already overburden health workers (Jordans, Luitel, Tomlinson, & Komproe, 2013b). Rather than providing training to a specific person in the PHC regarding mental health care; we have proposed to train all the PHC workers, to minimize the extra burden of work for one particular person. Secondly, the lack of psychotropic medicines in the PHC has obstructed the availability of mental health services. A memorandum of understanding (MOU) has been signed with the Ministry of Health and Population (MOHP) stating that the essential psychotropic drugs will be supplied through Primary Health Care Revitalization Division (PHC-RD) by allocating the financial budget to the District Public Health Office (DPHO). Thirdly, a monthly case conference by a psychiatrist from the district hospital has been put in place, to bridge the gap of the current lack of mental health supervision in the existing health care system. Fourthly, considering the current work burden of the PHC workers, the concept of Community Counselors (i.e. one psychosocial counselor for a certain number of PHCs) has been integrated into the district level MHCP to relieve PHC workers from time-intensive psychotherapeutic services. Fifthly, collaboration with the National Health Training Center (NHTC) has been initiated to conduct training and accredit training certificates for PHC workers, and to ensure that the training manual is in line with government standards. Sixthly, despite the Nepalese government's commitment to establish a separate division to coordinate mental health activities as stated in policy, it has not yet been operationalized. The MOHP has agreed to assign a senior level officer in the MOHP to facilitate coordination of the project activities at the national level; this has also been included in the MOU. Seventhly, a Community Informant Detection Tool (CIDT) has been developed to facilitate community detection of mental health problems and increase referral to the PHCs (Jordans, Kohrt, Luitel, Komproe, & Lund, 2015) . Female Community Health Volunteers (FCHVs) and mothers group leaders, who are often the first point of contact in their community, have been trained in the use of CIDT. Finally, a referral system has been developed with district hospitals for severe cases in need of specialized care.

Opportunities for developing district mental health care plan

Globally, several initiatives have taken place to reduce the treatment gap for mental health. Many international and national initiatives and other contextual factors have facilitated the development of district level mental health care plan under PRIME. Firstly, the WHO Mental Health Gap Action Program (mhGAP), has been developed to assist in the scaling - up of mental health services in LMIC (World Health Organization, 2008) and this has been adopted in the Nepalese context to develop the district level mental health care plan. Secondly, the mental health policy (1997) has emphasized the integration of mental health into the PHC by mobilizing existing health workers; and the recent study among the PHC workers has found a positive response and willingness of PHC workers to engage in the process of task shifting (Jordans, Luitel, Tomlinson, & Komproe, 2013a). Thirdly, the Nepal health sector support program II (2010- 2015) has included mental health components, with the aim of developing a model that could allow integration of mental health into the primary care (MoHP, 2010). Fourthly initiatives to provide mental health services to specific populations have already been started through the establishment of 'one stop' crisis management centers in some districts (MoHP, 2011). Fifthly, the Inter Agency Standing Committee (IASC) guidelines on mental health and psychosocial support; which emphasized the value of integrated mental health services, has been translated and pilot-tested in Nepal (Jordans et al., 2010) and Nepal has also signed international conventions including Universal Declaration of Human Rights (UDHR), International Convention of Economic, Social and Cultural Rights (INCESCR) and the Convention on Rights of People with Disabilities (CRPD). Sixthly, a greater need for mental health services in the post-conflict situation has been indicated in a study conducted immediately after the peace agreement between the Government of Nepal and the Maoists which identified a high prevalence of mental health problems in Chitwan and recommended the urgent need for mental health care (Luitel et al., 2013). Finally, as in other post conflict settings, where post-conflict system restructuring has led to opportunities for improving mental health care (Ventevogel et al., 2012; World Health Organization, 2013); currently several policy developments initiatives (e.g. Health Act, Mental Health Act, Nepal Health Sector Support program III) are occurring in post conflict Nepal that can be capitalized upon. The current study can contribute to this policy development process, by identifying the areas for improvement, as well as providing some proof of concept of district level mental health care.

Implications

Recommendations from this situation analysis focus on addressing the identified gaps, particularly for the integration of mental health into the existing health care system. Firstly, it would be easier to coordinate mental health activities and issues with the government, at the central and district level, if a separate mental health unit were to be established in the

MoHP. Secondly, considering the risk of overburdening the existing health workers and lack of mental health specialists in many of the districts, we recommend the development of a mid-level mental health and psychosocial cadre within the primary health care system. The concept of mid-level mental health professionals has been put into practice in other LMICs such as Uganda (Ovuga, Boardman, & Wasserman, 2007) and Liberia (Kohrt et al., 2015). Thirdly, as no mental health services are currently available in many of the districts, an efficient referral mechanism should be established to provide specialist mental health services to people with severe mental disorders. Fourthly, non-governmental organizations (NGOs) can play an important role in developing and delivering models for more innovative services; supporting government initiatives and building capacity (Harwin & Barron, 2007; Pérez-Sales, Férnandez-Liria, Baingana, & Ventevogel, 2011; Thara & Patel, 2010). In Nepal, NGOs have played an important role, especially in providing mental health services for disaster-struck populations, developing community-based mental health care, creating awareness on mental health issues and advocacy (Upadhaya et al., 2014). NGOs therefore may need to be involved in the development and implementation of sustainable mental health services. The community at large has a significant role in mental health advocacy and service delivery. Comparisons can be drawn between Nepal and Cambodia as both are war-torn countries. The experience in Cambodia of establishing mental health system highlights the importance of cultural sensitivity and mobilization of local resources, where mental health services were able to be delivered by traditional healers and key community leaders along with basic mental health care, integrated into primary health care (Somasundaram, van de Put, Eisenbruch, & de Jong, 1999). Other studies also echo the importance of the involvement of community members as they are culturally sensitive to the context, culture, beliefs and values (Silove & Steel, 2006). Service users and community members may therefore need to be involved in development and implementation of sustainable mental health services.

Our study has some limitations. The most important one is that the PRIME situation analysis focuses on readily measurable health system indicators, and data were collected mainly from secondary sources i.e. published data, grey literature, and organization reports. Secondly, this report does not provide an in-depth understanding of attitudinal factors, for example, acceptability of task sharing mental health care by health care workers and community members. This issue was addressed in the qualitative formative research, conducted by the PRIME study and has been published elsewhere (Jordans et al., 2013b). Nonetheless, the PRIME situation analysis tool yields data that has value for the planning of integrated mental health services, as well as evaluating the impact of implementing these plans. Further, the core focus of the PRIME situation analysis tool was to collect detailed district level information to map the major gaps to be addressed, by the district mental health care plan. In doing so, only limited national level information was assessed, which is something that should be addressed when using the tool for national level situation analyses.

The strengths of the PRIME situation analyses tool were twofold:(a) it structured the process of development of services to respond to existing gaps, and (b) it engaged local stakeholders by using local data and context as the starting point for the MHCP development.

Conclusion

This study has underlined many of the known challenges in mental health care in Nepal. However, the results of this study were very helpful for the development of the district level mental health care plan, especially regarding how national context and the district situation can influence the district care plan and what is realistic and feasible given the current lack of capacity at the district level. The key challenges which had influenced the development of the district MHCP included; overburdened health workers, the lack of psychotropic medicines in the PHC especially in the HP and SHP, the lack of mental health supervision in the existing system of care, the lack of coordinating body in the MoHP, and stigma and discrimination associated with mental illness in the community. Many strategies were adopted to overcome these challenges which included the involvement of MoHP in the program, especially providing psychotropic medicines and appointing a senior level officer to facilitate project activities and collaboration with NHTC. In addition, the lasting effect of the decade- long conflict still exerts an impact on the mental health and psychosocial well-being of people (Kohrt et al., 2012; Luitel et al., 2013). The provision of separate mid-level mental health and psychosocial cadre at PHC may need to be considered to meet the level of need. Nepal has seen clear progress in strengthening the mental health care system in the past decade or so, however major improvements are still required. The weak governance system explains many of the remaining gaps, but also offers opportunities for re-structuring mental health services in post-conflict Nepal.

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SECTION-FOUR

Development of mental healthcare plan

CHAPTER-SIX

Development and pilot testing of a mental healthcare plan in Nepal

This chapter is based on M.J.D. Jordans, N. P. Luitel, P. Pokhrel and V. Patel (2016).
Development and pilot testing of a mental healthcare plan in Nepal

British Journal of Psychiatry, 208 Suppl 56, s21-28

Abstract

Background: Mental health service delivery models that are grounded in the local context are needed to address the substantial treatment gap in low- and middle-income countries.

Aims: To present the development, and content, of a mental health care plan (MHCP) in Nepal and assess initial feasibility.

Method: A mixed methods formative study was conducted. Routine monitoring and evaluation data, including client flow and reports of satisfaction, were obtained from patients (n=135) during the pilot-testing phase in two health facilities.

Results: The resulting MHCP consists of 12 packages, divided over community, health facility and organization platforms. Service implementation data support the real-life applicability of the MHCP, with reasonable treatment uptake. Key barriers were identified and addressed, namely dissatisfaction with privacy, perceived burden among health workers and high drop-out rates.

Conclusions:The MHCP follows a collaborative care model encompassing community and primary healthcare interventions.

Introduction

In recent years, there have been many appeals for increased and improved mental health services globally (Chisholm et al., 2007; Patel & Saxena, 2014), especially in low and middle income countries (LMIC) where such care is unavailable to most people (Demyttenaere et al., 2004). The World Health Organization (WHO) advocates the integration of mental health into primary healthcare, as a strategy to overcome the enormous gap between people in need of treatment and the availability of such care, and has developed guidelines for the treatment of mental health, neurological and substance use disorders (MNS) in primary care (WHO, 2010). Little is known about how to transfer such guidelines into an actual service delivery framework that is feasible, sustainable and effective in practice in LMIC.

Nepal is one of many countries where mental healthcare is very scarce and entirely limited to urban centres and hospitals. The lack of human and financial resources to establish mental healthcare is worsened by the fragility of the health system as a result of a decade-long armed conflict and political instability dating from the peace treaty signed in 2006. A recent situation analysis confirms the bleak situation of mental healthcare, yet also demonstrates some tentative improvements in recent years (Hanlon et al., 2014). A policy framework for the integration of mental health into primary healthcare exists in Nepal. Although mostly dormant, the policy does provide opportunities to build up and shape the development of a mental healthcare strategy that adequately responds to the existing needs and barriers, something that is similar in other humanitarian settings (Ventevogel, Perez-Sales, Fernandez-Liria, & Baingana, 2011). Furthermore, there are a number of prior initiatives towards mental healthcare development in Nepal that can be built upon (Acland, 2002; Jordans, Keen, Pradhan, & Tol, 2007; Raja et al., 2012).

The Programme for Improving Mental Health Care (PRIME, http://www.prime.uct.ac.za/) aims to develop and evaluate a strategy for the integration of mental health into primary healthcare, specifically for depression, psychoses and alcohol use disorder (Lund et al., 2012). The programme is operating in districts in five LMIC (Ethiopia, India, Nepal, South Africa and Uganda). In Nepal, it is implemented by the non-governmental organisation (NGO) Transcultural Psychosocial Organization (TPO) Nepal, which works throughout Nepal on implementing and evaluating mental healthcare. In this paper we present the mental health care plan (MHCP) that has been developed, in collaboration with the Ministry of Health and Population. We will summarize the steps of development, present its content and report results of the pilot testing of the MHCP and how this has led to a final plan ready for implementation and evaluation.

Method

Nepal, with a total population of 28 million, has come out of a violent insurgency that took place between 1996 and 2006, initiated by the Communist Party of Nepal – Maoist and fuelled by poverty, unequal distribution of wealth, social marginalization and disappointment with state governance (Thapa & Sijapati, 2004). Since the 2006 peace agreement the country has been in a devastating political gridlock around the drafting of a new constitution. PRIME has been implemented in Chitwan, a district on the southern plains of Nepal (online Fig. DS1). Chitwan has a population of 575,058 people, 73% of whom live in a rural setting, and a literacy rate of 70% (compared to the national average of 54%) (Central Bureau of Statistics, 2014). With two psychiatrists and a psychiatric ward in the district public hospital, the district is better off compared with most in Nepal, but similarly to the rest of the country, it has no mental health services as part of the basic healthcare package delivered in locally available primary care.

The development of the MHCP consisted of two stages; (a) formative research informing the content and structure of the care system, followed by (b) pilot-testing to adapt and fine-tune the plan. The formative study employed a mixed methods design. First, we engaged an expert panel (n=26) in a structured exercise to prioritize the mental health problems to be targeted in the MHCP. Second, we organised workshops involving policy makers and service providers (n=19) to develop a theory of Change (ToC), which served as a roadmap of intermediate steps towards increased coverage of evidence-based mental health services (Petersen et al., 2016). Third, we conducted in-depth Interviews and focus group discussions with key stakeholders (n=117) to assess perceptions and barriers related to integrating mental health into primary healthcare (based on the already developed ToC). Detailed description of the formative study has been published previously (Jordans, Luitel, Tomlinson, & Komproe, 2013b)

Following development of the first version of the MHCP, piloting was carried out in two health facilities (the only available ones in two villages, Meghauli and Divyanagar, serving a population of approximately 28,000). In terms of socio-demographic characteristics of the population, geography and access to healthcare, these locations were comparable to the part of the district where the MHCP will be implemented (10 health facilities). All 9 health workers from both facilities received the designed training. Piloting started in April 2013 and continued until February 2014. The objectives were twofold: to pilot the implementation of the MHCP and identify challenges and barriers, and to assess patients and providers' perceptions of the MHCP. Parts of the MHCP that require a long running time or involve the health system at-large were excluded given the relatively brief period and small scale of the piloting.

We obtained routine monitoring data for all patients during the pilot phase (n=135) and additionally administered evaluation questionnaires to a random selection of these patients (n=45), as well as to service providers (n=11). The questionnaire included items on level of satisfaction, degree of met expectations and degree of perceived changes. The questionnaire consisted of 11 structured items and 5 open-ended questions. Four items were adapted from the Client Satisfaction Questionnaire (Attkisson & Zwick, 1982), and others were developed for the purpose of this study. Interviews were conducted in the health facility for the service providers and at home for the patients. All questionnaires were verbally administered by research assistants who read the questions out loud and recorded responses. This was done to control for the variable literacy aptitude of participants and because of respondents' unfamiliarity with completing questionnaires.

Descriptive analyses were run on the quantitative data, using SPSS 20.0. Furthermore, a group of patients (n=28) who dropped out of care after only one contact were followed-up in order to understand reasons why they drop-out. A framework analysis approach was utilized to examine the major themes that emerged from the collation of qualitative responses (Lacey & Luff, 2001), coding was done by hand given the small data-set. The study conforms with the requirements of the Declaration of Helsinki (World Medical Association, 1997) and received ethical approval from the Nepal Health Research Council.

Results

Presentation of the MHCP

The MHCP targets psychoses, depression and alcohol use disorder. As a result of the high priority given to epilepsy by the expert panel during the formative study, this disorder was added. The MHCP that has been developed consists of 12 care packages divided over three levels (health organisation, health facility and community), compatible with the PRIME framework (Lund et al., 2012). The WHO Mental Health GAP Action Program (mhGAP) Intervention Guide forms the core of the treatments provided at the health facility (WHO, 2010). The basic structure of the plan is further shaped by the outcomes of the formative study, primarily by the ToC that outlines the key building blocks of the package. Furthermore, it demonstrates that there is widespread endorsement of the aim to integrate mental health into community - and primary healthcare systems. A number of key challenges are identified (including the already burdened primary healthcare workers, stigma attached to mental health problems, insufficient mandate for healthcare staff to perform mental healthcare), leading to adaptations in the structure of the care package (Jordans, Luitel, Tomlinson, & Komproe, 2013a). Below we present an overview of the MHCP; including adaptations that are made as a result of the formative study (see Tables 1 and 2).

TABLE 1: Mental Health Care Plan Matrix

Level	Awareness packages	Detection packages	Treatment packages	Recovery packages
1. Health organisation	1.1 Engagement & advocacy			
2a. Specialist mental health services		2.1 Referral for management of complex or treatment-resistant cases		
2b. Health facility (Primary healthcare)	2.2 Service provider awareness raising & stigma reduction	2.3 Screening & assessment	2.4 Basic psychosocial support	2.7 Continuing care
			2.5 Focused psychosocial support	
			2.6 Pharmacological treatment	
3. Community	3.1 Mass sensitization and stigma reduction	3.2 Community informant case detection (CIDT)	3.3 Advanced psychosocial support	3.4 User group mobilisation

CIDT, community informant detection tool

TABLE 2: Overview training and supervision

Level and	Package	Service provider	Human resource allocation estimates a	Training		Supervision	
				Type	Duration	Frequency	Supervisor
Health Facility	Awareness raising & stigma reduction	All facility personnel	_b	Introduction *(Level 1)*[c]	2 days	n/a	
	Basic psychosocial support	Healthcare providers[d]	_b	Support skills *(Level 2)*[c]	2 days	Monthly	Community counsellor
	Assessment	Prescribers	2.4 FTE/ 100 000 (for 0.08 FTE per provider)	mhGAP *(Level 3a)* [c]	5 days	Monthly Case conference	Psychiatrist
	Pharmacological treatment					Once every two monthly Managerial	District Public Health Office
	Focused psychosocial support	Non-prescribers	2.4 FTE/ 100 000 (for 0.08 FTE per provider)	Brief Psychological treatment *(Level 3b)*[c]	5 days	Monthly Group supervision	Community counsellor

Community	Community case detection	Targeted community members [e]	4.5 FTE/ 100,000 (for 0.05 FTE per provider)	CIDT and community mobilization	2 days	Monthly Group monitoring	Community counsellor
	Mass sensitization & stigma reduction				1 day		
	Advanced psychosocial support	Community counsellors	5.0 FTE/ 100 000 (for 1.0 FTE per provider)	course for generic counseling skills	5 months	Once per month	Psychologist
				Protocolised Psychological treatment	20 days (4x5)		
	User group mobilisation	Service users	N/A	Peer Support Group formation	5 days	Ongoing contact	Community counsellor

FTE, full-time equivalent; mhGAP, World Health Organization (WHO) Mental Health GAP Action Program; CIDT, community informant detection tool; N/A, not applicable.

a. During the PRIME implementation phase 81 health workers and 6 counsellors will be involved in service delivery for a catchment population of approximately 130,000.

b. Included in calculations below.

c. The levels refer to the accumulating training structure, wherein all health facility personnel receive level 1, all healthcare providers an additional level 2, and some health workers yet an additional level 3

d. Prescribers and non-prescribers combined.

e. Female Community Health Volunteers and Mothers group members;

Healthcare organisation platform

A single care package is planned for the healthcare organisation platform: engagement and advocacy (package 1.1 in Table 1). Presently, the level of awareness about mental health is very low among health managers and policy makers, both at national and district level. Yet their understanding and engagement is vital for the ultimate sustainability of the MHCP. The objective of this package is to sensitize leaders about the need for mental healthcare and develop support within the health system for such integrated care (including issues such as drug supply chain management and health management information systems). As part of this package, regular workshops with relevant divisions in the government system are organised. So far this has resulted in commitment from the Ministry of Health and Population for the procurement and supply of psychotropic drugs, and providing time for healthcare staff for training and mental healthcare delivery, for the duration of programme (5 years, 2013 - 2018).

Health facility delivery platform

A central objective of the MHCP is to deliver non-stigmatizing care by competent health workers, to improve the social, economic and health outcomes of people with mental disorders. A number of care packages are included to achieve this, all corresponding to different levels of training (Table 2 and Online Fig.DS2).

First, service provider awareness and stigma reduction (package 2.2 in Table 1). The objective of this package is to increase knowledge about mental health problems and services among all health facility staff, to change the perception towards mental health and reduce mental health stigma. A 2- day training course for all staff covers basic information on mental health problems, causes and treatment, as well as common misconceptions about mental health. In addition to the knowledge- driven training course, a targeted stigma intervention consists of organising interactive workshops bringing PHC workers, service users and their family members together to discuss attitudes towards mental health. This social-contact intervention targeting primary healthcare workers aims to teach basic skills to reduce stigma, fear of violence, fear of contagion associated with provision of mental healthcare, and develop a locally specific action plan for countering stigma within the health facility.

Second, clinical staff will be trained in the assessment and management of priority mental disorders, including pharmacological and psychosocial support components, following the mhGAP Intervention Guide. All PHC workers are trained to provide basic psychosocial support to people with mental health problems and their families (package 2.4 in Table 1). Practically, the package comprises psychoeducation to help patients and their caregivers better understand the problems and treatment, emotional support through empathetic engagement to reduce distress and case management for practical support. One of the key challenges raised by the formative research is the risk of over-burdening the primary healthcare workers. In response, the remaining health-facility-level packages of the MHCP are separated over two cadres of primary healthcare workers: prescribers (the group that is mandated to prescribe medicine) and non-prescribers (healthcare providers that are not mandated to prescribe medicines). Prescribers are thus trained to deliver pharmacological treatment when indicated, especially for people with psychoses, epilepsy and severe depression (as well as moderate depression if psychosocial support does not result in improvements) (package 2.6 in Table 1). Ongoing supervision for the prescribers is provided by a visiting psychiatrist. The non-prescribing health staff are responsible for providing brief focused manualised problem-oriented psychosocial support (package 2.5 in Table 1). For depression the health workers are trained to deliver a brief intervention based on behaviour activation principles derived from the Healthy Activity Program (Anand, Chowdhary, Dimidjian, & Patel, 2014), and for alcohol use disorders a brief intervention based on motivational interviewing derived from the Counselling for Alcohol Problems intervention (Dabholkar, Nadkarni, Velleman, & Patel, 2014). In addition, a separate group of health workers are capacitated to deliver a cognitive-behavioural therapy-based intervention specifically for maternal depression, i.e., the Thinking Healthy Program – an intervention with proven effectiveness in a similar setting (Rahman, Malik, Sikander, Roberts, & Creed, 2008). Supervision for the psychosocial support package is provided by a TPO Nepal counsellor.

Third, to ensure tertiary care for people with severe and persistent mental disorders that cannot be treated within primary healthcare facilities, referral mechanisms are established (package 2.1 in Table 1). This is done through training of the primary healthcare workers on adequate referral pathways and in the use of a simple screen for suicidal ideation and self-harm.

Fourth, the final package is geared towards ensuring continuing care to patients that have entered the MHCP (package 2.7 in Table 1). Follow-up is stimulated through active monitoring of patients' progress and need for continued care. Home visits (i.e. Home Based Care) by community health workers (i.e., Female Community Health Volunteers), focus on monitoring treatment adherence and need for follow-up consultation.

Community care delivery platform

The aims of the community-level care packages are to improve access to care, and to contribute to improved outcomes and social inclusion for people with mental health problems. The interplay between the health facility and community-level packages is central to the MHCP, one cannot function without the other to cover both demand-side and supply-side issues related to integrated mental healthcare. The following packages are included.

Community sensitisation and stigma reduction (package 3.1 in Table 1) aim to increase mental health literacy among the community at large, including knowledge on the (now) available services. Further, it aims to reduce stigmatizing attitudes and discrimination towards people with mental health problems. Similar to the anti-stigma intervention for primary healthcare workers described above, at the community level interactions are organised between different stakeholder groups (i.e., media, teachers) and patients along with family members, aiming to facilitate social engagement, skills associated with stigma reduction, and developing community action plans. Also, large group community meetings are convened for awareness raising, supported by information leaflets.

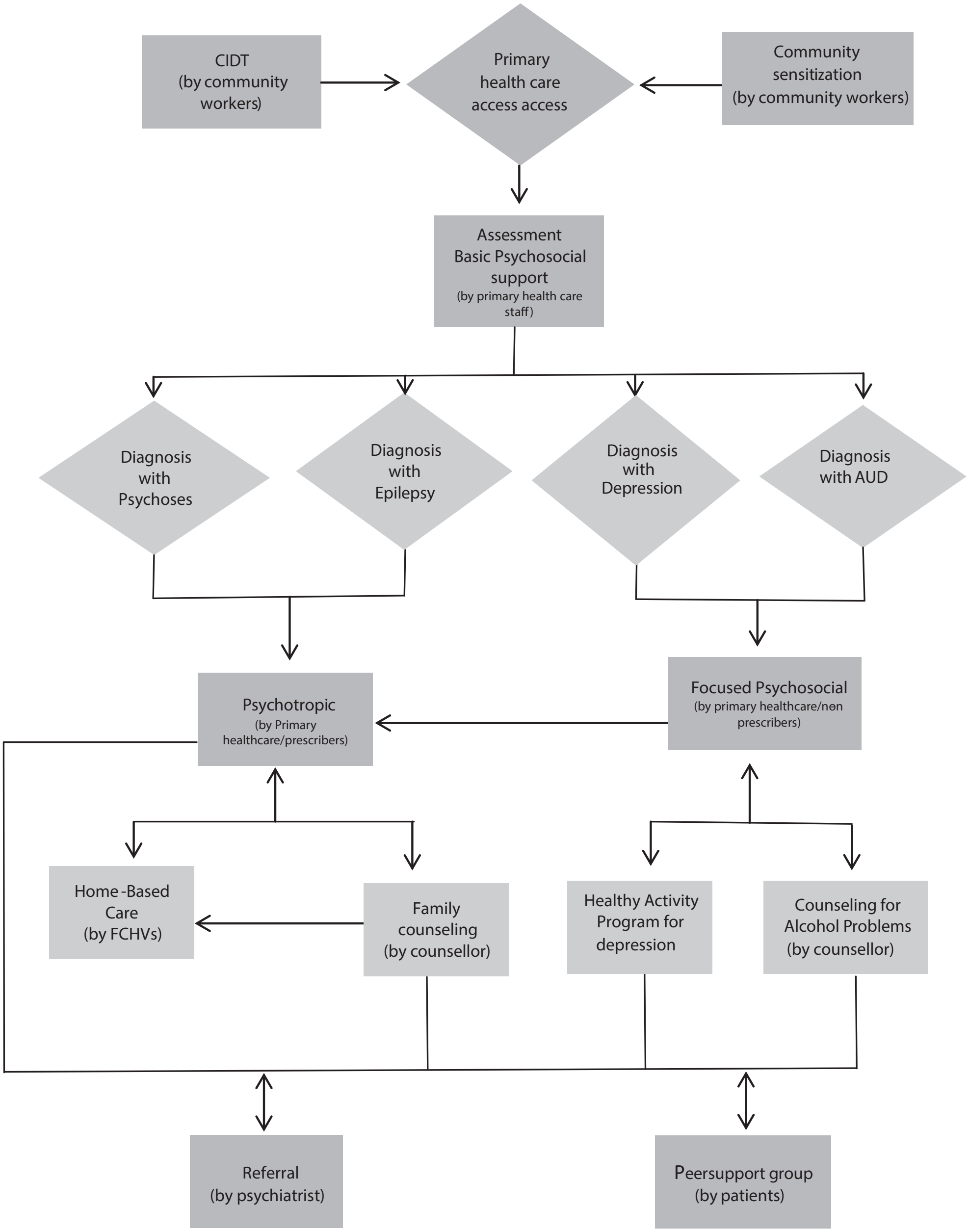
A barrier raised by the formative study is the low demand for mental healthcare. To pre-empt this, we developed the Community Informant Detection Tool (CIDT) (Online Fig DS3), which is a procedure of proactive case-finding of people with probable mental health problems and subsequently promotes help-seeking (package 3.2 in Table 1). The CIDT consists of contextualized vignettes and associated pictures to facilitate recognition by lay people. The rationale behind the strategy is that briefly trained community members (i.e., Female Community Health Volunteers, and mother groups) that are intimately familiar with the community, are especially well placed and capable of identifying people in need of care. Preliminary research into the accuracy of the CIDT confirms this (Jordans, Kohrt, Luitel, Komproe, & Lund, 2015).

To complement the brief focused psychosocial support provided by the primary healthcare workers, a cadre of community-based counsellors is introduced to provide the complete psychological treatments following established protocols. Primary healthcare workers can therefore refer cases to the community counsellors if more advanced psychosocial support is indicated (package 3.3 in Table 1). The community counsellors are trained in generic counselling (including emotional support and problem- solving skills), as well as different protocolized interventions: the behaviour-activation-based Healthy Activity Program for people with depression (Anand et al., 2014), motivational-interviewing-based counselling for Alcohol Problems for people with Alcohol use disorders (Dabholkar et al., 2014), The Thinking Healthy Program for maternal depression (Rahman et al., 2008) and Family Counselling for people with psychoses or epilepsy. The latter component is a respond to recommendations generated from the formative research, which highlights the need to work systematically with the families of people with severe conditions to improve acceptability of, and adherence to, treatment. Ongoing supervision of the community counsellors is provided by a psychologist.

The final care package, user group mobilisation, aims to connect people with mental illness to health facilities and to promote peer support (package 3.4 in Table 1). This is done through peer support groups , a regular group session for patients, initially facilitated by counsellors

(Baingana & Onyango Mangen, 2011). After formation, the peer support groups are geared towards establishing social support and facilitating linkages to existing community resources (such as income generation opportunities) for the group.

FIGURE 1: Service delivery framework



Supervision is an integral part in the MHCP, especially as previous endeavours have demonstrated that one-off training courses are insufficient to successfully capacitate health workers (Goncalves et al., 2013). On-going supervision is offered to all staff involved in service provision. The supervision structure follows a cascading approach, and ranges from case conferences with a psychiatrist, clinical spot checks by a psychiatric, and managerial supervision meeting by district health administration and peer supervision for psycho-social care by the community counsellors, who in turn receive supervision from a psychologist (Table 2). Supervision will be the main mechanism for quality assurance, complemented by two tools. A register will be used to record all diagnosed patients and the subsequent services provided. We will also use the Enhancing Assessment of Common Therapeutic Factors (ENACT) Rating Scale, a tool to assess health workers' competence in psychological treatments and other mental health services (Kohrt et al., 2015).

In practice the above-mentioned separate packages form an integrated service delivery framework wherein people can flow between the different parts and levels of the system of care, depending on need (Figure 1). Given the scarce mental health resources, the entire MHCP is built on the notion of task-sharing, with non-specialists taking on care functions otherwise done by mental health specialists. A number of capacity-building trajectories are required to achieve this. For the health workers, a stepped training approach ensures that all health facility staff (service providers and administrative) receive an introductory course, with added levels of training for specific functions for different cadres of healthcare workers. Similarly, the community counsellors also follow a staged training structure, with a basic training course focusing on core and generic therapeutic competencies, subsequently combined with the protocolized psychological treatments for specific mental health problems. All training courses are competency -and skills-focused and are followed up with brief refresher courses and supervision.

Pilot testing results

During the 11-month pilot period, the packages of the MHCP were initiated in the two health facilities and surrounding communities. The implementation steps included the training of different cadres of health workers in mental health awareness and stigma reduction, assessment and treatment (both pharmacological and psychosocial). At the same time, the community health workers were trained and mobilized for conducting sensitization programmes and proactive case-finding, and community counsellors commenced psychological treatments. Supply and management of medicines was organised and supervision initiated. The recovery packages (i.e., continuing care and user group mobilisation), the health organisation package (i.e., policy engagement) and the stigma reduction components were not included in the pilot.

Table 3 presents an overview of all the people (n=135) who were diagnosed by trained health workers and subsequently received treatment during the pilot period. The most frequent diagnosis conferred by the health workers trained in the mhGAP assessment and treatment guide (i.e., prescribers) was depression (37%), followed by psychosis (24%). Dropping out (21% i.e. attending only one session and not returning for follow-up within the following 3 months), was most common among the alcohol use disorders group (36%; n=10), followed by epilepsy, psychoses (both 25%; n=7) and depression (14%; n=4). The remaining 79% of the sample received at least one or more of the mental healthcare components (i.e., basic, focused or advanced psychosocial care or pharmacological treatment), with an average of 4.24 (s.d.=3.35; median=4.0) health facility visits in the reporting period.

Next, we reviewed service utilisation data to assess the allocation of treatment to different patient groups. Among people with depression (n=50), 64% received focused psychosocial support from primary healthcare workers, 24% from a counsellor and 40% were prescribed psychotropic medicines. All 32 patients with psychosis were prescribed medicines and 18% also received family counselling. Similarly, for people with epilepsy (n=20), 95% received medication and 15% family counselling. Finally, for people with alcohol use disorders (n=16), 44% received focused psychosocial support from primary healthcare workers, 31% from counsellors and 63% were prescribed psychotropic medicines. The 35 patients that received support from the community counsellors attended an average of 5.5 sessions at the time of data collection, with a 37% termination rate.

TABLE 3: Patient demographics and service utilisation (n=135)

	Total n (%)
Female	79 (58.5)
Age	
Below 18	6 (4.4)
18- 24	15 (11.1)
25-59	74 (54.8)
Above 60	13 (9.6)
Not recorded	27 (20.0)
Ethnicity	

Brahmin/Chettri	62 (45.9)
Tharu	43 (31.9)
Dalit	12 (8.9)
Other	18 (13.3)
Diagnoses	
Psychosis	32 (23.7)
Depression	50 (37.0)
Epilepsy	20 (14.8)
Alcohol use disorders	16 (11.9)
Other	17 (12.6)
Service utilisation	
One visit (no follow-up)	28 (20.7)
Two visits	13 (9.6)
Regular visits (>2); at monthly follow-up	74 (54.8)
Referred to other services	17 (12.6)
Not recorded	3 (2.2)
Type of services	
Medicines (by primary healthcare worker)	82 (60.7)
Basic psychosocial support (by Primary healthcare worker)	52 (38.5)
Emotional support	22 (16.3)
Psycho-education	52 (38.5)
Stress management	9 (6.7)
Focused psychosocial support (by Primary healthcare worker)	78 (57.8)
Behaviour Activation	54 (40.0)
Motivational Interviewing	23 (17.0)
Family support	10 (7.4)
Advanced psychosocial support (by community counsellor)	35 (26.0)
Not recorded	30 (22.2)

Among the group of patients that were asked to complete a routine evaluation questionnaire (n=45; i.e., individuals who continued care after the first session), the majority indicated that they were somewhat or very satisfied on most of the indicators (Table- 4). Satisfaction was especially high on perceived improvements and the time provided by the service provider. Patients report a high rate of endorsement for improvement after treatment (80% score somewhat or completely). A large majority (87%, n=39) reported that they would seek help again for their problems from this health facility or counsellor in the future. On three indicators a subgroup of patients (between 15% (n=7) and 22% (n=10)) express clear dissatisfaction with respect to the perceived relevance and appropriateness of care and overall satisfaction. The main reasons for dissatisfaction were related to the unavailability of the medicines as prescribed by the specialists. Also, the level of satisfaction with privacy was clearly lower than other indicators, with almost 64% (n=29) only a little satisfied or less. The lack of private rooms in most of the health facilities means that many consultations are done in the space that also serves as the waiting area.

The 11 health workers who were asked to complete routine service provider evaluation forms shared that providing mental health services has not been easy for them. About a third of them (36%, n=4) reported being 'somewhat distressed' in providing mental health treatment (Table 4). The health workers perceive the additional time spent on patients as burdensome. Still, they were satisfied with the outcomes of the provided care (73% (n=8) reported being somewhat or very satisfied). In addition, during the formative study, health workers expressed that a clear mandate is required for them to be able to perform mental health tasks.

TABLE 4: Routine evaluation data

	Not at all (%)	Hardly (%)	A Little (%)	Some- what (%)	Completely (%)
patients (n=45[a])					
To what degree do you feel that this was a sufficient amount of time?	2 (4.4)	2 (4.4)	5 (11.1)	26 (57.8)	10 (22.2)
To what degree was the treatment as you expected?	8 (17.8)	5 (11.1)	6 (13.3)	21 (46.7)	5 (11.1)
To what degree do you feel the treatment you received was appropriate for your complaint?	7 (15.6)	3 (6.7)	8 (17.8)	18 (40.0)	9 (20.0)
To what extent do you feel that the Primary healthcare worker was sensitive to your personal needs?	3 (6.8)	3 (6.8)	5 (11.4)	31 (68.2)	3 (6.8)
To what degree did you feel comfortable with levels of privacy during your treatment?	2 (4.4)	1 (2.2)	26 (57.8)	15 (33.3)	1 (2.2)
Have you experienced any improvements since your first visit?	3 (6.7)	1 (2.2)	5 (11.1)	25 (55.6)	11 (24.4)
Overall satisfaction with the service for this problem	10 (22.2)	2 (4.4)	5 (11.1)	25 (55.6)	3 (6.7)
Health workers, (n=11)					
Your overall level of distress in providing this treatment?	4 (36.6)	0	3 (27.3)	4 (36.4)	0
Your satisfaction with overall outcome of sessions?	0	1 (9.1)	2 (18.2)	6 (54.6)	2 (18.2)

a. includes completed evaluation questionnaires of individuals who have received regular services; not all rows add up to 100% as some responses were left blank.

We also followed- up with a group of people who did not return to treatment after the first session (n=28) to understand their reasons for dropping out. This was done because treatment follow-up was one of the largest challenges encountered during the piloting phase, especially for people with alcohol use disorder. The most frequently mentioned reasons included side-effects of medication (among people with antipsychotic and anti-epileptic medicines) (n=6), time constraints (n=5), unavailability of prescribed medicine (n=5), belief that no treatment is needed because problem can be solved by themselves (n=4), has seen sufficient improvement (n=4), claims not to have any (mental health) problems at all (n=3) and distance (n=1).

Discussion

Main findings

In addition to demonstrating the need for, and efficacy of, mental health treatments in LMIC, increasingly there is a need for a realistic service delivery model that demonstrates how the treatment gap can be overcome. This is especially the case for fragile states with a weak care infrastructure (Jordans & Tol, 2013). Several authors have described the challenges and opportunities related to the integration of mental health into primary healthcare in post-conflict settings (Kohan et al., 2011; Ventevogel, Ndayisaba, & Van de Put, 2011; Ventevogel, Perez-Sales, et al., 2011), yet content descriptions of the care packages or implementation data are scarce. The results of the pilot testing of the MHCP developed in Nepal provide preliminary support for its applicability and adequacy. First, the allocation of treatments for different patients (i.e. client flow through the care system for people with psychoses, depression, epilepsy or alcohol use disorders) was largely as intended, many of whom received a variety of care packages. For any care system to work suitably it is important that individuals utilize different parts of the system, according to individual needs (Belfer, Remschmidt, Nurcombe, Okasha, & Sartorius, 2007). Second, perceived satisfaction with utilised (and provided) services was quite good overall, with high satisfaction scores on most indicators, especially on important indicators like perceived outcome and time spent with service provider. Satisfaction has been associated with beneficial outcome (Carlson & Gabriel, 2001; Holcomb, Parker, Leong, Thiele, & Higdon, 1998). This type of data is valuable in assessing how the care package is functioning, yet is often missing for mental health services in low-income settings (Cohen et al., 2011).

Fine-tuning

Development of the MHCP followed a multi-stepped process. A core structure was designed based on a conceptual model and a ToC framework. A first set of adaptations were made based on the formative research (Jordans et al., 2013a). Finally, as a result of pilot testing (provisional implementation of care package, routine monitoring and evaluation data of service utilisation), another set of alterations have been applied to fine-tune the content and delivery mechanisms, resulting in the current version of the MHCP that will be rolled out in the district.

First, the continuing care package in the care plan required a more proactive approach, through assertive outreach work, to target high treatment discontinuation. Consequently, more active involvement of family members is incorporated through adding home visits to the plan, and emphasising the family support intervention by the community counsellors.

Second, the community counsellors have been largely unable to terminate treatments with any of the patients who started it. Although the patients were highly satisfied with the counselling services, non-termination will obviously become a capacity problem when the plan will be rolled out to a larger catchment area. Hence, the interventions provided by the community counsellors have been more strictly manualised, with accompanying session-by-session 'prompt-sheets' (concise notes on session content used for quick reference) to assist counsellors in remaining on track.

Third, health workers expressed both being content (high satisfaction scores on perceived effect of the delivered care) and burdened by the 'supplemented tasks' (high perceived distress). It was apparent from the formative study and the pilot period that a clear task division is needed among the health workers in order to maximise the little available time. To address the distress, we have further adjusted this division by having all focused psychosocial support offered by one cadre (non-prescribers), relieving the prescribers from providing this care. Moreover, the scope of the focused psychosocial support intervention for the health workers has been reduced, now focusing on the only key ingredients that can be delivered in few and brief sessions (i.e. brief focused psychosocial support: approximately three sessions, with 15 minutes per session). As opposed to the brief interventions by health workers, the community counsellors will deliver the complete treatment protocols for the psychological treatments. Patients in need of advanced support can thus be referred from the primary healthcare workers to the community counsellors.

Fourth, the need for a clear mandate, expressed through recognized certification, is an important aspect of the acceptability of the care package by health workers. We acted upon this need by having all training completion certificates be co-issued by the Ministry of Health and Population, and the training curriculum recognised by the National Health Training Centre, the official body regulating health worker education. In addition, practical tools (such as a simplified flowchart, and pocket booklets) were developed to support, promote and legitimise the interventions.

Finally, discontent on appropriateness of treatment and privacy exists among a significant subgroup of patients. Unavailability of some regular medication was one of the main reasons for the low score on appropriateness. The pharmacological treatment package now includes medications that are commonly prescribed by specialists in the district headquarters. Future efforts still need to address the dissatisfaction with privacy – a challenging endeavour given the lack of separate rooms in most facilities.

Nepal has seen several initiatives towards the integration of mental health into primary healthcare (Acland, 2002; Raja et al., 2012), but these have not resulted in a replicable plan. Although the MHCPs across the PRIME sites have a similar structure (Fekadu et al., 2016), there are a number of aspects that are specific to Nepal. We propose a levelled capacity-building approach among the health workers, thereby aiming to include all health facility staff albeit at different skill levels. This includes distinct psychosocial support skills and interventions. Also, the plan involves a new cadre of community counsellors that serve to bridge the gap between community-based care and facility-based care. This service delivery agent can safeguard and bolster the psychosocial care function within the overall care system. It should be noted that this is a new position within the Nepal health system, thus requiring significant additional resources. At the same time, extensive experience in community psychosocial interventions by TPO Nepal should ensure the feasibly of including this care package within the overall MHCP, at least initially (Jordans, Keen, Prasdhan, & Tol, 2007). We are currently evaluating the added benefit of community counsellors to the overall care plan, using a randomized controlled trial design. A strategy has been developed to increase community detection, this is the development and use of a proactive case-finding strategy, the (CIDT), to identify people with probable mental health problems using vignettes that are context sensitive(Jordans et al., 2015). Overall, the plan is congruent with the recent paradigm shift towards collaborative care models, which involves transferring service delivery tasks to community and primary health workers and mental health professionals taking up training, supervision and referral roles (Becker & Kleinman, 2013; Thornicroft & Tansella, 2013), incorporating non-health sector cadres and interventions.

Challenges and current limitations

There are a number of challenges and limitations to be mentioned. During the pilot-testing of the plan, not all packages were implemented. The health organisation package, peer support groups, the psychosocial intervention for maternal depression and targeted stigma reduction interventions have not yet been included, for reasons mentioned. The presented data is the information that was available through routine monitoring and evaluation (following a system put in place by the PRIME programme) and as recorded by the service providers, and therefore does not address issues of quality, fidelity, intensity and outcome of services, or accuracy of diagnosis. The adequacy of prescriptions of psychotropic medications requires further investigation, especially for people with depression and alcohol use disorders. The high rate of prescription for alcohol use disorders requires attention, as it might indicate irrational drug use. Quality assurance mechanisms will be systematically integrated in supervision. Although supervision does involve reviewing accuracy of diagnosis and subsequent treatments, this was not systematically documented as part of this study, mainly because a large-scale study evaluating the accuracy of primary healthcare workers diagnosis is currently under way (De Silva et al., 2016). Neither does it address the accuracy of the registration of provided services by the health workers. From supervision sessions it appears that health workers are reporting delivery of the focused psychosocial care components even if applied partly, which explains why focused psychosocial support is reported more frequently than basic psychosocial support components that tend to be under-registered as it consists of less clearly demarcated tasks. The issue of record-keeping will be addressed in continued capacity-building efforts. This pilot study does not assess feasibility of health system requirements necessary for the implementation of the MHCP, in particular issues of required human resources (estimated 14.3 full- time equivalent staff per 100 000), procurement and supply chain management of medicines, and related costs, are addressed in a related study (Chisholm et al., 2016).

As Chitwan is a more developed district compared with many districts in Nepal, further research will need to demonstrate the transferability of the MHCP to more remote areas of the country with less existing care infrastructure. Currently, another project is underway to pilot test the approach in such an area (Pyuthan district). Government commitment and investments into mental health services beyond the programme period and area is unsure. Still, there are several policy developments underway that promote scaling up of mental healthcare (such as a new health act currently being drafted and a revised essential drug list to include additional psychotropic medicines), some explicitly supporting the use of counsellors.

In conclusion, in this paper we have presented the content of a mental healthcare delivery system, as well as initial implementation data supporting its real-life applicability. It has yielded further improvements to increase feasibility and acceptability (i.e., strategies to reduce drop-out, dissatisfaction and service provider burden). The developed MHCP will serve as a template for roll-out to the entire district and as the 'final protocol' for the studies evaluating the impact of the plan on improved patient outcomes, detection and treatment coverage (De Silva et al., 2016). The overall aim is for the MHCP to serve as a tool to aid the Government of Nepal to implement the inactive policy towards the integration of mental health into primary healthcare.

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SECTION-FIVE

Outcomes of the mental healthcare plan

CHAPTER-SEVEN

Community, facility and individual-level outcomes of a district mental healthcare plan in a low-resource setting in Nepal: A population-based evaluation

This chapter is based on Jordans, M. J. D., Luitel, N. P., Kohrt, B. A., Rathod, S. D., Garman, E. C., De Silva, M., Komproe, I. H., Patel, V., Lund, C. (2019). Community, facility, and individual level outcomes of a district mental healthcare plan in a low-resource setting in Nepal: A population-based evaluation.

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Abstract

Background: In low-income countries, care for people with mental, neurological, and substance use (MNS) disorders is largely absent, especially in rural settings. To increase treatment coverage, integration of mental health services into community and primary health care settings is recommended. While this strategy is being rolled out globally, rigorous evaluation of outcomes at each stage of the service delivery pathway from detection to treatment initiation to individual outcomes of care has been missing.

Methods and Findings: A combination of methods were employed to evaluate the impact of a district mental health care plan for depression, psychosis, alcohol use disorder (AUD) and epilepsy as part of the Programme for Improving Mental Health Care (PRIME) in Chitwan district, Nepal. We evaluated four components of the service delivery pathway: (1) contact coverage of primary care mental health services, evaluated through a community study (N=3482 combined for all waves of community surveys) and through service utilization data (N=727); (2) detection of mental illness among participants presenting in primary care facilities, evaluated through a facility study (N=3627, combined for all waves of facility surveys); (3) initiation of minimally adequate treatment after diagnosis, evaluated through the same facility study; and (4) treatment outcomes of patients receiving primary-care based mental health services, evaluated through cohort studies (total N=449; depression, N=137; AUD, N=175; psychosis, N=95; epilepsy, N=42). The lack of structured diagnostic assessments (instead of screening tools), the relatively small sample size for some study components, and the uncontrolled nature of the study are among the limitations to be noted. All data collection took place between 15 January 2013 and 15 February 2017. Contact coverage increased 7.5% for AUD (from 0 at baseline) 12.2% for depression (from 0),11.7% for Epilepsy (from 1.3) and 50.2% for psychosis (from 3.2%) when using service utilization data over 12 months; community survey results did not reveal significant changes over time. Health worker detection of depression increased by 15.7% (from 8.9 to 24.6%) 6-month after training, and 10.3% (from 8.9 to 19.2%) 24 months after training; for AUD the increase was 58.9% (from 1.1 to 60.0%) and 11.0% (from 1.1 to 12.1%) for 6-month and 24-month respectively. Provision of minimally adequate treatment subsequent to diagnosis for depression was 93.9% at 6-month and 66.7% at 24-month; for AUD this values were 95.1% and 75.0%, respectively. Changes in treatment outcomes demonstrated small to moderate effect sizes (9.7-point reduction [*d*=0.34] in AUD symptoms, 6.4-point reduction [*d*=0.43] in psychosis symptoms, 7.2-point reduction [*d*=0.58] in depression symptoms) at 12-month post treatment.

Conclusions: These combined results make a promising case for the feasibility and impact of community- and primary-care based-services delivered through an integrated district mental health care plan in reducing the treatment gap and increasing effective coverage for MNS disorders. While the integrated mental health care approach does lead to apparent benefits in most of the outcome metrics, there are still significant areas that require further attention (e.g., no change in community level contact coverage, attrition in AUD detection rates over time, and relatively low detection rates for depression).

Author Summary

Why was this study done?

- Following World Health Organization guidance on the integration of mental health into primary health care, there is a need for more evidence for the feasibility of the mental health Gap Action Programme (mhGAP) for scale-up of mental health care in low- and middle-income settings.
- This study evaluated a comprehensive mental health care plan at a district level in rural Nepal, a setting exemplifying scarce access to mental health services.

What did the researchers do and find?

- After implementing a district mental health plan, the percentage of persons in the community receiving treatment increased from 0 to 12% for depression, 0 to 8% for alcohol use disorder, 3 to 53% for psychosis, and 1 to 13% for epilepsy.
- Six months after training, health workers detected 1 out of 4 patients with depression (1 out of 5 patients two years after training) and 3 out of 5 patients with alcohol use disorder (1 out of 8 patients two years after training) among patients presenting to primary care facilities. Of the patients detected with depression and with alcohol use disorder 95% received minimally adequate care (at two years after training this was 2 out of 3 for depression, and 3 out of 4 for alcohol use disorder).
- Patients treated for depression, alcohol use disorder, or psychosis showed small to moderate improvements in both symptoms and daily functioning at 12 months after starting treatment.

What do these findings mean?

- Having health workers who are not specialists delivered community- and primary-health care-based mental health services is a promising strategy to increase the number of people with mental health problems benefiting from such care.
- Future implementation should increase supervision and quality assurance among the trained health workers, as well as ensuring community-level interventions to go hand-in-hand with those in health facilities.

Introduction

Mental health is part of the Sustainable Development Goals, which set an agenda for improved treatment coverage by 2030 (UnitedNations, 2015). Treatment contact coverage is defined by the ratio of people who have contacted the service to the total target population in need of that service (Tanahashi, 1978). Increasing treatment coverage addresses the vast gap between availability of, and needs for, mental health care, especially in low- and middle income countries (LMIC) (Eaton et al., 2011; Thornicroft et al., 2017). The question is how to go about increasing coverage at a population level, especially in rural areas where there is little to no mental health care infrastructure. In keeping with the framework established by Tanahashi, which presents different levels of coverage related to the different stages of service provision (Tanahashi, 1978), the fundamental issues underlying this question are (1) the allocation of resources in order to serve the maximum number of people, (2) the extent to which services are reaching the people they are intended for, and (3) the extent to which the services meet the people's needs (Tanahashi, 1978).

The integration of mental health care in community and primary health care settings has been advocated as a strategy to reduce the treatment gap in LMIC. The call for decentralized mental health care integrated into general health service settings has been made since the early 1970s and this strategy was implemented through the WHO collaborative study on Strategies for Extending Mental Health Care (Sartorius & Harding, 1983). Although there was limited success in implementing that strategy in LMIC during the following decades, renewed efforts have been made more recently. The World Health Organization (WHO) has developed the mental health Gap Action Programme (mhGAP) Intervention Guide, providing evidence-based clinical guidance for health workers to detect and diagnose mental illness (WHO, 2016). Furthermore, recent reviews demonstrate promising results for psychological treatments by non-specialists in LMIC (Singla et al., 2017; van Ginneken et al., 2013). These task-sharing strategies are currently being adapted and implemented in many LMIC (Keynejad, Dua, Barbui, & Thornicroft, 2017).

Yet, to date, there are few evaluations of coverage of mental health programmes (De Silva et al., 2014), and to our knowledge none that combine evaluation methods at the community, facility and individual levels to assess the impact of district mental healthcare plans. The aim of this report is to evaluate contact coverage, detection and treatment outcomes as a result of a complex multi-component district level mental health care programme for adults in Nepal.

Methods

Setting

The Programme for Improving Mental Health Care (PRIME) is a multi-country research program that implements and evaluates district-level MHCPs in Ethiopia, India, Nepal, South Africa and Uganda (Lund et al., 2012). In Nepal, PRIME was implemented in Chitwan, a district in the south of the country with a total population of 579,984. During the evaluation phase the program covered 10 primary healthcare facilities. Before the implementation of PRIME, mental health services were restricted to the district-level hospital. The Nepal health system consists of (1) district hospitals for specialized care, (2) Primary Health Care Centers for general medical care and first referral from health post, and (3) the village-level (Sub-) Health Posts for basic health services. The major challenges in the existing health care system ahead of implementing the MHCP were the lack of a formal government focal point for mental health care, the lack of basic psychotropic medicines in the essential medicines list, and frequent transfer of PHC workers (Luitel et al., 2015).

Interventions

The MHCP that was developed and implemented in Nepal, in partnership with the Ministry of Health, has been described in detail elsewhere (Jordans, Luitel, Pokhrel, & Patel, 2016). In summary, the MHCP comprised of interventions at the community, health facility and health service organisation levels – see Table 1. The community level packages included community sensitization, pro-active case detection (Jordans, Kohrt, Luitel, Komproe, & Lund, 2015), and adherence support through home-based care. In addition, community counsellors were trained to provide the Healthy Activity Programme (HAP) (Chowdhary et al., 2015) for depression and Counselling for Alcohol Problems (CAP) for AUD (Nadkarni et al., 2015). The facility-level packages included training and supervision for health workers to detect, diagnose and initiate treatment (i.e. emotional support, psycho-education and psychotropic medication) for individuals with a diagnosis of a priority disorder (i.e. depression, psychosis, AUD and epilepsy) following the mhGAP Intervention Guide (WHO, 2016). In most LMIC, epilepsy is considered a psychiatric condition and is treated by mental health specialists.

Because of this, the WHO mhGAP includes epilepsy in its priority mental health conditions in the intervention guidelines. Based on our priority setting activity in Nepal (Jordans, Luitel, Tomlinson, & Komproe, 2013), we determined that epilepsy should also be considered to be a priority mental health condition that could be treated in primary care settings. Finally, health service organisation level packages included ensuring reliable supply of psychotropic medication, referrals to specialised care, mechanisms for monitoring, capacity building and resource mobilisation. For all services, regular ongoing supervision was part of the MHCP. Different types of service providers were involved in implementing the interventions. At the health facility, Medical Officers (5 to 6 years of training), Health Assistants (3 years of training), and Auxiliary Health Workers (15 months of training) were involved in assessment, diagnosis and management of priority mental health conditions. Staff Nurse and Auxiliary Nurse Mid-wife (18 months to 3 years of training) were responsible for providing brief psychosocial support in the health facilities. At the community level, counsellors are a new cadre of psychosocial workers trained by non-governmental organizations, responsible for providing psychological treatment to those referred by primary health care workers. Female Community Health Volunteers were responsible for pro-active case detection and home-based care.

TABLE 1: Overview of the district mental health care plan

Level	Interventions	Service provider	Training	Supervision
Health service organization	Supervision of trained health workers	Psychiatrist	n/a	n/a
	Referral	Mental health professionals in district hospital	n/a	n/a
Health Facility	Assessment, diagnosis, basic psychosocial support and pharmacological treatment following mhGAP guidance	Primary health workers with authority to prescribe medication	9 days	Quarterly
	Focused psychosocial support	Primary health workers without authority to prescribe medication	5 days	

Community	Awareness raising about mental illness and availability of services	Community members at large, as well as specific groups such as mothers groups or traditional healers	1 day	n/a
	Pro-active community case detection using the CIDT	Community health volunteers (i.e. FCHV)	2 days	Monthly
	Focused psychosocial support consisting of HAP and CAP	Community counsellors	10 days	Bi-Monthly
	Home based care to promote treatment adherence	Community health volunteers (i.e. FCHV)	2 days	Monthly

Adapted from (Jordans et al., 2016).

CAP = Counselling for Alcohol Problems; CIDT =Community Informant Detection Tool; FCHV = Female Community Health Volunteers; HAP = Healthy Activity Program; mhGAP = Mental Health Gap Action Program; n/a, not applicable.

Study designs

This paper presents the primary results of a collection of study designs, in order to present findings for each component in the process of evaluating the above-mentioned district mental health care plan: a community study, routine service utilization data, a facility study, and cohort studies - described below (see Fig 1 and Table 2). The study designs and analysis plans have been described in detail elsewhere (Baron et al., 2018; De Silva et al., 2015; Jordans et al., 2016; Rathod et al., 2016; Rathod et al., 2018) summaries are presented below.

FIGURE 1: PRIME Nepal evaluation framework

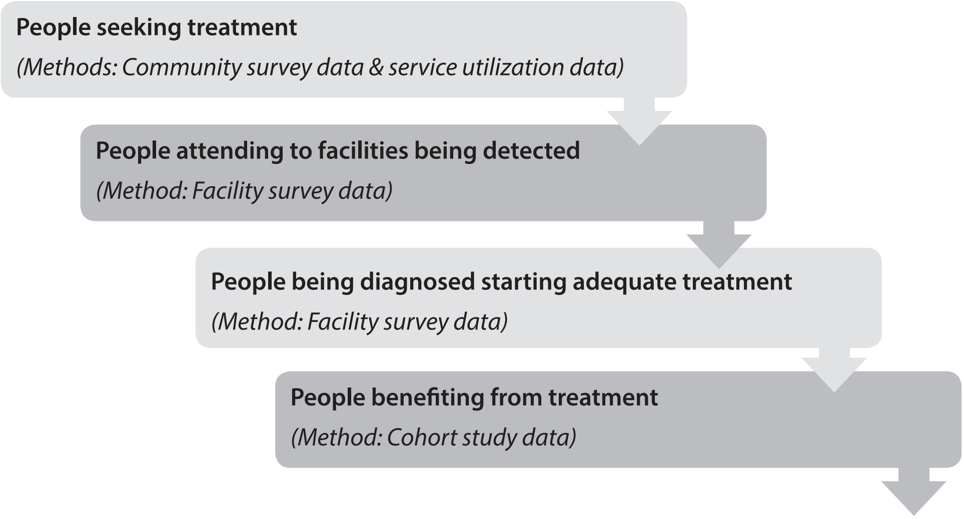

TABLE 2: Overview of study components

	Research Question	Method	Instruments	Sample size (N)
1	How many persons affected by depression, alcohol use disorder, psychoses and epilepsy contact a health workers for help?	Community survey	PHQ-9 AUDIT	3482
		Surveillance data	HMIS records	n/a
2	How many persons attending health care services are correctly detected with mental illness?	Facility survey	PHQ-9 AUDIT	3627
3	How many persons diagnosed with MNS receive minimally adequate care?	Facility survey	OPD records, reviewed by psychiatrist	
4	Are persons with MNS benefiting from treatments delivered by primary health workers?	Cohort study	PHQ-9 AUDIT WHODAS PANNS SIP-2R Epileptic seizures	449

AUDIT, Alcohol Use Disorder Identification Test; HMIS, Health Information Management System; MNS, Mental, Neurological and Substance abuse disorders; N/A, not applicable; OPD, outpatient department; PANSS, Positive And Negative Syndrome Scale; PHQ-9, Patient Health Questionnaire – 9 item; SIP-2R, Short Inventory of Problems-Revised; WHODAS, WHO Disability Assessment Schedule

We will structure the presentation of methods according to the four components of the service delivery pathway: (1) contact coverage from primary care mental health services, (2) detection of mental illness among participants presenting in primary care facilities, (3) initiation of minimally adequate treatment after diagnosis, and (4) the outcomes of patients receiving primary-care based mental health treatment.

Evaluating changes in contact coverage. We conducted a community study to determine whether adults affected by depression or alcohol use disorder were more likely to contact a health care provider for help, coinciding with the PRIME implementation period. A detailed description of the aims, design, recruitment, and questionnaire are available (Rathod et al., 2016). Briefly, two population-based cross-sectional surveys with independent samples were conducted one before and one 30 months after implementation started. With 2000 participants per round, the study had 80% power to detect a change in contact coverage from 5% to 25% among probable cases for each disorder, which we estimated would be 10% of the sample. Of the randomly selected adults (16 years and older following Nepal legal classification) from randomly selected households in the implementation area, 99% provided informed written consent. The field workers orally administered a structured questionnaire that contained sections on demographic characteristics, food security, depression screening, depression symptoms in the past 12 months, and AUD screening. A probable case of depression had a PHQ9 screening score of 10 or more or had depression-associated symptoms for at least 2 weeks in the past year (Kohrt, Luitel, Acharya, & Jordans, 2016). A probable case of AUD had an AUDIT screening score of 9 or more (Pradhan et al., 2012). Probable cases were asked whether they had contact with different health workers in the past 12 months, including non-specialist providers (e.g., medical officer, health assistant, auxiliary health worker) in government clinics. The timing of the data collection was as follows: baseline between May and July 2013, endline between December 2016 and February 2017.

In addition, we used 1-year routine service utilization data to assess change in contact coverage for all four priority disorders (depression, AUD, epilepsy and psychosis). Change in contact coverage was calculated as the number of cases diagnosed with mental illness in 10 health facilities for a period of 12 months before the start of the MHCP and for 12 months during the implementation of the MHCP (baseline: 1 January 2013 – 31 December 2013; endline: 25 August 2014 – 24 August 2015). The reason for using both methods for assessing changes in contact coverage are that (1) service utilization data was available for all four disorders, whereas the community survey only focused on depression and AUD, and (2) we were aware of the risk of being underpowered in the community survey, due to limited financial resources to conduct the survey.

Evaluation of changes in health workers' detection of mental illness and initiation of adequate treatment. We conducted a facility study to determine whether adult attendees of primary health care facilities who were affected by depression or by AUD were more likely to be detected and adequately treated by clinicians during the PRIME implementation period (Rathod et al., 2018). Three cross-sectional surveys with independent sampling were conducted: before MHCP implementation, and approximately 6 months and 24 months after initiating the MHCP. In the 10 health facilities, research staff recruited adults seeking outpatient services. All adult outpatients who were capable of providing informed written consents and who did not have an emergency medical problem were eligible for study recruitment. Among the eligible adult outpatients, 95% provided informed consent. In a private area adjacent to the waiting room, field workers verbally administered a structured questionnaire that contained sections on demographic characteristics and screening for depression and AUD. All participants who screened positive and a 10% random selection of screen negative participants were given a consultation form for their clinician to complete and return to the participant. The form contained open-ended entries for diagnoses, treatments, advice, and referrals. A field worker made a copy of the form immediately after the consultation. A psychiatrist on the research team used the copy to determine whether each participant had been clinically diagnosed with depression or with AUD, and if so, whether there was evidence of minimally-adequate treatment provision following mhGAP treatment guidelines. The timing of the data collection was as follows: baseline between September 2013 and February 2014, midline between August 2014 and August 2015, and endline between May and December 2016.

Evaluation of changes in treatment outcomes. We conducted 4 cohort studies to assess whether patients diagnosed with depression, AUD, psychosis or epilepsy benefitted from receiving treatment under the MHCP. Patients were followed up for 1 year, to assess change in symptom severity and functional impairment, using a before-and-after comparison without control groups. A detailed overview of the methods has been previously published (Baron et al., 2018). Briefly, individuals were eligible for inclusion in the treatment cohorts if they were diagnosed with one of the four priority conditions by a primary health worker in the health facilities implementing the MHCP. In addition, participants needed to be adults, living in the study district Chitwan, and willing to provide informed consent. For participants with psychosis, a caregiver was also recruited into the study to participate in a caregiver component of the study interview. Sample size was calculated based on a 20% reduction in symptom severity at the 12-month follow-up, with a 90% power and two-sided alpha of 0.05, as well as an attrition rate of 15 to 20%. To allow the analysis of equity of treatment effects, the sample size was set at 200 for the depression and AUD cohorts, and at 150 for the psychosis and epilepsy cohorts. Patients were screened with the PHQ-9 and AUDIT by

PRIME fieldworkers before their consultation with the medical officer. They were then again followed-up after their consultation to assess whether a diagnosis was made. If diagnosed, they were recruited into the respective treatment cohort. In case of patients with multiple diagnoses, priority was given to the more severe disorder. Participants were allocated to the psychosis or epilepsy cohort, in case of comorbidity with depression or AUD. If an individual was diagnosed with both AUD and depression, the participant was recruited into the AUD cohort. Baseline assessments were initiated at the clinic on the day of recruitment, and completed in the participants' home, on average one day after recruitment. The follow-up assessments were conducted in the participants' homes, 3 months (depression and AUD) or 6 months after recruitment (psychosis and epilepsy), and again 12 months after recruitment (all cohorts). Data were collected using android devices linked to an online application (Mobenzi, www.mobenzi.com). Participants were considered lost to follow-up if data for the 12-month assessment could not be collected. The timing of the data collection was as follows: baseline between September 2014 and August 2015, midline between December 2014 and November 2015, and endline between August 2015 and July 2016.

We mobilized the same field workers for all study components. Two months of extensive training was provided covering qualitative and quantitative research, interviewing skills, rapport building, informed consent, and inclusion/exclusion criteria. Additionally, two weeks of trainings were organized for each study component covering recruitment strategy and content of the questionnaire, including field practice. Field workers visited each sampled household or health facility, assessed eligibility criteria, performed the procedure for selecting participants and obtained written consent among the selected participants for interviews. Interviews were conducted in a confidential place and field workers used tablets for data collection.

Study measures

For marital status, participants were grouped into two categories based on whether they had ever been married or not. All participants who were either working in an occupation sector or studying were put into a single 'employed' category. Participants were classified as being food insecure if anyone in their household had gone hungry in the past month due to lack of resources.

In the PHQ-9, participants reported the frequency with which they had experienced nine symptoms over the past two weeks on a Likert scale ranging from 0 ("not at all") to 3 ("nearly every day"), and scores from the nine items were summed (Kroenke, Spitzer, & Williams, 2001). From a validation study in primary care settings in Nepal, a cut off score of 10 or more had 94% sensitivity and 80% specificity, and internal consistency of α=0.84 (Kohrt et al., 2016). The 10-

item AUDIT was developed by WHO and used widely in LMIC settings (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). With the sum of 10 items, a score of 8 or more is indicative of hazardous, harmful or dependent drinking behaviours in the past year. Internal consistency of the AUDIT in Nepal has been shown to be α=0.82 (Pradhan et al., 2012).

The 12-item interviewer-administered WHODAS 2.0 has items relating to difficulties engaging in daily activities due to health problems in the past 30 days, and items are scored on a Likert scale from 1 ("none") to 5 ("extreme/cannot do") (Üstün et al., 2010). The WHODAS has been validated in a range of settings (Üstün et al., 2010), and has been used in previous research in Nepal (Luitel et al., 2013). Internal consistency for the WHODAS based on baseline data is α=0.84 (depression cohort) α=0.85 (AUD cohort). Item response theory-based weights were used for the total scoring, to allow comparisons across populations. The assessment of accuracy of diagnosis and minimally adequate treatment for depression and AUD was done by a mhGAP-trained psychiatrist following pre-determined decision-rules based on the mhGAP IG, stipulating inclusion and exclusion criteria for diagnosis and treatment. In case of doubt, another psychiatrist [BAK] was consulted, to come to a consensus decision.

The 15-item SIP-2R is the short form of the Drinker Inventory of Consequences (Miller, Tonigan, & Longabaugh, 1995). Each item is scored on a Likert scale from 0 ("never") to 3 ("daily or almost daily") with regard to the effects of drinking in the past 3 months. The 14-item PANSS is a symptom-based checklist for severity of psychosis symptoms (Chatterjee, Patel, Chatterjee, & Weiss, 2003). The PANSS has not been validated in Nepal but has been culturally adapted for administration to patients and family members with strong internal consistency positive items α=0.82, negative items α=0.88, combined α=0.89 in a rural sample in Nepal (Jordans, Aldridge, Luitel, Baingana, & Kohrt, 2017). Internal consistency of the PANSS using the cohort baseline data was α=0.84. The main outcome for patients with epilepsy was number of seizures in the past month. Participants in all studies were also assessed on a range of measures, including the demographic and socio-economic, health care use, stigma and discrimination measures (results not reported here).

Statistical analyses

We collected data on demographic and health-related characteristics for participants who were recruited into the baseline rounds of the community, facility and cohort studies. We summarized data using medians and interquartile ranges for continuous measures and counts and proportions for categorical measures.

For the community study participants with probable depression and with probable AUD, we reported the proportions who contacted any health workers or with a non-specialist health provider at each survey round. We used binomial regression to estimate the change in contact between rounds, and Cohen's *h* for the effect size (ES). The regression estimates account for the complex survey design, i.e. strata and probability sampling weights. The analysis for participants with probable AUD was limited to men only, as previous analysis revealed that relatively few women had AUD (Rathod et al., 2016). These analyses were adjusted to account for the population-based survey design.

For calculating the change in contact coverage based on actual service utilization data, we used the following equation:

$$\text{Contact coverage} = \frac{\text{Number of clinically diagnosed with a mental illness}}{\text{Prevalence x Catchment population of health facilities}}$$

The number of cases is based on all cases registered in health facility records over a period of 12 months. Baseline includes the total number of cases 12 months prior to PRIME, end-line includes the total number of cases during 12 months when the PRIME cohort study was implemented. The catchment population is the total adult population of the 10 Village Development Committees from the 2011 census (last available census data) (n=63189). Prevalence figures for depression and AUD are based on representative population level prevalence rates from neighbouring India for (current) depression (2.7%), AUD (4.7%) and psychoses (0.4%) (Gururaj et al., 2016), and from a community study in Nepal for epilepsy (0.73%) (Rajbhandari, 2003).

For the facility study, for the participants who screened positive for depression or for AUD, we reported the proportions who returned their clinical consultation forms. Among those who returned their forms, we reported the proportions who had been diagnosed with depression or with AUD, and among those with a diagnosis, the proportions who had evidence of minimally adequate treatment provision. We used binomial regression to estimate the change in diagnosis at each round in comparison to the baseline round, and Cohen's *h* for the effect size. As it was not possible to use binomial regression to estimate the change in treatment at each follow up round due to zero counts in the baseline round, we used Fisher's exact test to compare the proportions against the baseline round, and used one-sample test of proportions to calculate the 95% confidence intervals at each follow-up round.

For the cohort studies, differences in baseline demographic and clinical characteristics between participants with 12-month data and those lost to follow-up were assessed using non-parametric tests (Fisher's Exact Test for categorical variables and Mann-Whitney U Test for continuous variables). Because none of the continuous outcomes (WHODAS, PHQ-9, AUDIT, SIP-2R and PANSS) were normally distributed, univariate negative binomial regression was used to assess change in total score on each outcome from baseline to midline, and from baseline to endline, in each cohort. Change in number of seizures in the past month in the epilepsy cohort was assessed using Poisson regression. Effect sizes (Cohen's *d*) for paired sample analyses were calculated for each outcome. Equity of treatment effect by sex and caste was assessed using negative binomial regression, this time including sex or caste as an interaction term in the model. This was followed by a Wald Chi Square test.

All community, facility and cohort data were analysed using Stata (StataCorp, College Station, Texas, US) version 14.

Ethics

Ethical approval for the different study components was obtained from the Nepal Health Research Council; the Faculty of Health Sciences, University of Cape Town, South Africa; and the World Health Organization, Geneva, Switzerland.

Results

Change in contact coverage

In the baseline community survey round, 1983 participants were screened, of whom 60% were male and 46% were between 30 and 50 years of age (see Table 3). Over 1 in 10 (11%) were probable cases of depression. Of the probable cases of depression identified at baseline, 8.5% contacted a health worker in the past 12 months, in comparison to 11.8% of probable cases at endline; this change of +3.3% (95% CI -5.1, 11.7), was not significant. Contact with a non-specialist provider showed a non-significant increase of +2.3% (95% CI -2.8, 7.5). For probable cases of AUD among men, non-significant changes were observed for contact with any health worker (+6.3%, 95% CI -3.3, 15.9) and for contact with a non-specialist provider (+3.0, 95% CI -1.6, 7.6) (Table 4). Based on actual service utilization data over 12 months, we observed significant increases in contact coverage for all disorders. As shown in Table 5, the increases range from 7.5% for AUD to 50.2% for psychoses.

TABLE 3: Baseline demographic and clinical characteristics of the community surveys, facility surveys and cohort samples

	Community survey (N=1983)		Facility survey (N=1252)		Depression cohort (N=137)		AUD cohort (N=175)		Psychoses cohort (N=95)		Epilepsy cohort (N=42)	
	N or median	Percent or SD	N or median	Percent or SD	N or median	Percent or IQR	N or median	Percent or IQR	N or median	Percent or IQR	N or median	Percent or IQR
Sex												
Male	1280	60.1	813	64.9	19	13.9	149	85.1	50	52.6	25	59.5
Female	703	39.9	439	35.1	118	86.1	26	14.9	45	47.4	17	40.5
Age												
16-29	517	30.2	395	31.6	32	23.4	23	13.1	20	21.1	15	35.7
30-50	1006	45.8	572	45.7	69	50.4	108	61.7	54	56.8	21	50.0
>50	460	24.0	285	22.8	36	26.3	44	25.1	21	22.1	6	14.3
Marital status												
No partner	215	86.4	114	9.1	26	29.0	10	5.7	30	31.6	15	35.7
Has a partner	1768	13.6	1138	90.9	111	81.0	165	94.3	65	68.4	27	64.3
Religion												
Hindu	1604	80.4	1066	85.1	118	86.1	134	76.6	79	83.2	33	78.6
Other	379	19.6	186	14.9	19	13.9	41	23.4	16	16.8	9	21.4

	Community survey (N=1983)		Facility survey (N=1252)		Depression cohort (N=137)		AUD cohort (N=175)		Psychoses cohort (N=95)		Epilepsy cohort (N=42)	
	N or median	Percent or SD	N or median	Percent or SD	N or median	Percent or IQR	N or median	Percent or IQR	N or median	Percent or IQR	N or median	Percent or IQR
Caste												
Brahmin/Chhetri ('upper' castes)	948	48.3	620	49.5	59	43.1	62	35.4	62	65.3	20	47.6
Janajati (ethnic minorities)	542	27.4	263	21.0	38	27.7	44	25.1	14	14.8	8	19.1
Dalit ('lower' castes)	308	15.0	291	23.2	32	23.4	50	28.6	9	9.5	10	23.8
Other	185	9.3	78	6.2	8	5.8	19	10.9	10	10.5	4	9.5
Educational level												
Uneducated/ illiterate	275	13.2	196	15.6	38	27.7	37	21.1	22	23.2	10	23.8
Less than primary school	315	14.9	248	19.8	38	27.7	33	18.9	38	40.0	5	11.9
Primary school & above	1393	72.0	808	64.5	61	44.5	105	60.0	35	36.8	27	64.3
Employment												
Not employed	87	4.7	35	2.8	92	71.3	37	21.6	64	68.8	26	61.9
Employed	1896	95.3	1217	97.2	37	28.7	134	78.4	29	31.2	16	38.1

	Community survey (N=1983)		Facility survey (N=1252)		Depression cohort (N=137)		AUD cohort (N=175)		Psychoses cohort (N=95)		Epilepsy cohort (N=42)	
	N or median	Percent or SD	N or median	Percent or SD	N or median	Percent or IQR	N or median	Percent or IQR	N or median	Percent or IQR	N or median	Percent or IQR
Food insecurity												
No	21	1.1	41	3.3	7	5.4	5	2.9	3	3.2	0	0
Yes	1962	98.9	1211	96.7	122	94.6	166	97.1	90	96.8	42	100
Outcomes												
PHQ-9 score	2.7	3.1	5.1	3.9	12.0	5.0	8.0	7.0	-	-	5.0	6.0
AUDIT score	1.4	3.5	2.0	4.7	0	1.0	27.0	9.0	-	-	-	-
WHODAS score	16.1	3.5	18.2	5.9	36.1	25.0	19.4	22.2	27.8	27.8	19.4	22.2
SIP-2R	-	-	-	-	-	-	20.0	13.0	-	-	-	-
PANSS score	-	-	-	-	-	-	-	-	11.0	12.0	-	-
Number of seizures	-	-	-	-	-	-	-	-	-	-	1.0	3.0

AUD, Alcohol Use Disorder; AUDIT, Alcohol Use Disorder Identification Test; IQR, Inter-quartile range; PANSS, Positive And Negative Syndrome Scale; PHQ-9, Patient Health Questionnaire – 9 item; SIP-2R, Short Inventory of Problems – Revised; WHODAS, WHO Disability Assessment Schedule.

TABLE 4: Contact with a health worker for depression or for alcohol use disorder among adult residents based on 12-month recall, Chitwan District, Nepal, 2013-2017.

Outcomes	Baseline N=1983	Endline N=1499	% difference baseline to endline (95% CI)
Depression			
Probable case (%)	228/1983 (11.0)	118/1499 (7.6)	
Any health services contact-total (%)	18/228 (8.5)	13/118 (11.8)	+3.3 (-5.1, 11.7)
Primary care contact-total (%)	5/228 (1.8)	4/118 (4.2)	+2.3 (-2.8, 7.5)
Alcohol use disorder (male only)	N=703	N=427	
Probable case (%)	89/703 (12.0)	66/427 (13.8)	
Any health services contact-total (%)	5/89 (5.4)	9/66 (11.7)	+6.3 (-3.3, 15.9)
Primary care contact-total (%)	1/89 (0.6)	3/66 (3.7)	+3.0 (-1.6, 7.6)

Counts are presented as observed, while percentages are design-adjusted; the percent difference is change in treatment contact, calculated with design-adjusted binomial regression models, estimated with binomial regression models that account for the complex survey design, i.e. strata and probability sampling weights

TABLE 5: Contact coverage rates for people with probable depression, AUD, psychosis and epilepsy using 12-month service utilization data

Disorder	Contage coverage rate	
	Baseline (%)	Endline (%)
Depression	0	12.2
AUD	0	7.5
Psychosis	3.2	53.4
Epilepsy	1.3	13.0

AUD, Alcohol Use Disorder

Detection of persons with mental illness

In the baseline round, 1252 participants were screened, of whom 65% were male and 46% were between 30 and 50 years of age (Table 3). There were 186 participants (15%) who screened positive for depression, of whom 179 returned their outpatient consultation forms. Using outpatient form data, 16/179 (8.9%) were judged to have received a diagnosis of depression. The proportion receiving a diagnosis increased from baseline by 15.7% (95% CI 7.3, 24.0) with an effect size (ES) of 0.432 at the midline round and by 10.2% (95% CI 1.2, 19.2; ES 0.301) at the endline round. There were 92 participants (7.4%) who screened positive for AUD. Diagnosis increased from baseline by 58.9% (95% CI 42.0, 75.7; ES 1.562) at midline and by 11.0% (95% CI 0.7, 21.3; ES 0.500) at endline (Table 6).

TABLE 6: Clinical detection of depression and of AUD among adult government health clinic attendees, Chitwan, Nepal, 2013-2017.

Disorder	Baseline (BL) (N=1252)	Midline (ML) (N=1396)	Endline (EL) (N=979)	ML minus BL (95%CI) or ML (95%CI)	Cohen's *h* ML minus BL	EL minus BL (95%CI) or EL (95%CI)	Cohen's *h* EL minus BL
Depression							
Screen positive (%)	186/1252 (14.9)	143/1396 (10.2)	99/979 (10.1)				
Screen positive with consultation data (%)	179/186 (96.2)	134/143 (93.7)	94/99 (95.0)				
Detected (%)	16/179 (8.9)	33/134 (24.6)	18/94 (19.2)	+15.7* (7.3, 24.0)	0.432	+10.2* (1.2, 19.2)	0.301
Adequate treatment	0/16 (0.0)	31/33 (93.9)	12/18 (66.7)	93.9** (77.9, 98.6)		66.7** (41.7, 84.8)	
AUD – men only							
Screen positive (%)	92/1252 (7.4)	180/1396 (12.9)	38/979 (3.9)				
Screen positive with consultation data (%)	90/92 (97.8)	170/180 (94.4)	33/38 (86.8)				
Detected (%)	1/90 (1.1)	102/170 (60.0)	4/33 (12.1)	+58.9* (42.0, 75.7)	1.562	+11.0* (0.7, 21.3)	0.500
Adequate treatment	0/1 (0.0)	97/102 (95.1)	3/4 (75.0)	95.1** (88.6, 98.0)		75.0** (17.6, 97.7)	

Detection proportion differences and p-values estimated using binomial regression accounting for clinic-level clustering, and standard errors adjusted for clinic-level clustering.

*$p<0.05$ for difference of coverage from baseline round using binomial regression

** $p<0.05$ for association of coverage with baseline round, using Fisher's exact test

AUD, Alcohol Use Disorder

Initiation of adequate treatment

Among facility survey participants who received a depression diagnosis at baseline, none received adequate treatment. At midline, among those diagnosed, 93.9% (95% CI 77.9, 98.6) received adequate treatment, as did 66.7% (95% CI 41.7%, 84.8%) at endline. Among those diagnosed with AUD, 95.1% (95% CI 88.6%, 98.0%) had adequate treatment at midline and 75.0% (95% CI 17.6%, 97.7%) at endline, up from 0 at baseline (see Table 6).

Clinical and functional treatment outcomes

A total of 2139 patients were eligible and consented to take part in the cohort studies. Of these, 137 received a primary diagnosis of depression, 175 were diagnosed with AUD and 42 were diagnosed with epilepsy – all were recruited into the respective cohort. A total of 95 caregivers of patients diagnosed with psychosis were also recruited into the psychosis cohort. Participants' demographic characteristics are presented in Table 3. Attrition at the 12-month follow-up was 20.0%, 18.9%, 9.5% and 9.5% for the depression, AUD, psychosis and epilepsy cohorts, respectively. Participants lost to follow-up differed from active participants only in the epilepsy cohort: they were all single, and had greater baseline WHODAS and PHQ-9 scores.

Results of the negative binomial regressions and Poisson regression are presented in Table 7. Participants in the depression cohort showed significant improvement from baseline to endline, with a significant reduction in WHODAS (β= -15.89; 95%CI -23.03, -8.74; d=-0.41) and PHQ-9 scores (β= -7.22; 95%CI -9.54, -4.89; d=-0.58). In addition, 68.2% (95% CI 58.8%, 76.3%) of participants showed a 50% reduction in PHQ-9 (response) at endline. In the AUD cohort, change in score from baseline to endline was significant for the WHODAS (β= -8.57; 95%CI -12.64, -4.49; d=-0.35), AUDIT (β= -9.68; 95%CI -14.35, -5.00; d=-0.34) and SIP-2R (β= -9.13; 95%CI -12.73, -5.54; d=-0.42). Change in WHODAS scores from baseline to endline among the psychosis cohort was also significant (β= -13.56; 95%CI -20.78, -6.34; d=-0.40), and so was change in PANSS score (β= -6.42; 95%CI -9.55, -3.28; d=-0.43). Change in WHODAS or symptom severity scores were also significant at midline in the depression, AUD and psychosis cohorts. However, change in WHODAS scores or number of seizures in the epilepsy cohort was not significant, neither at midline nor endline. Moreover, among participants who scored above the validated PHQ-9 cut-off for depression at baseline, 86.7% (95% CI, 77.8%, 92.3%) of the depression cohort scored below the cut-off at endline. For AUD, 31.9% (95% CI, 24.7%, 40.1%) of participants scoring above the validated AUDIT cut-off at baseline scored below cut-off at endline.

TABLE 7: Impact of PRIME Mental Health Care Plan on individual level outcomes

	Midline					Endline				
	N	Mean (SD) or N (%)	Mean change from BL (β) or RR	95% CI	Cohen's *d*	N	Mean (SD) or N (%)	Mean change from BL (β) or RR	95% CI	Cohen's *d*
Depression										
PHQ-9 score	110	4.7 (4.32)	-7.32***	-9.64 to -5.00	-0.59	111	4.8 (4.60)	-7.22***	-9.54 to -4.89	-0.58
WHODAS	110	18.9 (18.83)	-16.77***	-23.83 to -9.70	-0.44	111	19.8 (20.92)	-15.89***	-23.03 to -8.74	-0.41
AUD										
AUDIT score	135	10.4 (9.87)	-15.00***	-19.26 to -10.75	-0.59	142	15.7 (10.74)	-9.68***	-14.35 to -5.00	-0.34
SIP-2R score	135	8.5 (9.30)	-11.50***	-14.93 to -8.08	-0.57	142	10.9 (9.52)	-9.13***	-12.73 to -5.54	-0.42
WHODAS score	135	12.3 (15.77)	-9.84***	-13.83 to -5.85	-0.42	142	13.6 (14.33)	-8.57***	-12.64 to -4.49	-0.35
Psychosis										
PANSS score	87	6.7 (6.84)	-6.30 ***	-9.44 to -3.15	-0.42	86	6.6 (7.72)	-6.42***	-9.55 to -3.28	-0.43

WHODAS score	87	21.0 (18.45)	-9.19*	-16.90 to -1.47	-0.25	86	16.7 (18.67)	-13.56***	-20.78 to -6.34	-0.40
Epilepsy										
Number of seizures	40	3.9 (10.02)	0.35	0.29 to 0.42		38	2.7 (5.60)	0.24	0.29 to 0.42	
WHODAS score	40	16.0 (18.47)	-3.14	-10.99 to 4.71	-0.12	38	14.5 (15.95)	-4.71	-12.32 to 2.91	-0.20

* p<0.05; *** p<0.001

AUDIT, Alcohol Use Disorder Identification Test; BL, Baseline; PANSS, Positive And Negative Syndrome Scale; PHQ-9, Patient Health Questionnaire – 9 item; RR, risk ratio; SD, standard deviation; WHODAS, WHO Disability Assessment Schedule.

Equity analyses suggest that change in primary outcomes for the depression cohort (PHQ-9), AUD cohort (AUDIT and SIP-2R) and psychosis cohort (PANSS) did not differ according to sex or caste of the participants. In the epilepsy cohort, however, the decrease in number of seizures in the past month from baseline to endline was significantly greater among men compared to women ($\chi2=10.4$, $p<0.001$). The decrease in number of seizures from baseline to endline was also greater among the 'upper' caste groups (Brahmin/Chhetri) ($\chi2=47.35$, $p<0.001$). This was due to 1 outlier (>100 seizures reported by a participant of the Brahman caste). When outliers were excluded, change in number of seizures over time were no longer different across by sex, but was significantly lower from baseline to midline among the 'lower' and ethnic minority castes (Janajati, Dalit or other) ($\chi2=61.4$, $p<0.001$).

Discussion

These combined outcomes demonstrate promising results of a district-level MHCP in a low resource community and primary care setting. We see improvements in *actual* contact coverage, detection of mental illness by trained health workers, the initiation of minimally adequate treatment, and treatment outcomes. Together these results show the potential of a district MHCP to increase effective coverage for MNS disorders. However, there are also important areas that require further attention, such as preventing attrition in AUD detection rates over time, improving detection rates for depression, maintaining adequacy of treatment over time, and achieving better treatment outcomes for some disorders.

This research program is, to our knowledge, unique in that it aims to evaluate each of the steps in the process of integrating mental health care in community and primary health care platforms in a low income setting. Through a combination of studies, it provides a population level perspective on the impact of a district-wide MHCP, covering the extent to which (1) people are seeking care at health facilities, (2) disorders in people attending health facilities are being detected, (3) people being diagnosed are starting adequate treatment, and (4) people are benefiting from treatment.

People seeking treatment (contact coverage)

Based on a representative community study, we see modest, non-significant increases in contact coverage as a result of introducing the district-level MHCP; our measure included any treatment contact and contact with a primary health care worker. The endline rates of 4%, however, do not come close to the targets that were set at the onset of the program (Chisholm et al., 2017). One possible explanation for this is that the community surveys, although representative, were underpowered to detect changes at the population level. True coverage change may be estimated more efficiently by combining routine clinic data with population prevalence estimates from national surveys (De Silva et al., 2014). For example, the change in contact coverage using actual service utilization data is especially promising for psychosis, for which we achieved the target of 50% coverage. In interpreting the contact coverage rates using routine clinic data, it is important to keep in mind that these are based on contact with primary health care services. Contact with specialized services is excluded from the calculation and may explain why the baseline rates are low, especially for epilepsy and psychosis, compared to coverage rates in other studies and settings.

When interpreting the different estimates of contact coverage, it is important to note that routine clinic data provide a more accurate measure of the numbers actually taking up services while the community survey is a more accurate measure of the proportion of the population at large seeking treatment. The former is limited in that it is difficult to ascertain the characteristics of people who need but do not seek care, and the latter is limited by underestimating numbers who actually take up care or by problems of requiring large samples in order to be adequately powered.

The changes in treatment coverage are similar to changes seen in high-income settings (Thornicroft et al., 2017). One of the elements that may have contributed to increased service utilization, besides availability of services, is the proactive community case detection strategy that was part of the approach. Utilization of the Community Informant Detection Tool has been demonstrated to be a viable strategy to increase help-seeking for mental health care (Jordans, Luitel, Kohrt, Lund, & Komproe, 2017; Saraceno et al., 2007). In future programs, the use of the CIDT should be combined with effective stigma-reduction interventions within the communities (Thornicroft et al., 2016), in order to combine supply-side strategies with strategies that increase demand for mental health care.

People with disorders detected when attending facilities

Once accessing health facilities with supervised mhGAP trained health workers, 3 out of 5 people with alcohol problems and 1 out of 4 with depression are detected when the knowledge and skills from training are still relatively fresh (6 months after training). Despite the detection rate remaining relatively stable for depression (1 out 5 patients at two years post-training), we see a big drop for AUD (1 out of 8 patients at two years) which is possibly due to high dropout rates over time resulting in health workers losing faith in treating AUD. Although we see significant increase in detection of depression and AUD, many people with depression complaints still go undetected. This is not entirely unsurprising given the difficulties in diagnosing depression in primary care settings, also in high income settings (Gilbody, Richards, Brealey, & Hewitt, 2007). The global gaps in primary health workers' detection of depression requires further examination and potentially the development of new training and supervision strategies. One suggestion is to reframe the diagnosis of depression in primary care not as a binary approach, but as a staging approach to the identification and classification of mental disorder (Patel et al., 2018). Finally, in our study the small change in depression is influence by high baseline detection rate for depression (nearly 9%), which is likely attributable to one health worker who had received mental health training in another location.

With a cut-off score of 10 in primary care settings in Nepal, the PHQ-9 misclassifies approximately 6 participants as false positives for every 4 participants who are true positives (Kohrt et al., 2016). This is comparable to false positive rates with the PHQ-9 in high-income settings. With this in mind, the identified detection rates at baseline, midline, and endline using the PHQ-9 likely underestimate the true detection rate given the high number of PHQ-9 false positives. Working with a PHQ-9 false detection rate of 60% and assuming that the primary health workers only identified true positives, then the upper limit for accurate detection of depression may have been 22% at baseline, 60% at midline, and 50% at endline. The actual detection rate likely falls somewhere below these rates and above the PHQ-9 results reported in our results section. Future studies should consider using structured diagnostic questions for confirmation of detection rates with primary health workers.

People being diagnosed starting adequate treatment

Nearly all (95%) people that health workers correctly detected with depression or AUD received minimally adequate treatment six-month post training. Twenty four months after the training, we see a decline to 2/3 for depression and 3/4 for AUD. Importantly, these high rates support the feasibility of relatively short and focused training of health workers, which is at the heart of WHO's mhGAP program (WHO, 2008). These results also re-emphasize the need for supervision to keep up good practice over time (Breuer et al., 2015; Eaton & Agomoh, 2008). At the same time, it is worth noting that coding of treatment adequacy was based on 'minimally adequate' care. Unstable supply of psychotropic medicines during the early phase of the program may explain some of the decline in adequate treatment. Further research is needed assessing the rate of optimal care (this study is currently ongoing, and will be published separately).

People benefiting from treatment

The combination of interventions provided through the MHCP - which includes psychotropic treatment, home-based care and psychological treatments - has the expected beneficial effects for people with depression, AUD and psychosis. At 12-month after treatment initiation, all cohorts see an 8% and 16% reduction of functional impairment, and 6%-10% symptom reduction (at midline, these values are 6-15% and 9-17%, respectively). For people with depression 87% score below cut-off of the validated symptoms checklist at 12-month post treatment; for people with AUD this value is 32%. This study did not aim to evaluate the effectiveness of the provided treatments *per se*. Rather, it aimed to assess improved functioning and symptom reduction as indicators of feasibility of a community MHCP provided by non-specialists. Our findings support this feasibility, with the exception of the epilepsy cohort, which did not see significant improvement. That said, not having a control group remains an important limitation, especially given trends towards natural remission among people with depression and AUD (Cuijpers et al., 2014). The improvements among people with psychosis are similar to another recent study of mhGAP in a different rural region of Nepal (Jordans, Aldridge, et al., 2017). Improvements among depressed patients are especially driven by the added value of psychological treatment by the community counsellors, whereas for patients with AUD, pharmacological treatment and psychoeducation by primary health workers appears to primarily explain the improvement (Jordans et al., 2019). The overall absence of treatment effects for epilepsy is surprising given established effectiveness of treatment as included in the mhGAP guidelines, as well as positive prior outcomes in Nepal (Jordans, Aldridge, et al., 2017). There are a few possible explanations for this finding: (1) a relatively small sample size might have made for an underpowered study, and (2) 40% of participants did not report any seizures in the month before baseline. The reasons for the lower change in number of seizures among the 'lower' castes and ethnic minority groups needs to be studied further.

The strength of this study is that it presents an evaluation of a real-world district-wide implementation of mental health services within community- and primary health care platforms in a low income country. The evaluation follows a Theory of Change that was developed at the outset of the program (Breuer et al., 2015), based on guidelines for the evaluation of complex interventions (Craig et al., 2008), and coordinated with studies in 4 other LMIC (De Silva et al., 2015).

There are several limitations to be noted. First, the use of screening tools (e.g., PHQ-9, AUDIT) rather than structured diagnostic assessment risks misclassification of cases in the community and facility studies and an associated reduction of statistical power. Second, community- and facility-level impacts of PRIME for epilepsy and psychosis remain unknown, as these were not included in the study components. Third, while the assessment of adequacy of initiated treatment was done by a mhGAP trained psychiatrist using predefined criteria, we did not systematically assess the reliability of that assessment. Fourth, as noted above, the community surveys might have been underpowered. The sample size suggested by power analysis was reduced for budgetary reasons. We compensated for this by also evaluating changes in contact coverage using service utilization data. Fifth, the study designs are observational and uncontrolled, which increases the risk for biases.

This study has several implications for future implementation and research into scaling up mental health care in LMIC. First, for any population-level program, it is essential to demonstrate changes in contact coverage. A program like PRIME appears to improve contact coverage based on 12-month service utilization data while failing to demonstrate such change using a representative community survey. Future studies evaluating contact coverage using representative samples might need to work with larger samples. Although over half of the people with psychosis appear to have been reached by the program, there should be more focus on getting people into care, especially for depression, epilepsy and AUD. Second, and related to the above, investments in making services available should be combined with efforts to increase demand for these services, for example by using proactive case-finding tools such as the CIDT (Jordans, Luitel, et al., 2017). A combined demand- and supply- side approach will optimize uptake and utilization of care. Third, a brief mhGAP training to health workers appears adequate for drastically improving their capacity to detect cases of, and initiate minimally adequate treatment for, depression and AUD. At the same time, the attrition of detection rates for AUD over time calls for more focus on supervision and quality monitoring, and the depression detection rates still leave room for improvement, possibly by using different approaches to diagnosis. Fourth, while individuals with depression, AUD and psychosis receiving mhGAP-based pharmacological and psychological treatment from non-specialist providers report clinical improvements, most of the changes have relatively small effects sizes, which calls for more focus on the quality of care in future implementation as a means of boosting clinical outcomes. Given the lack control groups, it is not possible to account for natural remission of symptoms as an explanation for these changes. Similarly, the lack of improvements within the overall epilepsy cohort requires further investigation. Taken together, these findings show encouraging improvements in effective coverage at the population level following the implementation of local MHCP.

Conclusion

In efforts to respond to the enormous treatment gap for people with mental illness in LMIC, there is an urgent need for evidence regarding the feasibility of scaling up mental health care through community and primary healthcare platforms. The PRIME program is, to the best of our knowledge, the first programme to systematically evaluate the different assumptions about, and steps towards, making effective mental health care available at a population level. A primary indicator of success is *effective coverage*, defined as the proportion of people who need treatment who accessed services resulting in improvements in patient clinical and functional outcomes. Combining the results from the community, facility, and cohort studies, the program appears to achieve effective coverage of 1 out of 34 participants with depression and 1 out of 23 participants with AUD – based on community and primary care services alone. Another important indicator is the extent of change that is the result of the implementation of a district MHCP. We demonstrated modest to large and targeted changes in contact coverage (ranging from 1 out of 13 participants with AUD to half of all patients with psychosis). Changes in health workers' detection ranged from small effect sizes for change in health worker detection of depression at 24 months (d=0.30) to large effect sizes for change in detection of AUD post training (d=1.6). We demonstrated that minimally adequate treatment was initiated at the lowest level for two-thirds of the cases with depression at endline, and up to 95% of the cases with AUD right after training. Finally, three months after patients initiated care, we observed small to moderate effect sizes for clinical outcomes (ranging from d=0.25 for improved functioning among people with psychosis to d=0.59 for reduction in symptoms for depression and AUD), changes that are maintained 12-month after starting treatment.

These combined results make a strong case for the impact of a district MHCP in reducing the treatment gap and increasing effective coverage for priority mental disorders, while also pointing towards a set of strategies and new research questions that can contribute towards additional improvements for the future. Ultimately, populations in other low-income and fragile states with limited or non-existent mental health services desperately need models that build on the lessons learning in Nepal through PRIME's public mental health care model.

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CHAPTER-EIGHT

Perception of service users and their caregivers on primary care-based mental health services: a qualitative study in Nepal

This chapter is based on Nagendra P. Luitel, Mark J. D. Jordans, Prasansa Subba & Ivan H. Komproe (2020). Perception of service users and their caregivers on primary care-based mental health services: a qualitative study in Nepal

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Abstract

Background: Integration of mental health services into primary health care systems has been advocated as a strategy to minimize the tremendous mental health treatment gap, particularly in low- and middle-income countries. Barriers to integration of mental health into primary health care have been widely documented; however, very little is known about the perception of service users and their caregivers on primary care-based mental health services. This study assessed service users' and caregivers' perceptions of mental health services provided by trained primary health care workers in Nepal.

Methods: A qualitative study was conducted among people with depression, psychosis, alcohol use disorder and epilepsy, and their caregivers in Chitwan, a district in southern Nepal. Semi-structured interviews were conducted with 43 service users and 38 caregivers to assess their perceptions about the accessibility of the services, types of services they received, skills and competencies of health care providers, satisfaction and barriers to receiving services.

Results: Overall, both service users and caregivers were satisfied with the mental health services provided by primary health care providers. They also perceived health workers to be competent and skillful because the services they received were effective in reducing their mental health problems. Both psychological and pharmacological services were made available free of cost, however, they considered psychological services more effective than pharmacological treatment. Major challenges and difficulties accessing services were associated with frequent transfer of trained health workers, non-availability of the same health care provider at follow-ups, frequent stock-out of medicines or non-availability of required medicines, lack of a confidential space for consultation in health facilities, and stigmatizing and negative behavior of some health workers.

Conclusion: The results demonstrated that both service users and caregivers perceived primary care-based mental health services to be accessible, acceptable and effective. The key recommendations emerging from this study for improving mental health services in primary care include the provision of a separate cadre of psychosocial workers to provide psychological interventions, developing quick and efficient mechanisms for the procurement and supply of psychotropic medicines, establishing a confidential place within health facilities for consultation, and further training of health workers to reduce stigma.

Key words: mental health, primary care, integration, service users, perceptions, Nepal

Background

Mental, neurological and substance abuse (MNS) disorders are one of the leading causes of disability, contributing 10.4% of the global burden of disease in terms of disability adjusted life years (DALYs) (Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). A significant gap has also been reported between the number of people who need mental health care and those actually receiving services. Recent studies revealed that 86.3% of people with anxiety, mood or substance use disorders (Evans-Lacko et al., 2018) and 87% of people with alcohol abuse and dependence (Kohn, Saxena, Levav, & Saraceno, 2004) had not received any treatment in the preceding 12 months. Among those who received treatment, 1 out of 27 people with depressive disorder and 1 out of 10 people with anxiety disorder received minimally adequate treatment (Alonso et al., 2018; Thornicroft et al., 2017). Even though various factors are considered to impede mental health care utilization, lack of mental health services or inability to afford the treatment cost are the most commonly reported barriers in low- and middle-income countries (LMICs) (Saxena, Thornicroft, Knapp, & Whiteford, 2007). In recent years a great deal of evidence has been generated indicating that mental health services can be delivered effectively by trained community and primary health care workers through a task-sharing approach (Cohen, 2001; Mutamba, van Ginneken, Smith Paintain, Wandiembe, & Schellenberg, 2013; Patel, Maj, et al., 2010), and this approach has also been widely advocated as a strategy to reduce the mental health treatment gap, particularly in LMICs, where mental health specialists are limited and mental health resources are unequally distributed.

The World Health Organization (WHO) developed its Mental Health Gap Action Program (mhGAP) in 2008 (World Health Organization, 2008) and mhGAP Intervention Guide (mhGAP-IG) in 2010 (World Health Organization, 2010) in order to facilitate the integration of mental health services into primary care. The mhGAP intervention guide has now been used in more than 90 countries worldwide (Keynejad, Dua, Barbui, & Thornicroft, 2018). The PRogramme for Improving Mental health carE (PRIME), a research program consortium which aims to generate new evidence on the implementation and scaling-up of treatment programs for priority mental disorders, implemented and evaluated mhGAP-based district mental health care plans (MHCPs) in five LMICs (De Silva et al., 2014; Lund et al., 2012). In Nepal, we trained prescribing health workers (medical officers, health assistants, and auxiliary health workers) on mhGAP-IG, and the nursing staffs (auxiliary nurse midwives and staff nurses) on basic psychosocial support. Trained health workers were supervised using combination of supervision methods - case conference, tele-supervision and direct observation. Prior studies have demonstrated a significant impact of the mental health services provided by trained primary health care workers on various indicators, including correct detection and initiation of minimally adequate treatment subsequent to diagnosis and individual level treatment outcomes (Jordans, Luitel, Kohrt, et al., 2019). Several studies have documented barriers to the implementation and scaling-up of mental health services in primary and community health care systems (Esponda et al., 2019), however, these studies have focused on the perceptions of policy makers and service providers (Saraceno et al., 2007). Very little is known about how service users and their caregivers perceive mental health services provided by trained primary health care workers, and the potential barriers they face to receiving these services. Therefore, in this study, we explored the experiences and perceptions of service users and their caregivers regarding primary care-based mental health services in Nepal.

Methods

Setting

The study was conducted in Chitwan, a district in Southern Nepal where the PRIME district MHCP was implemented, evaluated and scaled-up. The total population of Chitwan district is 579,984 (279,087 male and 300,897 female), with approximately 132,462 households. The literacy rate of Chitwan (78.9%) is higher than the national average literacy rate of 67% (Central Bureau of Statistics, 2011). Chitwan is a diverse district in terms of caste/ethnicity, language, religion and geography. The major caste/ethnic groups in the district include Brahmin (28.6%), Chhetri (11.4%), Tharu (10.9%) and Tamang (8%) (Central Bureau of Statistics, 2011). The study was conducted in 12 Village Development Committee (VDCs) covering a population of 117,000. Although mental health services in Chitwan district are available in the government district hospital and private medical colleges, there were no mental health services available in any of the 12 primary health care facilities where the study was conducted.

Participants and recruitment

The study was conducted with adults who were diagnosed with one of the priority mental disorders (i.e. depression, alcohol use disorder [AUD], psychosis, or epilepsy) and had initiated mhGAP-IG based treatment by trained primary health care worker, as well as their caregivers. All service users included in this study were participants in the PRIME cohort study, which evaluated the impact of PRIME MHCP in patient-level health out-comes *(Jordans, Luitel, Kohrt, et al., 2019)*. A detailed overview of the cohort study can be found in Baron et al *(Baron et al., 2018)*. Service users were selected purposively based on pre-defined criteria – i) 16 years or above ii) enrolled in the cohort study, iii) currently receiving primary care-based mental health services or recent dropouts from any of the 12 primary health care facilities. Caregivers of service users meeting abovementioned criterion were approached and enrolled in the study upon their consensus. All the invited service users and caregivers participated in the study.

Sample size

The study was conducted with 43 service users [depression (n= 12), psychosis (n= 8), AUD (n= 13) and epilepsy (n=10)] and their caregivers (N=38). Of the total 43 service users, 25 participants were regularly utilizing services whereas 18 participants had dropped out of services at the time of interviews.

Data collection tools

Semi-structured interview guides were used for data collection. The interview guides were developed separately for service users and caregivers within the PRIME consortium, and then contextualized for Nepal. Interview guides were pilot tested with each category of the study participants before data collection commenced to ensure the questions were appropriate and understandable. Major themes included experiences of both service users and caregivers in receiving mental health services in primary care, types of services received, time spent with health workers, confidentiality, health workers' attitudes toward their problems, health workers' skills and competencies, satisfaction and barriers to receiving services. Data collection took place between September 2016 and May 2017. All interviews were conducted and recorded in Nepali language by an experienced team of researchers with university level education.

Data management and analysis

The data were analyzed using a thematic analysis approach *(Braun & Victoria, 2006; Nowell, Norris, White, & Moules, 2017)*. The audio-recorded interviews were first transcribed in the original language (Nepali) by the interviewers immediately after the interviews. The transcriptions were then translated into English by professional translators. A systematic and iterative process was followed in data analysis. First, transcripts were read by two researchers to gain familiarity with the data and identify new themes and associated codes within each theme. Second, they coded 10% of the interviews separately and generated a coding framework using a priori coding framework based on the interview schedule, and the new themes identified during data familiarization for thematic analysis. Third, the coding framework was reviewed and finalized together with other team members involved in the development of topic guides and field data collection. Finally, QSR Nvivo 10 software was used for indexing and charting of the data based on the finalized coding framework *(QSR, 2012)*.

Results

Accessibility of services

Although every primary health care worker at the 12 primary health care facilities were trained and all services (including psychological and pharmacological treatment) were made available free of cost, service users and caregivers expressed mixed opinions about the accessibility of the services. Service users and caregivers living in close proximity to the health facilities reported that the services were readily accessible whenever they needed. Other participants residing farther from health facilities reported difficulty accessing treatment because of the distance. Some service users hesitated visiting the health facilities often citing the expenses required for transportation. Both service users and their caregivers reported that it was more convenient to receive services from primary care than from private hospitals.

There were also many cases where the trained health workers contacted the caregiver or the service user periodically for their follow ups, and also to make sure patients are receiving medicines regularly. A caregiver of a participant with AUD shared her experience on how the primary health care workers supported her father through home-visit, "they [primary health care workers] used to come to our home to give suggestions and convince my dad. They gave medication and used to call two or three times in a week for update, and ask how he is doing".

Values and attitude of health workers

In general, participants reported having a good relationship with primary health care workers. They described the health workers' behavior as 'helpful', 'concerned', 'respectful' and 'supportive', which was mainly because the health workers motivated them to use services and provided helpful suggestions (psycho-education and counseling). One of the patients with AUD reported:

> *"I felt very good about their behavior. They provided information about my problem. They convinced me nicely about the importance of treatment for my [drinking] problem. Later, I also realized that the treatment was for me and not for them. I felt very good after talking to them. They treated me very well. I was given medicine as well. After taking the medicine, I did not even like the smell of alcohol."* ***AUD Service user***

Contrastingly, another service user shared dissatisfaction when the health worker did not maintain confidentiality and spoke about his drinking habit with others in the community. Few service users and caregivers reported fearing that the health workers would scold them for not coming to services regularly or for not coming for follow-up.

Health workers not coming to the health facilities on time was another concern raised by both service users and their caregivers. They felt that some health workers were not serious about their responsibilities because they knew their job was secure regardless of how they performed. A few service users also reported that health care providers just provided medicine and sent them away without giving them much time to talk about their problems.

Perceived skills and competency of health workers

Perspectives of service users and caregivers were similar regarding the skills and competency of the trained primary health care workers. The caregivers generally felt that the health workers were confident and competent to provide necessary services as they had seen considerable improvement in the patients' condition. They held the perception that if the health workers were not competent, then there would not have been improvement in the patients' condition.

> *"They are skillful and knowledgeable. The first thing is that there are positive changes in me. It's not like my condition was bad but there were definitely some changes in me."* ***Service user, depression***

Many service users and caregivers reported that the services they received from primary health care facilities were much better than the services at tertiary health facilities. Caregivers of patients with AUD also reported that health workers were doing their best and that because of their guidance and advice, the patients were now on the right path. On the contrary, a few caregivers thought that health workers did not have much information or experience. A patient with epilepsy mentioned that health workers did not show much concern for his problem or interest in his treatment, which led him to believe that health workers were not capable of treating epilepsy.

> *"My treatment could have been done in the primary health care facilities but the people of the primary health care facilities haven't shown much concern about this thing, so I haven't shown that much interest here."* ***Service user, epilepsy***

Satisfaction with the services

Except for a few AUD cases, most service users and caregivers were satisfied with the services provided by primary health care workers. They cited free services and attentive health workers as major reason for satisfaction. One caregiver of a patient with psychosis said that her husband had thoroughly enjoyed the process of treatment, from getting medicine on a consistent basis to receiving psychosocial counseling. A number of service users and their caregivers spoke about health workers and staff from Transcultural Psychosocial Organization (TPO) Nepal paying home visits frequently and calling for updates on their condition. A caregiver (father) of a patient with depression reported:

> *"… TPO Nepal counselor used to come to my place frequently, tells me not to worry about my son, and provide love and care to him. He also told us that if people have such problems they can go to health post [i.e. primary health care facility] for treatment. He also requested us not to say bad things at them instead provide love and talk to them in a good way."* ***Caregiver, depression***

Another factor contributing to satisfaction in cases of depression, epilepsy and psychosis was that patients' condition improved after seeking services from the primary health care facilities and patients were also willing to take medicines as long as required. A caregiver of a patient with depression mentioned that the patient's condition was improved after getting services from the primary health care clinic, although they had spent a sum of money in a private hospital. "*I had a good experience. I am happy as I am receiving lots of support from the health post for her. We have now been receiving the treatment as much as we have expected from them. I am satisfied with the service".*

Some service users reported that primary health care workers also took advice from their seniors while treating their problem, which they considered positively. One participant with epilepsy shared her experiences saying that "Overall, the experience was good since they provided me suggestions [counselling]. They also gave me medicines. Some health workers provided me suggestions by consulting with other doctors. They told me to take medicines for a certain time. They talked about reducing the dose of medicines after a certain time which was very good. I felt very good about the service. The service quality was good".

Psychosocial counselling service was considered valuable as patients and their families were able to share what they felt and thought about their problems with someone. Both service users and caregivers across all disorders reported that they benefited from the counselling service. Many of them believed that the counselling service was effective and more beneficial for improving their health condition and self-esteem. Participants with AUD spoke in many different ways about how health workers tried their best to help them quit drinking, which in turn helped to improve their relationships with their family, relatives and neighbors. One participant with AUD explained that counselling is needed in addition to medicines, particularly when the medicines do not work:

> *"I received both medication and psychosocial counseling; medication was the sample only but conversation [counseling] was the most effective. I felt happy when they talked to me. I reduced drinking alcohol substantially when they convinced me. Mostly the discussion part of the health post is better rather than the medication. The discussion part of health post helped me to gain knowledge and finally I was able to quit my drinking habit. Medication is like eating mud or flour but the knowledge is the best part".* ***Service user, AUD***

Other service users also reported that they felt better, happy, comfortable, and relaxed after getting to share their thoughts and problems with counsellors. Some reported that counseling had brought change in their symptoms, including staring blankly, wandering thoughts and suicidal thoughts. One of the patients with depression said that she felt relaxed by seeing the counselor and sharing all the things which she could not say otherwise. Another participant admired the counsellor for providing her adequate time:

> *"She [counselor] used to give me minimum 45 minutes at one visit, and the days when she could not come due to her small baby, she used to talk with me by telephone".*
> ***Service user, depression***

Barriers to receiving services

Despite a lot of positive feedback from both service users and caregivers about mental health services in primary care, some of them also reported various factors that created difficulties in initiating or continuing treatment. The most frequently reported barriers are discussed below.

Medicine-related issues

Although the majority of the participants reported benefitting from the availability of the medicines free of cost, a few reported challenges in obtaining the required medicines free of cost from their primary care clinics. Some service users and caregivers reported that sometimes they had to purchase medicine from elsewhere because the medicines were frequently stock out in primary care clinics, which increased their expenditure on transportation and on medicine. Participants who had initiated treatment from other places and wanted to continue treatment with primary health care workers reported that the medicine at the primary health care facilities did not match the one they had received from other health institutions. Therefore, they stopped visiting primary health care facilities. A patient with psychosis described his experience, *I wanted a Nepali company's medicine but they provided me an Indian one. That was the difference. If I had been provided the medicine that I take regularly then I would have come there.*

Availability of limited medicines in the primary health care facilities was another concern raised by the patients with psychosis and epilepsy.

> *"He [family member with psychosis] needed multiple medicines, however, only a few medicine was available in primary care. He didn't get the complete doze of his medicines there, this was the reason we did not go for follow-up. If all the medicines are available in the health post, then it would be good."* ***Caregiver, Psychosis***

Lack of a confidential space

Lack of a confidential place/room within health facilities for consultation and psychosocial counseling was reported as barrier for seeking services by many service users. Some of them reported that they felt uncomfortable sharing their problems in front of other people, and this was one of the factors leading to dissatisfaction with the services. For example, a patient with depression shared, "*In the health facilities......, they did not use to talk to me in a separate room. They used to talk to me in the common room where other patients are also treated. Sometimes nobody was while consulting whereas sometimes there used to be a few patients around".* This was also supported by the response of another patient with depression. She reported, *"I used to talk more freely when there were a few people around; when there were [more] people around me, I used to talk much less".*

Different health workers at follow up visits

Unavailability of the same health worker at follow-up visits was another challenge reported by several service users, whereas some caregivers voiced their frustration over health workers not arriving at the health facilities on time. One of the patients with epilepsy reported, "When I went there for the first time there was an old person [health worker] whereas there was a young person when I visited there second time. On another occasion, there was a senior doctor but later when I went there, there were young ones and again when I went later there were young female staff. So it's hard to trust the treatment that they provide. It would have been good if I could meet with the same person again".

Stigma and discrimination

Stigmatizing behavior of a few service providers, family and community members were reported as barriers for seeking mental health services by patients with all disorders. Caregivers also reported experiences of discriminatory behavior and negative comments from health workers because of their family member who had mental health problems. These experiences were reported frequently by caregivers of patients with AUD. A caregiver of a patient with AUD shared their experiences on how a service provider misbehaved to his/her relative having AUD, "Doctors said, 'why you have brought such drunkard person in the hospital, let him die'. They say many things to the people who drink alcohol. When we take him to the hospital for his serious problem they didn't allow us to enter, they pushed us towards outside but anyhow we entered".

Caregivers also reported social stigma associated with mental illness in the community at large, explaining that some people suggested locking people with alcoholism up or restraining them with chains. The incidence of such social stigma forced caregivers to conceal the mental health condition of their family member, and some would go to the health facilities secretly to bring medicine for their family members in order to avoid people saying negative things about them. A caregiver of a patient with epilepsy described experiencing stigma: *People don't like to come close to people with epilepsy in the time of falling down [during seizures] because [they think] this is a communicable disease and they have a fear that they will catch it***.**

On the other hand, they also reported that such stigmatizing behavior was not observed after improvement was seen among patients. One caregiver shared that after seeing the improvement in his/her family member's condition, people in their neighborhood started referring others for treatment.

The most common types of stigma experienced by service users were negative stereotypes (e.g psycho, crazy), discrimination, social exclusion, and ill treatment. Most service users shared feeling excluded or devalued by their own family members and that they felt bad when their family members talked about them negatively with other people in the community and saw them as an embarrassment. Participants with psychosis reported frequent experiences of stigmatizing behavior because of their violent behavior. Some patients with psychosis also reported instances of human rights violation such as being tied or locked up in a room by their family members because their family members feared that they would harm other people.

Poverty/low economic status

Most of the participants in the study were from a low economic status – such as farmers, those working on daily wages, or those working minimal pay jobs due to which they had difficulty managing basic expenses like food. Caregivers, in particular, shared instances of social compensation where they had cut down their food consumption to once per day to save money for the treatment of their family members. Caregivers were generally of view that their life has been affected by their family member's mental health problems. A caregiver of a person with AUD reported that she had to earn herself in order to manage everything for her family because her husband lost his job due to his drinking habit "I have to feed my children; I have to educate them. Just think about it, a woman in the house whose husband's condition is like that– she is working to feed her family, she has to look after her daughters who have grown up. Just imagine how much of a problem this is."

Caring for family members with mental health problem was experienced as a burden by a few caregivers because it created stress and placed an economic burden on the family. Interestingly, one caregiver described consumption of alcohol and poor economic condition as a vicious cycle of poverty: people drink mainly because of their financial problems, which arise in part due to problems in the family caused by the behavior of a family member with AUD.

Impact of the services

The most commonly reported impacts of the mental health treatment provided by trained primary care workers were improvement in individual health outcomes, able to involve in day-to-day activities, and improvement in household economic condition.

Improvements in health outcomes

Improvements in symptoms severity were particularly reported among the patients with depression, psychosis and epilepsy. Caregivers of the patients with epilepsy as well as the patients with epilepsy reported that they stopped experiencing symptoms such as acting differently, foaming at the mouth, wandering aimlessly, dizziness, periodic seizures and falling unconscious after receiving treatment. One of the patients with epilepsy reported that she has not experienced any seizure since she started treatment from primary care. She said, "Before starting medication, I used to have seizures 3 or 4 times to 8 or 9 times in a month but now that doesn't happen. Now I am good. I have been carrying out my daily activities nicely. Now I don't have a problem like before**."**

Both service users and caregivers of people with psychosis and depression reported that they had observed a lot of improvement in their behavior. In comparison to their previous condition, they had less trouble falling asleep, less pain, and fewer suicidal thoughts, and they also felt an increase in appetite and self-esteem after the treatment. One caregiver of a patient with depression mentioned that the suicidal thoughts of her son had decreased substantially after receiving counselling from health workers and counsellors. "If health workers and counsellors hadn't looked after my son, then I don't know what his condition would be like. He used to shout and cry, he used to carry rope and go towards our yard, he used to say different things [self-harm or suicide] and I used to convince him not to talk like that. They [health workers and counselors] were able to convince him. These days he doesn't say anything like that".

In the case of AUD patients, none reported visible changes in their symptoms severity as like in other three disorders but reported feeling healthier and stronger than before. Increased appetite and weight gain after giving-up alcohol consumption were some of the notable improvements reported by alcoholic patients.

Improvements in household economic condition

Availability of services free of cost was associated with improved economic condition of their family. Family members reported that service users were able to engage in income generating activities, which in turn supported the family economically. One of the caregivers of a psychosis patient reported – "*There have been changes in the economic condition of our family. After his health got improved, he now teaches. He also runs tuition classes for earning. Until the time there was improvement in his health, he used to take medicine and sleep. There wasn't any income and it became very hard at that time in [regard to our] economic condition*".

Improved condition of patients also led caregiver to spare time to engage in other economic activities which otherwise had been compromised earlier. "*She [patient] looks after the cattle. She prepares meal. She handles every little work of house. There is obviously some benefits sir, why wouldn't there be. I also became able to walk outside in an independent way. I got a chance to handle my job. From this I could bring 2 or 4 thousand rupees and that would be useful for buying oil and spices.* ***Caregiver, psychosis***

A patient of AUD shared he has been able to save Rs. 2-4,000 now that he has given up drinking. Others also shared that they have saved transportation cost which otherwise would have been spent on visiting the health facilities.

Involvement in day-to-day activities

Most of the caregivers reported that when their family members or relatives were having mental health problems, they had to spend much time taking care of them. After receiving the treatment from primary health care facilities, they were able to perform day-to-day activities such as taking care of themselves (e.g. maintaining hygiene, cleaning, washing clothes) cooking food, and doing household work; this allowed caregivers to become involved in other work. A caregiver of a patient with psychosis elaborated this saying: "During the time when he doesn't take his medicine, he doesn't wake up even to wash his face. These days, he wakes up in time, bathes and does the work that he has. If there's some work, then he starts doing that in his own way. He does the work like building roofs for houses". This was also supported by the experiences of service users themselves, who described being able to do their personal work by themselves or help their family members with household chores. A patient with epilepsy explained how she started her day to day normal activities after treatment, "I used to fall down while I would be cooking, doing farm work or doing any kind of house works. Now as I have realized, my problem has become much less. I do every work by myself as much as I could. Before I used to hire workers for every work but now I do everything as much as I could"

Improvement in social life experiences

Participants also reported improved social life experiences and relationships after receiving treatment. Service users of AUD and their families were shunned and did not have good relations with the people in their communities. Family members of patients with AUD also reported being embarrassed and irritated by their drinking behavior. However, many service uses reported that the perceptions of community towards them had changed after the treatment. It was reported that their relationships were also improved with friends, family and relatives, and were also getting positive comments on their change. One caregiver of a patient with AUD reported that she had noticed a lot of changes in her brother after he gave-up drinking alcohol, specifically in his relationships with his children, wife and family. "*Yes a lot of changes in him, in the household activities, lots of changes in everything like change in the love for wife, children and in the family".*

Similarly, another caregiver of a patient with psychosis reported similar experiences, where the family member with psychosis became more interactive than before the treatment. Some service users also reported that they were able to tolerate crowds and wanted to get involved in fun activities or in ceremonies. A patient with psychosis explained, *"Previously I used to sit alone, putting the hand on the forehead, holding the head by hand, playing wondering thoughts in heart, but now I like to get involved in fun activities".*

Discussion

To the best of our knowledge, this is the first study conducted among the people receiving mental health services in primary health care facilities and their caregivers in Nepal. People with a range of mental health problems, including depression, AUD, psychosis and epilepsy, were included in the study. Overall, both service users and their caregivers were positive and satisfied with the services provided by trained primary health care workers. The primary health care workers were provided mhGAP-IG based training in order to enhance their knowledge, skills and clinical competencies to provide basic psychological and pharmacological treatment *(World Health Organization, 2010)*. Similarly, a separate cadre of psychosocial counsellors, deployed by the project, provided focused psychological interventions in the community *(Jordans, Luitel, Pokhrel, & Patel, 2016)*. Additionally, many service users had the opportunity to get services from mental health specialists during supervision (case conferences), which may have contributed to the high level of satisfaction among service users and caregivers. Most importantly, availability of both psychological and pharmacological services free of cost in their own community was highly appreciated because this helped to save travel time as well as treatment and travel costs.

Many participants regarded psycho-education and psychosocial counseling as a practice of giving advice or suggestions; it was generally considered to be more effective and useful than pharmacological treatment. The possible reasons for preferring psychological treatment could be the involvement of family members in the counselling sessions, home visits by the community counsellors – which were less stigmatizing and more confidential, and the use of less stigmatizing language, with counsellors using terms such as 'heart-mind problems' or focusing on the symptoms reported by patients rather than using the word 'mental health' in the counseling sessions. After the treatment, significant improvements were reported in patients' health conditions and outcomes; subsequently many participants were found to be engaged in their regular day-to-day activities such as taking care of the domestic animals, involvement in farm-related activities and other income generating activities. These results are also supported by our previous studies where primary care-based mental health treatments were effective in improving individual-level functioning and clinical outcomes *(Jordans, Aldridge, Luitel, Baingana, & Kohrt, 2017; Jordans, Luitel, Kohrt, et al., 2019)*. These results are also consistent with the findings of a trial in India where trained lay-counselors delivering primary care-based mental health treatment were effective in improving recovery from depression and anxiety *(Patel, Weiss, et al., 2010)*. A recent study in eastern Nepal also reported that the trained primary health care workers successfully provided psycho-education and counselling services at primary care *(Gupta et al., 2020)*.

Despite the positive attitude of service users and caregivers towards primary care-based mental health services, they also reported various barriers and challenges to receiving mental health services in primary care. Since only one medicine for each disorder was made available by the PRIME study, a few service users and caregivers - particularly those requiring multiple medicines – expressed dissatisfaction with the services. Similarly, participants frequently mentioned unavailability of psychotropic medicines in the health facilities, which could be due to the lengthy administrative process for procurement and distribution of medicines resulting in the frequent stock-out of medicines. In addition, due to a blockade in the Indo-Nepal border in 2015, there was scarcity of fuel, which created problems for the supply of medicines to the respective health facilities for several months. Problems in regular supply of psychotropic medicines have also been reported in various studies, and this is considered as one of the biggest challenges to integration of mental health services into primary health care system *(Wakida et al., 2018)*. Frequent transfer of trained health workers was also identified as an area of dissatisfaction among service users and caregivers. They reported that they were not able to meet or consult with the same health worker in their follow-ups, which led to the loss of trust towards services.

Lack of confidentiality in the health facilities and short consultation time with health workers was also reported as one of the causes of dissatisfaction among service users. Shortages of human resources and lack of appropriate infrastructure have also been reported as key barriers to accessing mental health services in primary care in South Sudan *(GRAAFF, 2015)*, Uganda *(Nakku et al., 2016)* and six LMICs *(Petersen et al., 2017)*.

Another challenge and source of dissatisfaction reported by service users was the stigmatizing behavior of service providers, community members and their own family members. Negative attitudes among primary care workers were particularly reported by patients with AUD and their caregivers. Stigmatizing and negative attitude of service providers toward people with mental illness have been reported in various other studies. For example, widespread stigma associated with primary health care workers who were supposed to act as frontline staff in the delivery of mental health care was reported as one of the primary obstacles for integration of mental health services in primary care in Zambia *(Kapungwe et al., 2011)*. Similar results have been reported by a study conducted with a wide range of policy makers in six countries from Asia and Africa (i.e. Uganda, South Africa, Nigeria, Nepal, India and Ethiopia), where negative attitudes of service providers towards people with mental illness was identified as an important supply-side barrier to seeking mental health care across all countries *(Petersen et al., 2017)*. Similarly, a study conducted with medical professionals (faculty members and postgraduate trainees) in Southern India reported that a significant number of the medical professionals had negative attitudes towards people with mental illness *(Sathyanath, Mendonsa, Thattil, Chandran, & Karkal, 2016)*.

The findings of this study may have several implications for improving access and quality of mental health services in primary and community health care settings in Nepal. First, both service users and caregivers reported that psychological interventions, particularly the psychosocial counseling service, were more effective than pharmacological treatment. In PRIME, a separate cadre of psychosocial workers (i.e. community counsellors) was recruited to provide counselling services in both health facilities and community settings. The findings of this study have also been supported by our previous randomized controlled trial in which people receiving both health facilities-based services and community counseling had better health outcomes compared to those who received health facility-based services only *(Jordans, Luitel, Garman, et al., 2019)*. Therefore, a separate cadre of psychosocial workers is recommended for providing psychological treatments in primary health care and community settings.

Second, due to the lack of confidential places for consultation, many service users reported that they felt reluctant to share their problems with the health workers in front of many people. In addition to this, perceived stigma and discrimination was also reported as one of the major reasons for not receiving treatment for depression and AUD in Chitwan *(Luitel, Garman, Jordans, & Lund, 2019)*. Similarly, lack of confidential space has also been reported as one of the most important system-level barriers to integrating mental health services into primary care by the trained health workers *(Upadhaya et al., 2020)*. Therefore, a separate and confidential place for consultation and psychological intervention should be made available in each of the health facilities.

Third, unavailability of required medicines in health facilities and frequent stock-out of the available medicines have been reported as reasons for service users dropping out of treatment. There could be adverse consequences in patients' treatment and recovery processes if psychotropic medicines are out of stock for long periods of time. In the existing health care system, limited psychotropic medicines are made available in primary care, and the patients who require multiple medicines have to manage medicines themselves. Therefore, the current drugs procurement process needs to be revised to facilitate quick and efficient supply of medicines, and a range of psychotropic medicines should be added in primary care.

Fourth, stigmatizing attitudes and misbehavior of service providers towards people with mental illness have been reported by a number of service users and caregivers, especially by patients with AUD. Previous studies have also shown that the negative attitude of health workers is considered a barrier to utilizing health care services *(Kigozi & Ssebunnya, 2009)*. Therefore, an anti-stigma program should be developed and implemented to minimize mental health stigma associated with service providers.

Fifth, frequent transfer of trained health workers or unavailability of the same health workers in follow-up visits was reported as an important barrier to continuation of mental health services in primary care. Frequent transfers may reduce motivation of health workers, and have negative implications for service delivery. Therefore, transfer of health workers should be regulated, and a standard protocol should be developed for transferring health workers from one health facility to another. In PRIME we trained all primary health care workers on mental health. This system allowed every health worker to be involved in mental health service delivery; however, provision of a dedicated mental health worker could be one of the strategies to minimize these barriers. This strategy might also be helpful to minimize stigma associated with mental illness.

Finally, many caregivers reported that due to their continuous involvement in care and support of their mentally ill family members, they also felt stressed and anxious. The persistent stress of caregiving may also adversely affect caregivers' physical and mental health well-being, which consequently may produce burnout and emotional exhaustion. Therefore, a community-based psychological intervention needs to be developed and implemented to support family members of people with mental illness.

This study has some limitations. First, the study was conducted in Chitwan, a relatively accessible district in terms of geography in Nepal. The study VDCs are well connected with roads and other modern facilities compared to other VDCs within the district. Therefore, the results of the study may not be generalized in other districts where health facilities are scattered in more remote areas. Second, the study was conducted with participants who were involved in the PRIME cohort study, and they had already been contacted multiple times by the research team. This might have influenced service users and caregivers to provide socially desirable responses. Finally, we applied a purposive sampling method in the study so the results may not be representative of the entire population.

Conclusion

This study examined the perspectives of service users and caregivers on primary care-based mental health services, including their perceptions on the accessibility, acceptability, and impact of the services as well as barriers to the initiation and continuation of treatment. The results suggest that both service users and caregivers were positive and satisfied with the mental health services available in the primary and community care setting. They also perceived health workers to be competent and skillful in providing mental health services. Although, both psychological and pharmacological services were made available free of cost in the health facilities and community, participants considered psychological services more effective than pharmacological treatment. The major barriers that hindered the utilization of primary care-based mental health services included frequent transfer of trained health workers, different health care providers at follow-ups, frequent stock-out of medicines or unavailability of the required medicines, lack of a confidential place in the health facilities for consultation, and stigmatizing and negative attitudes of some of the health care providers towards patients. The key changes that need to be implemented in order to improve access and quality of primary care-based mental health services included the provision of a separate cadre of psychosocial workers to provide psychological interventions, quick and efficient mechanisms for procurement and supply of psychotropic medicines, provision of confidential places in health facilities, and further training of health workers to minimize stigma and negative attitudes associated with mental illness.

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Ethics approval and consent to participate

This study received ethical and technical approval from Nepal Health Research Council (NHRC) (Ref. No. 162/2015), the national ethical body of the government of Nepal; ethical review board of World Health Organization (WHO) Geneva, and University of Cape Town (HREC Ref: 412/2011). Written and oral information was provided to each of the study participants about the objectives and process of the study. Participants provided a signature to confirm their participation. Only those people who voluntarily agreed to participate were included in the study.

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SECTION-SIX

Implementation process, barriers and facilitators of the mental healthcare plan

CHAPTER-NINE

Process evaluation of a district mental healthcare plan in Nepal: a mixed-methods case study

This chapter is based on Nagendra P. Luitel, Erica Breuer, Anup Adhikari, Brandon A. Kohrt, Crick Lund, Ivan H. Komproe, Mark J.D. Jordans (2020). Process evaluation of a district mental health care plan in Nepal: A mixed methods case study

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Abstract

Background: The PRogramme for Improving Mental Health carE (PRIME) evaluated the process and outcomes of the implementation of a mental healthcare plan (MHCP) in Chitwan, Nepal.

Aims: To describe the process of implementation, the barriers and facilitating factors, and to evaluate the process indicators of the MHCP.

Methods: A case study design that combined qualitative and quantitative methods based on a programme theory of change (ToC) was used and included: (a) district-, community- and health- facility profiles; (b) monthly implementation logs; (c) pre-and-post training evaluation; (d) out-patient clinical data and (e) qualitative interviews with patients and caregivers.

Results: The MHCP was able to achieve most of the indicators outlined by the ToC. Of the total 32 indicators, 21 (66%) were fully achieved, 10 (31%) partially achieved and 1 (3%) were not achieved at all. The proportion of primary care patients that received mental health services increased by 1200% over the 3-year implementation period. Major barriers included frequent transfer of trained health workers, lack of confidential space for consultation, no mental health supervision in the existing system, and stigma. Involvement of Ministry of Health, procurement of new psychotropic medicines through PRIME, motivation of health workers, and the development of a new supervision system were key facilitating factors.

Conclusion: Effective implementation of mental health services in primary care settings require interventions to increase demand for services and to ensure there is clinical supervision for health workers, private room for consultations, a separate cadre of psychosocial workers, and a regular supply of psychotropic medicines.

Key words: Mental health; primary care; mhGAP Intervention Guide; integration; effectiveness; Nepal

Background

Globally, mental, neurological and substance-use disorders are among the leading causes of disability, contributing to 10.4% global disability-adjusted life-years (Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). The burden of these disorders has consistently risen in the context of major demographic and socio-political transitions (Patel et al., 2018). Although there is increasing evidence base for mental health interventions, there is a significant gap between the number of people in need of mental healthcare, and those actually receiving treatment. A recent World Health Organization (WHO) World Mental Health Survey reported that 86.3% of people with anxiety, mood or substance use disorders in low- and middle-income countries (LMICs) have not received any treatment in the 12 months preceding the survey (Evans-Lacko et al., 2018). Among those who receive treatment, only a few get adequate treatment (Wang et al., 2007). A recent study conducted in 21 countries reported that one out of 27 people living with depressive disorder in LMICs receives minimally adequate treatment (Thornicroft et al., 2017). In Nepal, there is no nationally representative data on prevalence of mental disorders, however, studies conducted with specific populations or populations affected by conflict or humanitarian emergency reported high prevalence rates of mental disorders (i.e. depression, 14.0% - 80%; anxiety, 22.9% - 81.0%; and alcohol use disorder 1.5% - 25%) (Luitel, Baron, Kohrt, Komproe, & Jordans, 2018; Luitel, Garman, Jordans, & Lund, 2019), and access to mental health services is extremely low (i.e. only 8.1% people with depression, and 5.1% people with AUD received treatment from any providers in the past 12 months) (Luitel, Jordans, Kohrt, Rathod, & Komproe, 2017).

Mental Health Gap Action Programme

Evidence shows that mental health services can be delivered effectively by trained non-specialists healthcare providers through community-based programmes (Patel et al., 2011; Singla et al., 2017). The integration of mental health services in community and primary healthcare (PHC) settings has also been advocated as a strategy to reduce the treatment gap, particularly in LMICs, where mental health specialists are limited. The WHO launched the Mental Health Gap Action Programme (mhGAP) in 2008 and the mhGAP Intervention Guide in 2010, (World Health Organization, 2010) with the aim of providing evidence-based clinical guidance to PHC workers for detection, diagnosis and treatment of mental disorders in primary care. As part of Programme for Improving Mental Health Care (PRIME) (Lund et al., 2012), we developed a mhGAP-based district Mental Health Care Plan (MHCP) by involving a wide range of stakeholders. The MHCP comprised intervention packages to be implemented at community, health facilities, and health service organization levels (Jordans, Luitel, Pokhrel, & Patel, 2016). The community-level intervention packages included a community sensitization programme, case detection in the community by using the Community Informant Detection Tool (CIDT) (Jordans, Kohrt, Luitel, Komproe, & Lund, 2015), treatment adherence support through home-base care, and community counselling. The health- facility- level packages included training and supervision of health care providers to detect, diagnose and treat mental disorders based on the WHO mhGAP intervention guide (World Health Organization, 2010). The health- organization- level packages included human resource mobilization, procurement and supply of psychotropic medicines and referrals for specialized care. Details of the MHCP components are published elsewhere (Jordans et al., 2016).

Aims

Our prior studies demonstrated a significant impact of the district MHCP on treatment coverage, detection of mental disorders in primary care and initiation of minimally adequate treatment after diagnosis and small-to-moderate effect sizes on individual-level treatment outcomes after introduction of the district MHCP (Jordans, Luitel, Kohrt, et al., 2019). These research findings and the available literature on mental healthcare describe what 'works and what did not work', but there is a lack of knowledge on how a particular intervention was implemented taking into account (possible) barriers and facilitating factors. This paper aims to describe the implementation process, particularly the barriers and facilitators of the district MHCP, and evaluate the measures related to the implementation process defined by the theory of change (ToC).

Methods

Setting

Nepal, one of the poorest countries in South-Asia, has a total population of approximately 26.4 million and life expectancy at birth of 69.1 years. Nepal's gross national income per capita at purchasing power parity (PPP) was $2500 in 2017, ranking 193 out of 226 countries. The district MHCP was implemented in Chitwan, a district in southern Nepal. The total population of Chitwan is 579,984 with a literacy rate of 77%, which is higher than the national average of 57%. Although a variety of Caste/Ethnic groups reside in Chitwan, Brahmin (28.6%), Chhetri (11.4%) and Tharu (10.9%) are the dominant groups. Chitwan district was chosen as mental health specialists are available in the district hospital and private hospitals. The MHCP was implemented in three overlapping phases: pilot-testing (2 health facilities), implementation and evaluation (10 health facilities) and scaling up (34 health facilities).

Study design

We used the ToC approach (Weiss, 1995) to develop the district MHCP, and an evaluation framework (De Silva et al., 2016). A ToC describes how a programme or an intervention brings desired long-term outcomes through a logical sequence of short-term and intermediate outcomes (Vogel, 2012). In recent years, ToC has increasingly been used for designing and refining interventions, and as a framework for evaluation (Breuer, Lee, De Silva, & Lund, 2016). We conducted four ToC workshops with national and district-level stakeholders including mental health specialists and primary care workers in order to develop the MHCP, and the related evaluation framework (Breuer et al., 2014). In the first two ToC workshops (district-level stakeholders, n=14 and policy makes, n=10), we determined short-term and intermediate outcomes, interventions and assumptions to achieve the overall impact of the district plan. Stakeholders in the last two ToC workshops (district-level stakeholders, n=11 and policy makes, n=8) defined indicators to measure each of the MHCP intermediate outcomes. These indicators were used to assess whether key stages in the causal pathways of MHCP are achieved. Details of the ToC can be found in Breuer et al (Breuer et al., 2014).

The MHCP was evaluated using multiple methods, including pre- and post-community- and health-facility based surveys, cohort studies, and process evaluations of implementation of the care plans (De Silva et al., 2016). Pre- and post-cross sectional community surveys were conducted to assess changes in treatment contact coverage, pre- and post-facility based surveys were conducted to measure changes in detection and initiation of minimally adequate treatment by trained PHC workers. The cohort studies were done to assess the impact of mental health services on patients' clinical, social and economic outcomes. The results of these studies are reported elsewhere (Jordans, Luitel, Kohrt, et al., 2019). The implementation process, particularly the barriers and facilitators of the MHCP, and indicators related to the implementation process, was evaluated using a case study method (De Silva et al., 2016).

The case study evaluated the input and process indicators defined by the ToC (Breuer, De Silva, et al., 2016), which are not otherwise captured by the community, facility detection surveys and cohort studies described in the paragraph above (Jordans, Luitel, Kohrt, et al., 2019). The case study assessed; (a) social, political, economic, and cultural context that may affect the implementation of the MHCP; (b) the availability of physical, human and financial resources required for the implementation of the MHCP; (c) the implementation process of the MHCP including reach and coverage of the services; (d) the training and supervision of the service providers implementing the MHCP; (e) the perspectives of service providers, patients and caregivers on the acceptability and feasibility of the services; and (f) the barriers and facilitating factors for the implementation of the care plan. A range of qualitative and quantitative methods were used in data collection including; (a) district and community profiles, (b) health facility profiles, (c) monthly implementation logs, (d) training and supervision evaluation, and (e) in-depth qualitative interviews. Details of the different methods are presented in Table 1.

TABLE 1: Summary of data-collection methods for process evaluation

Methods	Timing	Data	Sources of data
District and community profiles	Annually and quarterly (2013 – 2016)	- Socio-political and contextual challenges for implementation of MHCP - Financial and human resources allocated to the mental health in the district - Availability of policies, guidelines and treatment protocols - Types of mental health services available in the community setting	- Quarterly district and community profiles - Reports produced by district public health office - Observation - Interviews with the senior officers in the district public health office
Health facility profiles	Quarterly (2013 – 2016)	- Physical facilities (such as separate and confidential room for consultation and providing psychosocial support) and facility operating time - Number of trained health workers - Available mental health services - Availability of psychotropic medicines - Availability of treatment protocol and guidelines in the health facilities - Number of patients attending primary health care facilities	- Semi-structured interviews with senior facility manager or in-charge personnel - Out-patients' register and facility reports - Observation (Physical facilities and availability of checklists, guidelines, medicine supply)

Monthly Implementation logs	Monthly (2014 – 2016)	- Number of health workers trained - Number of supervision sessions - Number of community sensitization programs conducted and number of participants - Number of people initiating evidence-based mental health care	- Monthly implementation logs
Training evaluation	Before and after the training (2014)	- WHO's pre- and post-test training evaluation questionnaire – to assess *knowledge and attitudes* - (World Health Organization, 2010) - *Mental illness: clinician's Attitude* (Gabbidon et al., 2013) - to assess health workers' attitude towards learning about mental health care and whether providing mental health services is comparable in acceptability and worth as physical health care - *ENhancing Assessment of Common Therapeutic factors (ENACT) – to assess clinical competence* of primary health care workers	- Pre-and-post training evaluation

Qualitative interviews	Two years after implementation of the MHCP (2016)	- Experiences of service providers in delivery of specific component of mental health services (e.g. psychological interventions) - Patients satisfaction with the services - Barriers with respect to treatment engagement, adherence and retention in care - Impact of the services in their day-to-day activities	- Semi-structured interviews with service providers, patients and caregivers - Semi-structured interviews were conducted with 47 purposively selected trained primary health care workers (35 prescribers and 12 non-prescribers) and 8 Female Community Health Volunteers*
Theory of Change (ToC)	2013-2014	- ToCs maps to develop a structural logical map of preconditions (or preliminary outcomes), assumptions and intervention leading to an ultimate outcomes as well as outcome indicators (Breuer et al., 2014)	- ToC workshops with policy makers and primary health care workers

* permitting data saturation

Data analysis

The data were analysed using the following methods. Descriptive statistics such as percentages and proportions were used to analyse the quantitative process and input data from the facility, community and district profiles and the implementation logs. For the training evaluation data, we compared calculated percentages of correct response for knowledge and mean scores for attitude and efficacy, and individual items scores were calculated for ENhancing Assessment of Common Therapeutic factors (ENACT) (Kohrt et al., 2015). Pearson correlation and paired t-test were used to test changes between pre- and post-training evaluation. The qualitative interviews were audio-recorded first and transcribed in the original language (Nepali) by the interviewers. The transcriptions were then translated into English by professional translators. Qualitative data were analysed following a thematic content analysis method using NVivo.

Ethics

This study received ethical approval from Nepal Health Research Council (NHRC) (Ref. No. 162/2015), the national ethical body of the government of Nepal; the ethical review board of World Health Organization (WHO) Geneva, and University of Cape Town (HREC Ref: 412/2011). Written and oral information was provided to each of the study participants about the objectives and process of the study. Consent was also obtained from facility managers to use health-facility-level data. Participants provided written consent to confirm their participation. Only those people who voluntarily agreed to participate were included in the study. As interviews were planned to be audio-recorded, this was explicitly included in the informed consent procedure.

Results

What was achieved?

Mental health case-load in the PHC

Figure 1 presents the proportion of the total patients attending primary care that received mental health care. The proportion was very low (0.15%) before implementation of the MHCP and increased to 3.24% 3 years after implementation. The trained health workers also reported in the qualitative interviews that before introducing the MHCP, no one was aware about mental illness and its treatment process. However, after conducting awareness programmes with a range of key stakeholders in the community, people slowly started coming to health facilities for treatment.

> *"In the older days, mental health was not seen as a problem, people were thinking that it doesn't need any sort of treatment. But later, the TPO [Transcultural Psychosocial Organization] visited different healing places like traditional healers, and community leaders, volunteers, and then people started to learn about it."* ***PHC worker-13***

FIGURE 1: Percentage of people receiving mental health services as a percentage of all people attending primary care services over time

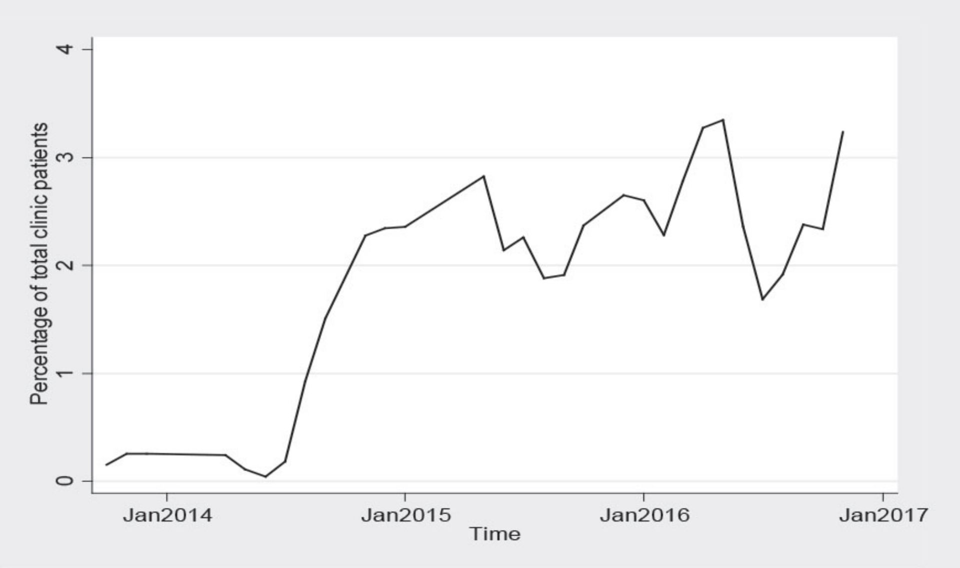
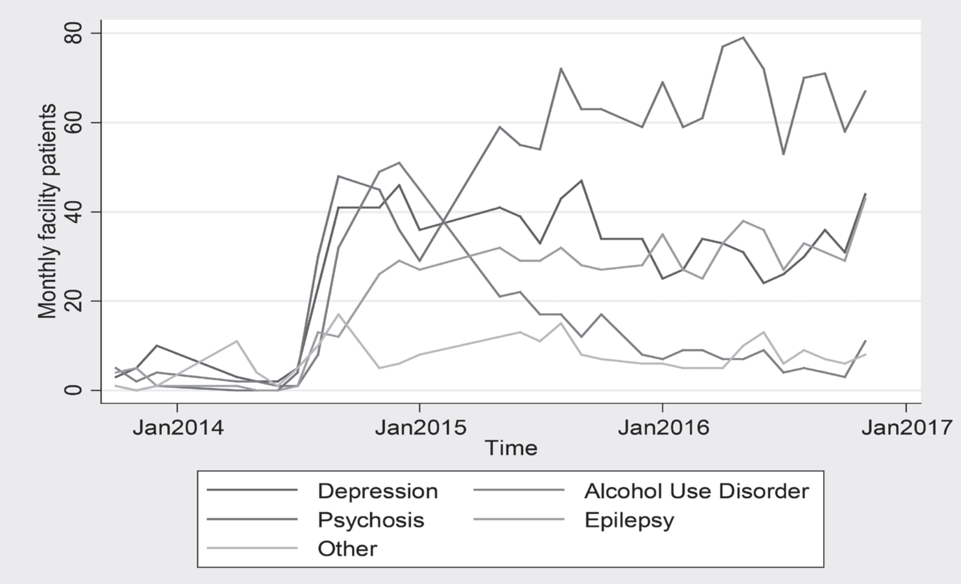


Figure 2 shows the longitudinal trend of service utilization for different disorders. Overall, the number of patients receiving mental health care increased substantially after the mhGAP-based training was initiated in early 2014. The number of patients receiving treatment for psychosis remained highest in most of the quarters except in January 2015. The number of patients with AUD decreased dramatically after 2015. This trend is also supported by the experience of trained health workers. Health workers reported that initially many people with AUD visited health facilities for treatment, and many of them stopped drinking after the treatment. However, after few months, many people who were treated successfully started drinking again and did not come for follow-up. Therefore, health workers stopped initiating diagnosis and treatment of AUD when someone comes without family members and does not show commitment to quit alcohol forever. This narrative could explain why only a few health workers initiated treatment for patients with AUD after 2015.

> *"In my experience, among the regular cases in this facility, the hardest to manage are the AUD cases because many patients go home and start drinking again, they relapse often. Then, we feel bad as service providers because the service users start again. The service users will not come back for treatment because they will feel guilty of relapsing after heaving regular treatment and they will be scared to face eyes with us, they will feel guilty and ashamed."* ***PHC worker-11***

FIGURE 2: Number of people receiving treatment from primary healthcare over time by disorder



Continued care

Table 2 presents details of the follow-up visits of patients receiving mental health services from PHC. On average, patients visited health facilities 7.1 times for follow-up, and there was a large variation in the number of follow-up visits by disorder. For example, people with epilepsy made an average of 14 visits, whereas it was only 5.0 visits for depression, 12.2 visits for psychosis and 3.0 visits for AUD. To motivate patients to come for follow-up, female community health volunteers (FCHVs) were trained in home-based care, where they discussed with both patients and the family members about the importance of follow-up care (Jordans et al., 2016).

In the qualitative interviews, both patients and caregivers highlighted that the availability of mental health services (both psychological and pharmacological) free of charge was the most important facilitating factor for follow-up care in their community. One of the caregivers expressed that he was 'extremely happy' that he was able to get such quality service in his own place.

TABLE 2: Patients follow-up visits by disorders over 2.5 years (July 2014 to January 2017)

Number of visits	Depression (N, %)	Psychosis (N, %)	Alcohol Use Disorder (N, %)	Epilepsy (N, %)	Co-morbidity (N, %)	All (N, %)
1 time	148 (39.1)	56 (27.2)	109 (37.3)	30 (27.0)	15 (22.4)	358 (33.9)
2 to 4 times	120 (31.7)	39 (18.9)	120 (41.1)	19 (17.1)	18 (26.9)	316 (30.0)
5-7 times	37 (9.8)	14 (6.8)	44 (15.1)	10 (9.0)	5 (7.5)	110 (10.4)
> 7 times	74 (19.5)	97 (47.1)	19 (6.5)	52 (46.8)	29 (43.3)	271 (25.7)
Mean (Range)	5.0 (1- 47)	12.2 (1-49)	3.0 (1-13)	14.0 (1-70)	11.3 (1-47)	7.1 (1-70)
Total	379 (100)	206 (100)	292 (100)	111 (100)	67 (100)	1055 (100)

Progress towards other indicators

Table 3 presents the indicators for other MHCP components, intended outcome indicators and supporting evidence. It shows that the programme was successful in achieving most of the indicators defined by the ToCs. Out of 6 health-organization-level indicators, 4 indicators (67%) were fully achieved. Six new psychotropic medicines that were used in PRIME are now included in the Ministry of Health (MoH) essential medication list, and the MoH has allocated a separate budget for scaling of mental health services. Out of 15 health-facility-level indicators, 9 indicators (60%) were fully achieved, 5 (33%) partially achieved and 1 (7%) was not achieved at all. All health workers (both prescriber and non-prescriber) from the implementation area were trained and supervised regularly. Out of 6 psychotropic medicines, 5 medicines were available most of the time in all health facilities. At the community level, we were able to fully achieve 8 (73%) out of 11 indicators. We trained and mobilized all FCHVs (N=103) and 14 psychosocial counsellors. Psychosocial counsellors provided services to all patients referred by trained health workers and FCHVs. FCHVs made more than 1800 home visits. However, home visits did not achieve the intended outcome relating to dropout rate (Table 3).

TABLE 3: Achievements against theory of change (ToC) indicators

MHCP component	ToC Indicators	Indicators achieved	Supporting evidence
Health organization level			
Engagement and advocacy	Mental health is integrated in the district health plan	Fully achieved[a]	MoH has allocated separate budget for scaling up of mental health services
	Mental health programme coordinator in post	Fully achieved	(a) MoH appointed a focal person to coordinate PRIME activities in the beginning of the project (b) DPHO appointed a focal person to coordinate MH activities in the field (c) Mental Health focal unit has been established under NCD by MoH [a]
	Policy for provision of psychotropic medication	Fully achieved[a]	6 new psychotropic medicines are included in the essential list
	DPHO has allocated required budget for psychotropic medicine	Fully achieved	Municipalities/Rural Municipalities have allocated budget for psychotropic medicines
Referral for specialist's consultation	Referral system established with the district hospital	Partly achieved	Referral system from PHCs to psychiatrist department at district hospital was established
	Cases referred to psychiatrist from the primary health care facilities	Partly achieved	24 people referred by PHC workers for specialized care

Health facility level			
Service providers awareness and anti-stigma	Training conducted	Fully achieved	4 training courses conducted (2 for prescribers and 2 for non-prescribers)
	Health workers trained	Fully achieved	35 prescribers, and 41 non-prescribers were trained (all health workers from 10 primary health care facilities)
	Improvement in knowledge and attitude of primary care workers	Partly achieved	Knowledge and attitude changed significantly after the training (see table-4)
Screening and assessment	Adequate numbers of human resources are available at the health facility levels	Partly achieved	(a) 43 prescribers and 41 non-prescribers (b) No psychosocial worker in the existing health system so hired counsellors externally
	Staff gained knowledge and skills to diagnose and treat mental health problems	Partly achieved	(a) Knowledge and attitude changed significantly after the training (see table-4) (b) Correct diagnosis and initiation of treatment changed significantly(Jordans, Luitel, Kohrt, et al., 2019)
	Physical/confidential space is available	Not achieved	No confidential place in most of health facilities
	Protocols and guidelines are in place	Fully achieved	(a) mhGAP-IG translated and adapted for Nepal (b) Standard treatment protocol (c) Trainers and facilitators manual (for both prescribers and non-prescribers) (d) HAP and CAP manuals (e) OPD registers/OPD card
	Increased number and proportion of people identified/diagnosed	Full achieved	0.15% to 3.24% (see figure-1)

Basic psychosocial support	Non-prescribers trained on basic psychosocial support	Fully achieved	All 41 non-prescribers were trained
	People initiating treatment in primary care	Fully achieved	1122 (379 depression; 292 AUD, 206 Psychosis, 111epilepsy, and 134 others)
	Increased number of people receiving evidence-based treatment	Fully achieved	See figure-2
Psychotropic treatment	Medications were available at all clinics 95% of time	Partially achieved	Out of 6 medicines, 5 medicines were always available in all health facilities
	Stock-outs in past 30 days for essential psychotropic medications outlined in the MHCP	Partially achieved	Trihexyphenidyl was not available at 4 out of the 10 facilities
Continue care	Functioning supervision & quality control system is in place	Fully achieved	(a) 1 individual supervision (b) 8 monthly/quarterly supervisions (c) 2 three-day refresher training
Treatment outcomes	Improved health, social and economic outcomes for people living with priority mental disorders	Fully achieved	Changes in treatment outcomes – small-to-moderate effect sizes (9.7 – points reduction [d=0.34] in AUD symptoms, 6.4-points reduction [d=0.43) in psychosis symptoms and 7.2-points reduction [d=0.58] in depression symptoms) at 12-month post-treatment (Jordans, Luitel, Kohrt, et al., 2019)

Community level			
Mass community sensitization	Community sensitization program conducted	Fully achieved	139 community sensitization programs conducted
	People oriented on mental health	Fully achieved	5628 key community members oriented on mental health
	Improved mental health literacy and decreased stigma	Partly achieved	(a) Mental health literacy increased from 22.2% to 30.4% among general community members (b) Stigma associated with mental health decreased but the changed was not significant (Luitel et al., 2019)
	Improvement in treatment coverage	Partially achieved	(a) Depression, 0 % to 12.2 (b) Alcohol use disorder, 0 % to 7.5% (c) Psychosis, 3.2% to 53.4%, (d) Epilepsy, 1.3% to 13.0%
Community detection	FCHV trained on CIDT	Fully achieved	All 103 FCHVs were trained on CIDT
	People referred through CIDT	Fully achieved	685 people were referred to health facilities through CIDT
	People visited health facilities because of CIDT	Fully achieved	67% (Jordans, Kohrt, Luitel, Lund, & Komproe, 2017)
Advanced psychosocial counselling	Psychosocial counsellors trained	Fully achieved	14
	People received service from psychosocial counselling	Fully achieved	152 (see Jordans et al 2019 for details) (Jordans, Luitel, Garman, et al., 2019)
Home-base care (HBC)	FCHVs trained on HBC	Fully achieved	All 103 FCHVs trained on HBC
	Home visits by FCHVs	Partially achieved	FCHVs made 1803 visits

MHCP, mental healthcare plan; MoH, Ministry of Health; PRIME, PRogramme for Improving Mental Health carE; DPHO, district public health office; NCD, non-communicable disease; PHC, primary healthcare; mhGAP, Mental Health Gap Action Programme; HAP, healthy activity programme; CAP, counselling for alcohol problems; OPD, out-patient department; FCHV, female community health volunteers; CIDT, Community Informant Detection Tool.

a. Achieved by the end of the project period

Evaluation of training

Table 4 presents pre- and post-training evaluation results among prescriber-level health workers. The results demonstrated significant improvement in mental health related knowledge, attitudes and clinical competencies after the 10-day of the mhGAP-based training. However, at the post-training evaluation, only 71% mean knowledge and 81% mean competency was achieved, suggesting that there remains a need for improvement in knowledge and competency.

The improvements in knowledge, attitudes and competencies among health workers have been also supported by the experience of the patients and care givers. Many patients reported that the health workers were knowledgeable and skilful. The caregivers held the perception that if the health workers weren't competent, there wouldn't have been improvement or positive changes in the patients' condition. The patients and their care givers perceived the health workers to be competent because of the positive change in the patients' health.

TABLE 4: Training assessment outcomes, measured on the first and last day of training for prescriber health workers (n = 35)

Domain	Tool	#items, n	Scoring	Pre-training, mean	Pre-training, SE	Post-training, mean	Post-training, SE	Paired t-test	p-value
Knowledge	mhGAP Knowledge Assessment adapted for PRIME	33	True false, and multiple-choice questions	59.13%	1.55	70.56%	2.31	3.89	<.001
Attitudes	mhGAP Attitudes adapted for PRIME	25	Likert scale, (1-4)	2.28	0.04	2.10	0.03	-3.86	<.001
Attitudes	Mental Illness: Clinicians Attitudes (MICA)	16	Likert scale (1-6)	68.13	1.49	73.77	1.49	3.05	.004
Clinical Competency	Enhancing Assessment of Common Therapeutic Factors (ENACT)	18	Competency levels (1-3)	58.66%	2.77	81.21%	2.51	7.80	<.001
Self-Efficacy	mhGAP Self-Efficacy adapted for PRIME	34	Likert scale (1-5)	2.51	0.12	4.61	0.09	16.46	<.001

What was implemented?

Table 5 presents the overview of the district MHCP, implementation processes for each of the intervention packages, the role of PRIME, and the barriers and facilitating factors for successful implementation. The MHCP was implemented within the existing community and primary health care system. Medical Officers, Health Assistants (HA), and Auxiliary Health Workers (AHW) were responsible for detection and management of mental disorders by using the mhGAP-IG in primary health care facilities. Staff Nurse and Auxiliary Nurse Midwife provided psychosocial support in the health facilities. FCHV and Community Counsellors implemented the treatment packages in the community (see table 5).

The PRIME team provided support for implementation of the packages, including organizing training and workshops, managing logistics for training and supervision, and encouraging trained health workers in mental health services delivery. As there was no provision of psychosocial counsellors in the governmental primary and community health care system, PRIME recruited and trained a separate cadre of psychosocial workers to provide psychological interventions in the community as well as in the health facilities where a confidential place was available for psychological intervention. Considering the current lack of mental health supervision in the existing health care system, PRIME also took a leading role in the development and implementation of a new supervision system for the trained health care workers. Supervision was conducted through monthly/quarterly case conferences led by psychiatrists, face to face, and by telephone as needed.

What were barriers and facilitating factors?

Health organization level

Table 5 presents the barriers and facilitating factors for implementation of each MHCP component. The major barriers for effective implementation of the health-organization-level intervention packages included mental health not being a government priority, no mental health focal unit/person in the MoH, and lack of basic psychotropic medicines in the free drug list. A Memorandum of Understanding (MoU) between PRIME and MoH facilitated the appointment of a senior-level MoH officer to coordinate PRIME activities and procurement of new psychotropic medicines through PRIME. Another key facilitating factor for engagement of senior-level MoH officials was the use of evidence-based intervention packages, particularly the WHO recommended mhGAP intervention guidelines. The supportive role of the district public health office (DPHO) and psychiatrists in the district hospital were other key facilitating factors at this level.

Health facility level

The major challenges for implementation of health- facility-level intervention packages included low mental health literacy among PHC workers, heavy workload among PHC workers, frequent transfer of the trained health workers, mental health stigma among service providers, lack of adequate physical facilities, particularly lack of private rooms for consultation, lengthy and complicated drug procurement and distribution process, and lack of a mental health supervision system in primary care. The facilitating factors and strategies adapted to overcome these barriers included: the supportive role of the MoH and DPHO, motivation of PHC workers to learn about mental health care, procurement of new psychotropic medicines through PRIME, and initiation of case conferences by psychiatrist for mentoring and clinical supervision of the trained health workers. The feasibility of delivering psychological interventions was another major barrier encountered at this level. This was a barrier for three reasons in particular: first, most of the primary care workers remained busy in out-patient clinics and community outreach activities. Second, primary care workers lack skills to deliver focused psychological interventions. Third, the lack of a private room for providing psychological interventions in the health facilities. To address these barriers, we trained a new cadre of psychosocial counsellors to provide focused psychological support in PHC facilities or in the community setting in case there was no confidential place in the health facilities.

Community level

The major barriers for implementation of the community-level intervention packages included limited mental health awareness, low perceived needs for mental health care, and high level of stigma. The facilitating factors for successful implementation at this level included: involvement of FCHVs, use of CIDT as a strategy to increase demand for services, and mobilization of a new cadre of psychosocial counsellors to deliver psychological interventions in the community.

TABLE 5: Overview of mental healthcare plans, delivery process, PRIME role, barriers and facilitators

MHCP component	Delivery process	PRIME support process	Barriers	Facilitating factors
Health organization level				
Engagement and advocacy	- Mental health experts, policy makers, PHC workers and patients were involved in development of the MHCP	- Organizing workshops and consultative meeting with concerned stakeholders, and logistics management	- No mental health focal person/unit in the MoH - Mental health was lower in priority in the government system - No separate budget allocated for mental health	- Appointment of a senior-level MoH officer as a focal person to coordinate PRIME activities - Involvement of MoH in the implementation process - Implementation of the evidence-based intervention packages
Referral for specialist consultation	- Trained health workers referred difficult cases or those requiring specialists care to psychiatric ward in the district hospital	- Encourage health workers to refer difficult cases to the specialists - Establish formal collaboration between PRIME and district hospital	- Busy schedule of psychiatrists because of high client flow - Medicines provided by the psychiatrist did not match with the medicines available in the primary health care facilities	- Availability of specialist mental health services in the district hospital - Supportive role of psychiatrists from the district hospital

Health facility level				
Service providers awareness raising and stigma reduction	- Both psychiatrist and psychologists delivered the training - Sufficient time was allocated to discuss stigma and basic information about mental illness	- Conducting of training programs - Logistics management for the training	- Logistics for the training (daily allowance, etc.) - Frequent transfer of trained health workers - Mental health stigma among PHC workers	- Motivation of health workers to learn about mental health - Supportive role from MoH and DPHO
Screening and assessment	- Health workers were trained on WHO mhGAP intervention guides - Sufficient time was allocated for role-play and practice sessions	- Conduction and logistics management for the training - Protocol and guidelines development - Clinical supervision	- Lack of confidential place for assessment and consultation in the health facilities - Lack of sufficient time provided by health workers for assessment because of heavy client flow - Frequent transfer of trained health workers	- Easy and user-friendly flowchart in the mhGAP-IG - Motivation of health workers to lean about mental health - Supportive role of psychiatrists to provide phone supervision to the trained health workers

Basic psychosocial support	- Psychologists/clinical supervisors conducted 4 days training on communication skills and basic psychosocial support to both prescribers and non-prescribers - Sufficient role-plays and practice session were conducted	- Conducting and logistics management for the training - Protocol and guidelines development - Clinical supervision	- Prescriber-level health workers did not much have time to provide psychosocial support - No separate rooms/ space for providing basic psychosocial support	- Motivation of health workers to learn about mental health - Health workers considered psychosocial component as an important element in mental health care
Focus psychosocial support	- Non-prescribers received 5-day training on healthy activity program and counselling for alcohol problem - Received monthly/quarterly supervision from Psychosocial Counsellors	- Conducting of training and logistics management - Protocol and guidelines development - Clinical supervision	- No separate rooms for psychological intervention in the health facilities - Lack of coordination between prescribers and non-prescribers	- Motivation of health workers to learn about mental health - Health workers considered psychosocial component as an important element in mental health care

Psychotropic treatment	- Initially PRIME procured and distributed of the medicines - After necessary revision in the essential drugs list, medicines were distributed by DPHO through the existing system	- Financial support for drugs - Distribution and record-keeping - Monitored stock register and buffer stock	- Lengthy procurement process and distribution system - Frequent transfer of senior-level officers in the MoH and DPHO	- Supportive role of DPHO - Memorandum of understanding with MoH - Primary Health Care Revitalization Division facilitated the process
Community level				
Mass community sensitization	- FCHVs and community counsellors conducted 2-3 hours sensitization programs in the community - Posters, leaflets and brochures were distributed	- Logistics management - Supervision of FCHVs	- Huge stigma associated with mental illness - Low mental health literacy - Myths and misconception on mental illness - Cultural beliefs and practices	- Supportive role of community members - Motivation of community members to learn about mental health
Community detection	- Two days training for FCHVs on CIDT - Monthly/Quarterly supervision	- Training and supervision	- Difficult to use CIDT by illiterate FCHVs - Incentives for FCHVs	- Motivation of FCHVs - FCHVs as a part of the existing health care system - Knowledge of FCHVs about the community

Advanced psychosocial counselling	- PHC workers referred cases requiring psychological intervention to community counsellors - Community counsellors visited respective health facilities or patients' house for delivering services	- Training and supervision of Community counsellors - Salary and other logistics management for community counsellors	- No separate rooms for counselling in most of the health facilities - Stigma associated with mental illness to provide services in the community	- Locally hired counsellors - Support from trained primary health care workers
Home-based care (HBC)	- FCHVs received 2-day training on HBC - Supervision of FCHVs by community counsellors	- Training and supervision of FCHVs - Logistics management for training and supervision	- No/Low incentives for FCHVs - Low literacy level of FCHVs	- Motivation of FCHVs - FCHVs as a part of the existing health care system

MHCP, mental healthcare plan; PRIME, PRogramme for Improving Mental Health carE; PHC, primary healthcare; MoH, Ministry of Health; DPHO, district public health office; WHO, World Health Organization, Geneva; mhGAP, Mental Health Gap Action Programme; FCHV, female community health volunteers; CIDT, Community Informant Detection Tool

Discussion

The uniqueness of this case study is that it evaluated the impact of a comprehensive district-level MHCP and assessed the barriers and facilitating factors for successful implementation of the MHCP in a real-world setting. The MHCP included four priority disorders, namely psychosis, depression, epilepsy and AUD, recommended by the expert panel (Jordans, Luitel, Tomlinson, & Komproe, 2013), which was first pilot tested in 2 health facilities, evaluated in 10 facilities, and subsequently scaled up in the entire district (i.e. 34 clinics). The systematic process that we used for development, pilot testing and evaluation of the MHCP was instrumental in getting political buy-in for scaling up of the programme to other districts (N=7). The area-based approach, which we followed in our study, has also been used in other countries such as Nigeria, Mozambique and Afghanistan, for development and evaluation of mental health services in primary and community care settings. In Nigeria (Gureje et al., 2015) and Afghanistan (Ventevogel et al., 2012) the intervention was tested with priority mental disorders similar to our study, whereas in Mozambique, the pilot programme included epilepsy only (Dos Santos et al., 2019). The results indicate that despite the various contextual, cultural and programmatic challenges, the programme was successful in achieving the intended outcome indicators outlined in the ToC map (Breuer et al., 2015). The combination of psychological and mhGAP-based training delivered by mental health specialists was found to be effective for improving mental health knowledge, attitude and the clinical competencies of PHC workers. The barriers and facilitating factors demonstrated by our study are consistent with those reported in Afghanistan, Nigeria and Mozambique (Dos Santos et al., 2019; Gureje et al., 2015; Ventevogel et al., 2012). The results show that the number of people receiving primary care based mental health services increased significantly after the introduction of the MHCP. On average, patients visited facilities 7.1 times for follow-up care despite a large variation on this number by disorder. About one-third of the patients initiating primary care based mental health treatment dropped out after their first visit. These results are consistent with the dropout rates from mental health services in general medical care reported in Madrid, Spain (Reneses, Munoz, & Lopez-Ibor, 2009), Israel (Lerner & Levinson, 2012) and United States (Olfson et al., 2009). The possible reasons for a high dropout-rate in our sample could be the availability of a single medicine for each disorder and the frequent transfer of trained health workers. A big dropout rate for patients with AUD could be explained by health workers losing their faith in treating patients with AUD when many people relapse (Jordans, Luitel, Kohrt, et al., 2019). In a nested randomized controlled trialled trial conducted in the PRIME implementation area we demonstrated no added value of community counsellors-delivered psychosocial treatment (i.e. counselling for alcohol problem) over primary health worker-delivered mental health care in the treatment of AUD (Jordans, Luitel, Garman, et al., 2019).

Psychotropic medicines were available most of the time in the health facilities, which contrast most of the previous studies (Bhana, Petersen, Baillie, & Flisher, 2010; Ssebunnya, Kigozi, Kizza, & Ndyanabangi, 2010; WHO & Wonca, 2008) where supply of psychotropic medicines was one of the major barriers for integration of mental health services in primary care. In Nepal, procurement and distribution of medicines require a lengthy administrative process. However, during the PRIME implementation period, psychotropic medicines were available regularly in most of the health facilities because the PRIME team took a lead role in procurement and distribution of the psychotropic medicines. Now the MoH, provincial government and respective municipalities are sustaining the procurement and distribution of psychotropic medicines. PRIME results support previous evidence that mental health services can be delivered effectively in primary and community health care system in low-resource settings through a task-shifting approach. In our experience, this approach can work effectively only if multiple stakeholders such as mental health specialists, PHC workers and community volunteers are involved in the programme.

Impact in policy and legislation

The PRIME results and best practices have been used in policies, treatment protocol and guidelines, and training materials by the MoH. First, the PRIME results and best practices have been used in the Community Mental Health Care Package (CMHCP) which was developed by the Primary Health Care Revitalization Division (PHC-RD) to facilitate implementation of the National Mental Health Policy (1996) (PHC-RD, 2017a). Second, PRIME results informed the Standard Treatment Protocol (STP) that was developed to help PHC workers in detection and treatment of mental health problems (PHC-RD, 2017b). Third, the essential drugs list has been revised, and 6 new psychotropic medicines initiated by PRIME have been included. These medicines are now being procured and distributed by the local government (Municipalities and Rural Municipalities) and DPHOs. Fourth, the WHO mhGAP-IG-v2 has been translated and adapted for use in Nepal. The Nepali version of the mhGAP IG has added two modules for anxiety disorder and conversion disorders. The MoH has not yet endorsed the adapted Nepali version of the mhGAP-IG. Finally, the National Health Training Centre (NHTC), with technical support from Transcultural Psychosocial Organization Nepal, has developed training manuals and facilitator guides for both primary and community health care workers. These included training manual for non-prescribers on psychosocial support, a training manual and facilitators' guides for prescribers, a training manual on advanced psychological interventions (healthy activity program; HAP), and training manual for FCHVs on the CIDT.

Limitations

This study has some limitations. First, the evaluation of the MHCP was conducted in 10 health facilities in Chitwan. The selection of the district and the area within the district may limit the generalizability of the findings.

Second, because of the lack of a baseline on organizational readiness to change, we could not determine whether this affected the MHCP implementation. Finally, although several indicators have helped to explain the success and failure of the MHCP in Nepal, several aspects, which may have contributed to the results, could not be controlled for and tested in the study.

Policy and practice implications

Community level

First, despite the efforts made at the community to sensitize community members on mental health issues and available services through community awareness and sensitization programmes, our analysis of the outcomes of the programme published elsewhere showed no significant changes in the treatment coverage and barriers to mental health care after implementation of the district MHCP (Luitel et al., 2019). A possible explanation could be that the sensitization and awareness programme primarily aimed to increase mental health literacy and to make people aware about the services available in their community. Previous studies have demonstrated that mental health literacy can change attitudes, but there is no evidence that literacy programmes improve help-seeking intention and behaviour (Gulliver, Griffiths, Christensen, & Brewer, 2012). There is evidence that help-seeking attitudes and intension can predict behaviour (Mojtabai, 2007; ten Have et al., 2010). Therefore, future community interventions should target improving knowledge about mental illness and available services, as well as reducing stigma or negative attitudes towards mental health service utilization rather than only providing information about mental illness and available services. Second, it was found that most people receiving mental health treatment from PHCs had a low socio-economic status. Evidence suggests mental illness and poverty create a vicious cycle that affects the life of people living in poverty and with mental illness throughout the lifespan. Therefore, the programme would have been much more effective for improving the life of people with mental illness if vocational training for income generation had been included in the community-level care package. Third, only FCHVs were trained on the CIDT, but this approach can be used with other community stakeholders such as mothers' groups, traditional healers, and teachers in future programmes. This is supported by a study on the accuracy of the CIDT that demonstrated CIDT as an effective tool for detection of people with mental illness in the community (Jordans et al., 2015). Fourth, considering the low mental health literacy of non-prescribers and their busy schedule, there is a need for community counsellors to look after psychological intervention in the community. A randomized control trial embedded within the PRIME cohort study demonstrated that a psychological intervention (i.e. HAP) delivered by community-based psychosocial counsellors increased treatment effects for depression compared to those who only received mhGAP-based services in primary care (Jordans, Luitel, Kohrt, et al., 2019). In addition, it was also found that because of stigma associated with mental illness and lack of a confidential place in the health facilities for consultation, many patients with mental illness were found to be hesitant to disclose their problems in front of other people. In many health facilities there is no private place for psychological intervention. Dedicated community-based psychosocial counsellors could be a helpful strategy to provide evidence-based psychological interventions in the community, which may also help to minimize the current work burden of PHC workers.

Health facility level

First, the 10-day training for prescriber-level health workers was divided into two parts: psychosocial support (5-days) and mhGAP disorder specific training (5-day). The psychosocial part of the training was facilitated by a psychologist or an experienced psychosocial counsellor, whereas the mhGAP part was delivered by a psychiatrist. Based on the findings of this study, it would have been more effective if the training had been delivered together by a psychologist and a psychiatrist. Second, it was not always possible to involve the same psychiatrist in both training and supervision of a trained PHC worker. However, health workers were more comfortable contacting psychiatrists through mobile phone or other means of communication to get support if the same psychiatrist both trained and supervised them. Therefore, we recommend involving the same psychiatrist in both the training and supervision of primary care workers in future programme. Third, the training participants were taken to the district hospital for interaction with actual patients in the initial phase of the mhGAP training. In the later phase, patients were invited to the training venue. Inviting patients to the training venue was much more effective in clarifying various aspects of mental health problems, and the participants also liked this approach better. This approach is recommended for future mhGAP training. In addition, we embedded a study within PRIME in which we trained mental health patients to provide photographic narratives of recovery. Based on a mixed qualitative-quantitative analysis of this proof concept, this approach has potential to improve knowledge, attitudes, and clinical competence of primary care workers in mhGAP training (Kohrt et al., 2020).

Fourth, in most of the health facilities, there was no private place for clinical consultation. Because of stigma, patients with mental illness were hesitant to disclose their problems in front of other people; therefore, a separate room should be made available in each health facility for clinical consultation and psychological interventions. Fifth, despite a very high prevalence of mental health problems among pregnant and post-natal women in Nepal, the data shows that only a small number of them received mental health services from trained health workers. A possible reason could be that pregnant or post-natal women generally consult with non-prescriber-level health workers for pregnancy check-up, while non-prescribers were not trained in diagnosis and management of mental health problems. The non-prescribers should be trained on detection of maternal depression and initiate appropriate psychological interventions. A small pilot study conducted in a few health facilities within PRIME showed that routine screening of perinatal depression and initiation of evidence-based psychological treatment is feasible and effective (results will be published separately). These results are also supported by previous studies where nurses and other lay community health workers delivered psychosocial interventions effectively (Patel et al., 2011; Patel et al., 2010). Finally, despite the tremendous efforts made by FCHVs to minimize the dropout-rate, about a quarter of the patients initiating primary-care-based mental health services did not come for follow-up. According to FCHVs, patients felt uncomfortable when they made multiple home-visits to remind patients about their follow-up care. This could be because of stigma associated with mental illness; therefore, an alternative approach should be developed to minimize high drop-out rate. One possible strategy is a phone follow-up by health workers, which could be less stigmatized than FCHVs visiting patients' house.

Health organization level

First, the PRIME results are based on a model of training all prescribing health workers in a facility, including medical officers (doctors), health assistants, and auxiliary health workers. However, the recently treatment protocol endorsed by MoH does not include training AHWs. Except for a few AHWs, who were upgraded from other positions, PRIME data shows that AHWs were the health care provider for approximately 60% of all patients in primary care. Despite the benefit of the government taking on more mental health service delivery, the model designed does not match the evidence generated by PRIME. This risks leaving many people without care even in settings where the government mental health model is implemented. This has also raised questions about how to prevent the disconnect between evidence-generation and policy making in future. Second, one of the reasons reported for the high dropout rate was availability of limited psychotropic medicines (i.e. one medicine for each disorder) in primary care and irregular supply of the medicines. Similarly, frequent transfer of trained health workers was also reported to be another important reason for dropout.

Therefore, regular provision of minimally adequate psychotropic medicines in PHC facilities and regulation of frequent transfer of the trained health workers could help to minimize the high drop-out rate in future programmes. Finally, the psychiatrists' case conference, which was initiated by PRIME for supervision of trained health workers, was found to be effective in building clinical capacity of the trained health care workers and providing specialists care for patients with severe mental health problems. Currently there is no mental health supervision structure for PHC workers in the existing health care system; therefore, the "psychiatrists' case conference" could be an appropriate strategy to fil the current gap in mental health supervision for trained primary health workers.

In conclusion, despite the various contextual challenges, the MHCP resulted in achievement of most of the outcome indicators. The key lessons learned from this study for future integration of mental health services within primary care include the provision of targeted interventions to increase demand for services, and to ensure clinical supervision for health workers, private space for consultations, a separate cadre of psychosocial workers and a regular supply of psychotropic medicines.

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SECTION-SEVEN

Discussions, lessons learned and recommendations

CHAPTER-TEN

Discussions, lessons learned and recommendations

10.1 Overview of the dissertation

In this dissertation, I present several studies we conducted to evaluate the integration of mental health services into the primary and community healthcare system in Nepal. The overall aim of this dissertation is to describe the systematic process and steps we followed in the development, implementation and evaluation of a district mental health care plan (MHCP) to evaluate the integration of mental health services into the primary and community health care system in Nepal. The dissertation contains seven sections and ten chapters. Eight chapters (i.e. chapter-2 to chapter-9) are each based on a separate study.

Section-one describes the context and rationale for integration of mental health services into the primary and community healthcare system in Nepal (chapter one).

Section-two presents the problem statement: assessing the burden of mental health problems among the population who were affected by the Maoist conflict (chapter two), and the prevalence and determinants of depression and alcohol use disorder (AUD) among the help-seeking population, i.e. people attending primary healthcare facilities (chapter three).

Section-three describes the treatment gap in mental health care (i.e. the gap between the number of people who need mental health treatment and those who receive care); potential barriers for seeking mental health care (chapter four); the situation of mental health care in Nepal; and possible barriers for transformation of the existing mental health care landscape (chapter 5).

Section-four of the dissertation presents the development process and contents of the district MHCP developed in response to the problems identified in chapters two to chapter five (chapter six).

Section-five of the dissertation presents several studies that evaluated different domains of the effectiveness of mental health services provided by trained primary and community health workers. I present the impact of the district MHCP in treatment contact coverage, detection of mental disorders in primary healthcare facilities, and effectiveness of the services on clinical (i.e. symptoms severity) and functional outcome (i.e. disability) of people with depression, psychosis, AUD and epilepsy in chapter seven. Chapter eight of the dissertation describes perceptions of patients and their caregivers on receiving primary care-based mental health services, the impact of services, and barriers to seeking care (chapter-eight).

Section-six describes the implementation process of the MHCP, process indicators defined by a theory of change (ToC), and barriers and facilitators of the MHCP (chapter nice). This section

Section-seven summarizes the main findings, implications of these findings, and lessons learned for future program and research to improve the integration of mental health services into primary and community healthcare systems (chapter ten).

10.2 Overview of the results

10.2.1 Burden of mental health problems

We assessed the burden of mental health problems among the population who were affected by the Maoist conflict and people who were attending primary healthcare services through separate epidemiological studies using validated and culturally appropriate measures. We conducted the first study in three districts representing the high (Dang), moderate (Chitwan) and low (Tanahu) impact of the Maoist conflict. The second study took place at 10 primary health care facilities in Chitwan district. The prevalence rates of depression (27.5%), anxiety (22.9%) and post-traumatic stress disorder (PTSD) (9.6%) among the population affected by the Moist conflict were higher than the prevalence rates reported among the general population in Nepal (NHRC, 2020; Risal, Manandhar, Linde, Steiner, & Holen, 2016); however, these rates were lower than the rates reported among other conflict affected populations (Kohrt et al., 2012; Tol et al., 2010), and the population affected by 2015 Nepal earthquakes (Kane et al., 2018; TPO Nepal & American Red Cross, 2017). The prevalence rates of depression (16.8%) and AUD (7.3%) among people attending primary healthcare services were slightly lower than the rates reported among conflict affected populations (Kohrt et al., 2012; Luitel et al., 2013; Tol et al., 2010), and the population affected by 2015 Nepal earthquake (Kane et al., 2018; TPO Nepal & American Red Cross, 2017), however, these rates were much higher than the rates reported among the general population (NHRC, 2020). The prevalence rates reported in our both studies were consistent with the prevalence rates of common mental disorders in LMICs (WHO, 2017).

Women reported significantly higher prevalence rates of depression and anxiety in both samples while AUD was more prevalent among men in the help-seeking population. Other risk factors for common mental disorder identified in our studies included ethnicity (i.e., being a member of lower castes), district of residence (i.e., being a resident of highly conflict affected districts), and poverty (i.e., a lack of clothing or medicines, or having a low-earning occupation). Lastly, people who perceived a greater negative impact of conflict in the community had significantly higher rates of depression, anxiety, and PTSD.

Available epidemiological data shows that cultural factors play important roles in the manifestation of mental health problems and mediates the relationship between risk factors and mental health outcomes (Kohrt & Patel, 2020). In Nepal, there is a wide variation in the reported prevalence rates of common mental disorders due to cultural factors (Luitel et al., 2013; Tol et al., 2010). This could be because of cultural diversity (e.g., language, caste and geographical variation) or differences in the understanding and manifestation of mental health problems across cultural groups (Kohrt & Harper, 2008). Cultural factors not only affect the manifestation of mental health problems, they can also create biased estimates of psychiatric epidemiology within culturally diverse countries like Nepal (Flaherty et al., 1988). Similarly, most of the tools and instruments for mental health research have been developed in the western settings, and a thorough cultural adaptation and validation is required to use them in other cultural settings (Kohrt et al., 2011; van Ommeren et al., 1999). Although culturally adapted and validated tool were used in the studies reported in this dissertation, some of the tools used in our studies may not have accurately assessed the mental health problems among various cultural groups.

10.2.2 Situation of mental health care in Nepal

In Nepal, there is a scarcity of data on the treatment-seeking behaviours of people with mental illness and the potential barriers they may face when seeking care. This evidence is important for the development and effective implementation of mental health programmes in the community. To address this evidence gap, we measured the treatment gap and barriers for seeking mental health care among a representative cross-sectional community sample of 1,983 randomly selected adults in Chitwan district. Among those who met the threshold for depression (n=228) and AUD (n=95), only a small proportion reported receiving treatment for depression (8.1%) or AUD (5.0%) from any providers in the past year. Among those who received treatment, the majority (52.0% for depression and 90.0% for AUD) sought treatment from traditional providers while only a few (22.0% for DD and 26.0% for AUD) received treatment from primary health care workers. We found the treatment gap reported by respondents to be greater than expected given the availability of mental health services in both district hospital and private medical schools in Chitwan. The treatment gap reported in this study is much higher than the average rate reported in LMICs, where more than half (52.6%) of persons with depression receive treatment (Thornicroft et al., 2017); however, the proportion of the people receiving treatment in our study were lower than the rates reported in China (Shen et al., 2006), Korea (Cho et al., 2009) and Northern India (Mathias et al., 2015). The most commonly reported barriers to the initiation or continuation of mental health services were related to stigma and discrimination, lack of resources and services, cultural beliefs and practices, and financial barriers. The barriers reported in our study were also consistent with the barriers reported by a wide range of stakeholders (i.e. primary health care workers, female community health volunteers, community leaders) in the formative qualitative study conducted in the same community in Chitwan (Brenman, Luitel, Mall, & Jordans, 2014). The barriers we identified were also consistent with those reported by people with mental illness, their caregivers, and primary health care workers in Arghakhanchi, a district in western Nepal (Devkota, Basnet, Thapa, & Subedi, 2021). One important finding from our study is that the barriers to seeking mental health treatment reported were not associated with background characteristics of the participants (e.g. age, sex, caste). Therefore, barriers related to stigma and lack of knowledge about mental illness and its services were addressed through a universally implemented community sensitization and awareness programs in the MHCP.

We then used a similar approach to assess the situation of mental health care in Nepal and possible barriers to transforming the existing mental health care landscape from a model of hospital-based, specialist-delivered services to one of community-based non-specialists delivered services. We collected secondary data using a standard situation analysis tool developed by the Programme for Improving Mental Health Care (PRIME) consortium. Our results indicate there is a paucity of population-wide mental health services, particularly outside of urban areas where majority of the population reside. Available mental health services in the country were limited to hospitals located in urban areas and only 0.22 psychiatrists and 0.06 psychologists per 100,000 people. Although community mental health programmes in Nepal were initiated almost two decades ago, these services have been limited to specific populations and not fully integrated into the existing healthcare system. We identified several potential barriers that may influence the transformation of the existing mental healthcare landscape, including a lack of mental health coordinating body in Ministry of Health and Population (MoHP), lack of essential psychotropic medicines in the free drug list, overburdened primary health care workers, and lack of mental health supervision in the existing healthcare system. The strategy adapted to overcome these barriers included a memorandum of understanding (MoU) with the MoHP, which facilitated the appointment of a senior level officer from the MoHP to coordinate project activities, and the procurement of six new psychotropic medicines from the project budget. We developed an innovative supervision system which included psychiatric case conference, telephone supervision and on-the-job supervision by a trained psychiatrist to address the lack of mental health supervision in the existing healthcare system. We recruited a separate cadre of psychosocial workers (i.e. para-professional psychosocial counselors) to deliver evidence based psychological intervention in the community setting to address the overburdened primary health care workers. The barriers identified in our study for integration of mental health services into primary healthcare system were also consistent with the barriers reported in other LMICs such as Uganda, Nigeria, Ethiopia and India (Wakida et al., 2018).

10.2.3 Development of a district mental health care plan

We developed a district mental health care plan (MHCP) based on the findings of the studies presented in chapter 2 to chapter 5 of this dissertation which consisted of intervention packages on three health care delivery platforms: health organization level, health facility level, and community level. We developed the MHCP in consultation with a wide range of stakeholders, such as policy makers, mental health experts, and primary health care workers, through a rigorous process that involved prioritization of mental disorders (Jordans, Luitel, Tomlinson, & Komproe, 2013), a qualitative formative study (Brenman et al., 2014), and theory of change workshops (Breuer et al., 2014). The involvement of senior level officials from the MoHP in the process of development and implementation of the MHCP was instrumental to ensure the MHCP aligned with government priorities and contained the treatment packages that are feasible for scaling-up throughout the country. Two intervention components – 'engagement and advocacy' and 'referral for specialized care' – were included in the health organization level platform to make sure that concerned MoHP officials are involved in the process of implementation of the MHCP and a functional referral system for specialized care is in place. The core mental health intervention packages in the health facility level platform were the assessment and the management of priority mental disorders using the WHO mhGAP-IG (World Health Organization, 2010), basic psychosocial support, protocolised psychological interventions for depression and AUD, pharmacological treatment, and follow-up care. As there was no association between help-seeking behaviour and socio-demographic characteristics of the population (Luitel, Jordans, Kohrt, Rathod, & Komproe, 2017), the community-level intervention packages targeted universal strategies to improve public knowledge of mental illness and available services as well as reduce stigma associated with mental illness. We addressed the low demand for mental health services (Brenman et al., 2014) through development of a proactive case detection strategy in residential communities (Subba, Luitel, Kohrt, & Jordans, 2017). We addressed the lack of confidential spaces in primary health care facilities to deliver psychological intervention by hiring a new cadre of psychosocial workers - community-based para-professional psychosocial counsellors. The para-professional counsellors delivered protocolised psychological interventions (i.e. healthy activity program, HAP for depression and counselling for alcohol problems, CAP for alcohol use disorder) in both primary health care facilities (where a confidential space was available) and in the community setting. Finally, based on the results from pilot-testing of the MHCP, a 'home-based care' component was included in the MHCP to addressed the high dropout rate of patients before completing the recommended course of treatment. Female Community Health Volunteers (FCHVs) were trained to provide home-based care, monitor treatment adherence, and motivate patients and family members regarding the importance of follow-up care.

10.2.4 Evaluation of the MHCP

We evaluated the impact of the MHCP on mental health care in Chitwan in five key domains: change in treatment contact coverage, detection of mental disorders in primary care, initiation of minimally adequate treatment subsequent after diagnosis, improvements in clinical and functional outcomes, and implementation process and barriers. We assessed the change in treatment contact coverage using health facility-based service utilization data and through a repeated-community survey. Results from evaluated trends in the service utilization data indicated a significant increase in treatment contact coverage for all disorders included in the study (i.e., from 0% to 7.5% for AUD, from 0% to 12.2% for depression, from 1.3% to 11.7% for epilepsy, and from 3.2% to 50.2% for psychosis), while the community survey did not indicate significant improvements in treatment contact coverage. In the community survey, the proportion of the participants receiving mental health treatment increased by 3.7 points (i.e. from 8.1% to 11.8%) for depression and 5.2 points (i.e. from 5.1% to 10.3%) for AUD; however, these changes were not statistically significant. We may have failed to detect a difference in treatment contact coverage in the community survey because of a number of methodological and contextual factors. For example, the primary outcome of the community survey (i.e., change in treatment contact coverage) was relatively distal in relation to the community interventions and the study participants in the baseline and follow-up studies were also not the same. Similarly, the small number of people screened positive for depression and AUD in both baseline and follow-up studies, as well as the short duration between the baseline and follow-up, could have been insufficient to achieve significant improvement in population-level treatment contact coverage. Moreover, the high false positivity rate of the validated depression screener (i.e. Patients Health Questionnaire) may have biased our results by poorly identifying people who really need treatment for depression (Kohrt, Luitel, Acharya, & Jordans, 2016). There were also no significant differences in the overall barrier score assessed by BACE scale and the scores for specific barriers, such as stigma; financial barriers; cultural beliefs and practices; low perceived needs; perceived ineffectiveness of the available services; and lack of knowledge about available services (Luitel, Garman, Jordans, & Lund, 2019). One potential explanation for the absence of changes in barriers to mental health care could be the lack of targeted community intervention for specific barriers. Other possible reasons could be due to the complex understanding and expression of mental health problems across cultural groups, especially for depression, in Nepal (Kohrt & Hruschka, 2010). These complex phenomena surrounding the understanding of mental illness may have negatively impacted help-seeking behvaior for mental health problems. For example, the idioms related to mental illness are considered as brain-mind problems, which are often perceived as incurable and are highly stigmatized, whereas the idioms related to heart-mind problems are perceived as treatable and more socially acceptable (Kohrt & Harper, 2008). In the community awareness and sensitization programs, information about specific mental health disorders and mental health services were distributed through brochures or leaflets. These materials included information about the core symptoms of depression, psychosis, AUD and epilepsy that are more stigmatized.

We assessed changes in detection of depression and AUD in primary healthcare facilities using a repeat facility detection survey. The detection rate of depression and AUD increased significantly from before to after initiation of the mhGAP-based training. The detection rates increased from 8.9% to 24.6% (i.e. by 15.7%) for depression, and from 1.1% to 60.0% (i.e. by 58.9%) for AUD 3-month after the training while these rates dropped to 10.2% and 11.0% respectively 24-month after the training. The detection rates of depression in both 3-month and 24-month follow-up were much lower than expected, which could have been due to stigma and manifestation of depression. Many patients reported being hesitant to disclose their mental health problems because of stigma associated with mental illness. Similarly, health workers' assessments and diagnoses were primarily based on the mhGAP-IG algorithms, which may not have sufficiently captured the local idioms of distress and physical complaints that people express in Nepal (Kohrt & Harper, 2008). Another potential reason for the low detection of depression could be a lack of a separate and confidential spaces for consultation in most of the health facilities. Service users were uncomfortable in sharing their mental health problems in front of other people where there was no separate and confidential space for consultation. Low detection of depression may also have been due to a lack of sufficient time for primary health care workers to assess patients thoroughly. Most of the health facilities have a high client flow and health care workers are often not able to dedicate sufficient time for assessments. The low detection of depression in primary healthcare facilities appears to be universal phenomenon. A recent meta-analysis indicated that general practitioners in primary healthcare facilities were able to identify only 47.0% depressive cases correctly (Mitchell, Vaze, & Rao, 2009). The detection rate of depression in our study was much lower than the rate reported in the meta-analysis by Mitchell et al. The detection rates reported in our study were higher than the rates reported in other PRIME countries such as Ethiopia (Fekadu et al., 2017), India (Shidhaye et al., 2019), Uganda (Nakku et al., 2019). However, our results are consistent with the WHO international study of psychological problems in general healthcare, where primary health care workers identified 23.4% of people attending primary care as being a 'case' with a psychological disorder (Thornicroft et al., 2017).

The detection rate of AUD immediately after the training was much higher than the detection rate of depression. Both trained primary health care workers and FCHVs reported that detection of AUD was much easier than detection of depression in both health facilities and community settings. FCHVs reported that a message had spread quickly in the community after the mhGAP training that AUD treatment was available in primary healthcare facilities at no cost. Many people with AUD visited the primary healthcare facilities for treatment of their problems likely because of the widespread message. Health workers also relied on the mhGAP protocol to diagnose AUD cases and initiate treatment. A significant number of people who initiated treatment for AUD from primary health care workers reported positive outcomes (e.g., stopped drinking) in a short period of time. However, due to lack of support in the family and community, many of those who had recovered began to drink alcohol again. Health care workers reported that the large number of relapse cases made them less motivated to initiate diagnosis and treatment for additional AUD patients. As a result, health care workers started to diagnosis and treat only patients who made a strong commitment not to drink alcohol after initiation of treatment or those whose family members made such commitments. This could be one of the reasons for substantial reduction in detection rate of AUD in 24-month follow-up. The detection rates of AUD in primary care reported in our study are still much higher than the rates found in Uganda (Nakku et al., 2019), Ethiopia (Rathod et al., 2018) and India (Shidhaye et al., 2019).

The proportion of the participants initiating minimally adequate treatment after correct diagnosis in primary healthcare facilities increased significantly for both depression and AUD. Almost every participant who was diagnosed with depression (93.9%) and AUD (95.0%) initiated a minimally adequate treatment, whereas none of the participants who were diagnosed with depression or AUD received treatment at baseline, i.e., prior to the mhGAP-IG training. Although there was a substantial reduction in the proportion of the participants receiving minimally adequate treatment at 24-month follow-up (i.e., from 93.9% to 66.7% for depression and from 95% to 75.0% for AUD), the changes from baseline to 24-month follow-up were still statistically significant. The possible reasons for a significant reduction on the proportion of the participants receiving minimally adequate treatment in 24-month follow-up could be because of the transferral of trained health care workers to other districts and lack of supervision at 24-month follow-up. Many health workers who were trained on mhGAP and were regularly engaged in the supervision were transferred to other districts by the time of 24-month follow-up. The issue of frequent staff transfer was also consistently raised by service users and caregivers in a qualitative cohort study (Luitel, Jordans, Subba, & Komproe, 2020). These issues may have negatively impacted the initiation of minimally adequate treatment during 24-month follow-up. Existing evidence indicates that only a small proportion of people with depressive or anxiety disorder are treated in primary care in accordance with clinical guidance (Craven & Bland, 2013; Smolders et al., 2010; Young, Klap, Sherbourne, & Wells, 2001). However, our results indicate that trained primary health care workers can deliver minimally adequate treatment in accordance with clinical protocol (such as mhGAP-IG) to a large proportion of the patients with depression and AUD if they are adequately trained and supervised. Minimally adequate treatment rates from our study are much higher than the proportion reported in the recent WHO world mental health survey, where only 1 in 5 people with major depressive disorder in high-income and 1 in 27 in low-/lower-middle-income countries received minimally adequate treatment (Thornicroft et al., 2017). Similarly, the proportion of the patient receiving minimally adequate treatment for depression in our study were also higher than rates in Canada, where 52.2% people who met DSM-IV criteria for major depressive disorder received minimally adequate treatment (Duhoux, Fournier, Gauvin, & Roberge, 2012). Furthermore, the proportions of people receiving minimally adequate treatment after diagnosis in our sample were also higher than the proportions receiving primary care based mental health treatment in USA (Waitzfelder et al., 2018), and of proportions reported in a 2013 systematic review and meta-analysis (Craven & Bland, 2013).

Finding from our impact evaluation reveal that the combination of psychological and pharmacological treatment delivered by the trained primary health care workers and para-professional psychosocial counsellors resulted in significant reductions in symptom severity and improvements in functional outcomes among people with depression, psychosis and AUD in 12-month follow-up. However, the changes in the number of seizures and functional outcomes among people with epilepsy were not statistically significant. Results from cohort studies (Jordans, Luitel, Kohrt, et al., 2019) along with two embedded randomized controlled trials that assessed the added value of protocolised psychological interventions delivered by para-professional psychosocial counsellors (Jordans et al., 2020; Jordans, Luitel, Garman, et al., 2019) indicated that treatment of depression in primary care appeared to be effective only if patients receive psychological treatment delivered by para-professional psychosocial counsellors (Jordans, Luitel, Garman, et al., 2019). However, there was no added value of para-professional psychosocial counsellor-delivered psychological intervention among patients with AUD. These results were validated by patients and their caregivers in a qualitative study, where participants felt that the improvements seen in their problems could have been due to psychological interventions delivered by psychosocial counsellors (Luitel et al., 2020). As community-based interventions are less stigmatized than facility-based treatment, this could have been a main reason for patients preferring psychological treatment delivered by para-professional counselors. These results are also consistent with a recent systematic review that found psychological therapies to be more effective than psycho-pharmacological for treating depression and that psychological therapies also had longer effects than antidepressant medication (Cuijpers, Quero, Dowrick, & Arroll, 2019).

The impact evaluation also identified a high level of satisfaction among service users and caregivers with the services provided by trained primary health care workers. Service users and caregivers perceived health workers to be competent and skilful because of changes they observed in the patients who received services. Despite this, the frequent transfer of trained health care workers, unavailability of the same health care worker in the follow-up visits, frequent stock out of medicines or unavailability of the required medicines at primary healthcare facilities, and the lack of confidential space for consultation were key barriers to the initiation or continuation of services reported by both service users and their caregivers.

Service users' involvement in mental health care has been emphasized in various plans and declarations (Storm, Hausken, & Mikkelsen, 2010), and this approach has also been advocated widely (Patel et al., 2018). However, there is a lack of information on how service users' views and experiences can be effectively incorporated into mental health care plans and policies. Various definitions and framework have been used to define the involvement of service users in mental health care (Tambuyzer, Pieters, & Van Audenhove, 2014). General principles dictate that service users are respected and that service providers try to understand the perspective of service users, which empowers service users to influence their own care and advocate for better treatment options (Laitila, Nummelin, Kortteisto, & Pitkänen, 2018). In our qualitative study, service users who dropped out of care requested that health care workers listen their concerns and suggestions in order to improve the service. Frequent transfer of trained health workers or unavailability of the same health care workers in the follow-up visits and the low availability of all essential medicines in primary healthcare facilities were the two major concerns raised by the service users who dropped out of care.

10.2.5 Implementation process and barriers, and facilitators of the MHCP

We evaluated the implementation process and barriers and facilitators of the MHCP using a combination of qualitative and quantitative methods, including district-, community-, and health- facility profiles; monthly implementation logs; pre-and-post training evaluation; and out-patient data. The MHCP was pilot-tested in 2 health facilities, evaluated in 10 health facilities, and scaled-up to the all 34 health facilities in Chitwan district. The 10-day training on mhGAP-IG and basic psychosocial support resulted a significant improvement in mental health knowledge and clinical competency of health workers with prescribing privileges. Of the total 32 indicators defined by the ToC, 21 (66%) indicators were fully achieved, 10 (31%) were partially achieved and 1 (3%) was not achieved. One out of 3 patients (33.9%) initiating primary care-based mental health services dropped out of services after their first visit, which was higher than expected. Availability of only a few psychotropic medicines in primary healthcare facilities, lack of separate and confidential space for consultation, and inability to see the same health care workers during follow-up visits were the most frequently reported reasons for patients dropping out of care. The dropout rates reported in our study were comparable with the dropout rates reported in high-income countries, such as Madrid, Spain (dropout rate, 33.2%) (Reneses, Munoz, & Lopez-Ibor, 2009), Israel (dropout rate, 30.0%) (Lerner & Levinson, 2012) and United States (dropout rate, 32.0%) (Olfson et al., 2009), where infrastructure and resources are much better than in Nepal. The home-based care component, which was included in the MHCP to reduce the high dropout rate, appeared to be ineffective because of the stigma associated with mental illness. People initiating mental health treatment at primary healthcare facilities were found to be uncomfortable with female community health volunteers visiting their home to promote treatment adherence due to the fear that their neighbors and relatives may find out about their mental problems. The key challenges for the implementation of the MHCP were: 1) frequent transfer of trained health care workers, 2) lack of confidential space for consultation, 3) lack of mental health supervision in the existing system, 4) lengthy administrative process for procurement and distribution of psychotropic medicines, and 5) stigma. The facilitating factors of the MHCP were: 1) involvement of MoHP in the implementation process, 2) use of innovative community case detection strategy (i.e. CIDT) to create demand for mental health services, 3) supervision of trained health care workers through innovative supervision systems (i.e. a psychiatrist cases conference, telephone and on-site-supervision), 4) high level of motivation among primary health care workers to learn mental health, and 5) the effectiveness of community-based psychological interventions delivered by para-professional psychosocial counsellors. Concerns about confidentiality and the absence of private spaces, the poor supply of psychotropic medicines, stigma, and poor adherence were consistent with barriers reported in India, Kenya, South Africa, and Lebanon (Chatterjee et al., 2008; Hijazi, Weissbecker, & Chammay, 2011; Jenkins, Othieno, Okeyo, Aruwa, Kingora, et al., 2013; Jenkins, Othieno, Okeyo, Aruwa, Wallcraft, et al., 2013; Petersen et al., 2016; Petersen et al., 2017; Shidhaye et al., 2015). However, the barriers related to the restriction of primary health care workers for treating mental disorders and primary health care workers' disagreement with the use of task-sharing approach reported in Uganda (Kigozi et al., 2016) and Brazil (Soares & de Oliveira, 2016) were not raised in our studies.

10.3 Lessons learned and the contribution to the field

This dissertation, to the best of my knowledge, is the first collection of numerous primary studies that systematically evaluated the various aspects of integrating mental health services into primary and community healthcare systems in a real-world setting. Nepal is one of the poorest countries in South Asia and has a long history of armed conflict, natural disaster and political instability. Nepal is also a diverse country in terms of geography, caste/ethnicity, language, religion and other culture aspects. The lessons learned and the evidence generated from Nepal can be used to inform mental health care in countries with similar environments. Integration of mental health services into primary and community healthcare systems has widely been advocated as a strategy to close the alarming treatment gap. However, available data shows that only a small proportion of the people who need mental health care receive treatment even when mental health services are available and accessible (Luitel et al., 2017; Rathod et al., 2017). This demonstrates that making mental health services available (i.e. addressing supply side barriers) does not necessarily helpful to improve help-seeking behaviour for mental health care or sufficiently close the treatment gap. The recent protocols, guidelines, and manuals (e.g. mhGAP-IG) developed by the WHO are instrumental to facilitating the implementation of this approach; however, evidence-based interventions to address the barriers are still lacking to create demand for mental health services and reduce stigma. A recent systematic review highlighted that none of the studies where mhGAP has been implemented attempted to evaluate the whole spectrum of integration of mental health services into primary healthcare system. These studies typically evaluated a certain aspect of integration, such as training evaluation, clinical implementation, local adaptation or economic modelling (Keynejad, Dua, Barbui, & Thornicroft, 2018). This dissertation has attempted to describe and evaluate the entire process of integrating mental health services into the primary healthcare system, including a situational assessment of mental health care, development of care plan, pilot testing, and evaluation of the outcomes and implementation process. The comprehensive approach that we employ in our studies has allowed us critically examine the barriers at each step and address these barriers using practical and evidence-based solutions.

One of the important lessons learned from our studies is that a comprehensive approach is warranted for integration of mental health services into primary healthcare system, which includes the involvement of the key stakeholders (i.e. policy makers, mental health specialists, service users), interventions to address demand side barriers, the adequate training and structured supervision of health care workers, and psychological interventions delivered in both primary healthcare facilities and community settings. The evidence generated through our studies can help address the barriers related to low treatment uptake in global mental health through providing evidence-based guidelines. The lessons learned from these studies can also support efforts to achieve the United Nation's Sustainable Development Goals (SDGs), particularly the SDG-3, which emphasize the promotion of mental health and well-being and prevention and treatment of substance abuse (United

Nations, 2015). Considering the paucity of population-wide mental health services in most LMICs, integrating mental health services into the primary healthcare system is critical to achieving universal health coverage, and universal health coverage is pivotal to reaching the SDGs. The evidence we have produced in our studies can also be used to achieve targets set by the World Health Organization's Extended Action Plan (2013 to 2030), which aims to close the treatment gap in mental health care by 2030 through the scaling-up of primary and community-based mental health services (WHO, 2013). Lastly, our findings can also inform efforts to achieve the recommendations made by the recent Lancet Commission on Global Mental and Sustainable Development. For example, the evidence generated through our studies can support reframing mental health needs within the SDGs frameworks and establish mental health care as a foundation of universal health coverage through using a dimensional approach of prevention, promotion, detection, treatment and recovery of people with mental illness (Patel et al., 2018).

The comprehensive approach that was used in the MHCP, particularly the strong psychological treatment components (i.e. in both primary healthcare facilities and community settings), and mobilization of local para-professional psychosocial counsellors to deliver the psychological intervention in the community – may have adequately responded one of the major criticisms of global mental health about the 'medicalization of mental illness' (Fernando, 2011; Clark, 2014). Similarly, the translation and thorough cultural adaptation of the mhGAP Intervention Guide, including the inclusion of separate modules for anxiety disorder and conversation disorders in the adapted (Nepali) mhGAP-IG, and the use of contextualized vignettes with local idioms of distress (e.g. heart-mind problems) for detection of people with mental illness by FCHVs who are respected and well-connected with local communities, are some of the examples of how cultural aspects of mental health, particularly the cultural aspects of manifestation of mental illness are incorporated into evidence-based guidelines and implementation strategies for integrating mental health services into the primary care system (Gómez-Carrillo, Lencucha, Faregh, Veissière, & Kirmayer, 2020). These examples may have responded to the next criticism of global mental health about 'imposing the western concept of mental illness and ignoring the cultural aspects' (Fernando, 2011; Whitley, 2015)

Key lessons derived from this dissertation can be used to effectively scale up the integration of mental health services into primary care settings in countries with similar environments or improve and strengthen mental health services where this approach has already been initiated. The key lessons derived from this dissertation included the following.

First, interventions are needed to address demand side barriers. The active community case detection strategy (i.e., CIDT), which was developed to address the demand side barriers for mental health care in the MHCP, has shown effective to detect mental illness in the community (Jordans, Kohrt, Luitel, Komproe, & Lund, 2015) and increase help-seeking for mental health care (Jordans, Kohrt, Luitel, Lund, & Komproe, 2017). This approach was found to be more effective in the areas where the community informants who use the CIDT are closely connected with the community. Therefore, the CIDT may be an effective strategy to increase demand for mental health services in similar contexts.

Second, dedicated psychosocial workers are needed to implement psychosocial interventions in the health facilities and community settings. Our results indicate that treatment for depression is effective in primary care only if a separate cadre of psychosocial workers are available to provide psychological treatment (Jordans, Luitel, Garman, et al., 2019). Primary healthcare facilities in LMICs often lack confidential space for consultation, and primary health care workers are also overburdened and may lack basic skills and competencies to deliver psychological interventions. The WHO service organization pyramid for an optimal mix of services for mental health (World Health Organization, 2009) has outlined mental health interventions at different layers of the service pyramid. Primary care-based mental health services are included in layer 3, community mental health services in layer 4 and specialist services in layer 5 of the pyramid. In a recent meta-review of community-based mental health services, a substantial variation was identified in the community-based mental health care components included in integrated primary care services (Kohrt et al., 2018). Our approach is consistent with the WHO's recommendation of a strong community based psychological intervention at the top of the primary care intervention pyramid. Delivery of psychological interventions in community settings can help to address barriers related to the lack of infrastructure in primary care to deliver psychological interventions and overburdened health care workers. Similarly, community-based mental health services are reported to be less stigmatized than those based in health facilities (Kearns, Muldoon, Msetfi, & Surgenor, 2019).

Third, there is a need for longer training and structured supervision for primary health care workers. Another important lesson that learned from our studies is that a short and one-time training to primary health care workers is insufficient to ensure health workers have adequate knowledge, skills, and clinical competencies to deliver mental health treatment. The pre-service training curriculum of primary health care workers in Nepal lacked mental health content, therefore, a 10-day training was provided to health workers (with pre-post training evaluation) in the beginning, and a 3-day follow-up training six months later. The duration of the training in our studies is longer than the training duration recommended in mhGAP-IG (World Health Organization, 2010) and the duration used in some other settings (Chaulagain et al., 2020). There was no mental health supervision in the existing health care system in Nepal prior to the implementation of the MHCP, therefore we developed an innovative and practical supervision system, the psychiatrist case conference, to address barriers related to lack of supervision. The psychiatrist case conference is a supervision method where trained health care workers are invited to a specific venue to discuss difficulties in assessment, detection, and management of mental disorders (WHO, 2018). Case conferences are facilitated by a psychiatrist. Trained health care workers can bring actual patients for whom they would like consultation or present case notes during the supervision sessions. Feedback from providers indicated the psychiatrist case conferences were appreciated by both health workers and patients. This approach could be replicated in similar contexts to address barriers related to lack of mental health supervision in primary care systems.

Fourth, there is a need to motivate primary and community health care workers. Motivation of service providers is an important indicator and a facilitating factor for the successful integration of mental health services into primary care systems. In our studies, FCHVs, the lowest level of health care workers in Nepal (Khatri, Mishra, & Khanal, 2017), played a vital role in implementing the community level intervention packages. Their role involved detecting people with mental health problems in the community, implementing home-based care components through home visits, and assisting with community sensitization programs. We found both prescribing and non-prescribing health care workers were highly motivated to learn about mental illness and supporting patients. In many cases, primary health care workers made home visits for the assessment and follow-up of patients who were unable to visit primary care facilities, often because of the severity of the problems or patients being locked at home. Our results contrast with a recent systematic review by Wakida et al of barriers and facilitators for integrating mental health services into primary healthcare facilities, where health workers' negative attitudes of program acceptability, low interest in the delivery of mental health services, and perceived increase workload were reported as major barriers to the successful integration of mental health into primary care (Wakida et al., 2018). Involvement of primary health care workers in the process of development of the mental health care plan, adequate training in the beginning, refresher training at six months, and ongoing structured supervision could have played positive roles in motivating health care workers in our studies.

10.4 Implications and recommendations

The results presented in this dissertation have proven that the integration of mental health services into the primary and community healthcare system in Nepal is feasible, acceptable and effective. The success of the program is likely due to the use of a systematic process in the development and evaluation of the programme, the motivation of primary and community health care workers, involvement of MoHP, the use of evidence based interventions, and the use of comprehensive approach (i.e. implementation of intervention packages in all three healthcare delivery platforms) in implementing the programme. The results and lessons learned from these studies have several implications for effectively scaling up this approach in other settings, and for improving and strengthening mental health services where this approach has already been implemented. Despite positive results for most of the primary outcomes, a number of adaptations need to be made in the current structure of the mental health care plan and implementation process to improve the future integration of mental health services into primary healthcare systems. The following recommendations have been made for future research and program implementation based on our results, lessons learned and personal experiences.

10.4.1 Recommendations for future research

First, the community survey results demonstrated no significant improvements in treatment contact coverage or barriers to receiving mental health care because of a few methodological and programmatic limitations. However, service utilization data from the health facilities revealed significant improvements in the proportion of the people receiving mental health services. Service utilization data can be used to evaluate changes in treatment contact coverage only if community-level prevalence rates of mental disorders are available. Therefore, future community surveys need to be sufficiently powered to detect changes in treatment contact coverage at the population level. Future studies should also assess the roles of contextual factors that may impact help-seeking behavior for mental disorders, such as type of health facilities, proximity to patients, and sociodemographic factors, which were not assessed in our studies.

Second, although results indicated that the detection of priority mental disorders in primary healthcare facilities increased substantially after introducing the mhGAP-based training, the studies presented in this dissertation did not evaluate the accuracy of diagnosis made by trained primary health care workers. Research assistants in our studies screened patients for depression and AUD using validated tools before patients entering into the primary healthcare facilities. The trained health worker who diagnosed and treated the patient also recorded the consultation with clinical notes in an outpatient card. A trained psychiatrist determined the accuracy of trained health workers' diagnosis through reviewing the consultation notes. The evaluation of diagnosis made by primary health care workers could have been more accurate if a mental health specialist had assessed patients directly instead of relying on consultation notes. Therefore, future research should target assessing the accuracy of primary health care workers' diagnosis and treatment using mental health specialists as a gold standard.

Third, the MHCP only includes four mental disorders (depression, psychosis, AUD and epilepsy) as priority disorders for adult based on the recommendation made by mental health specialists during formative research (Jordans et al., 2013), and health care workers received ten days of training on these four disorders. The training manual adapted and endorsed by MoHP includes all mhGAP disorders, including child and adolescent mental and behavioural disorders, while the duration of the training has been limited to six days. Six days of training among the health care workers without any mental health content in the in-service training curriculum is likely not enough to sufficiently cover all mhGAP disorders. Similarly, there is no evidence yet in Nepal on the feasibility and effectiveness of treating child and adolescent mental and behavioural disorders in primary healthcare facilities. Therefore, future research should evaluate the feasibility and effectiveness of treating child and adolescent mental and behavioural disorders in primary and community healthcare settings, and the effectiveness of the recently endorsed training manual.

Fourth, in the recent years, mobile technology has been widely used in healthcare which could be implemented to reduce some of the barriers identified through our research. Studies have shown that mobile technologies can be effectively used to create awareness about mental health problems among the general population; to screen and diagnose mental disorders in primary care; for the treatment and care of people with mental disorders; to train and supervise non-specialists; and improve treatment adherence through tracking patients (Naslund et al., 2017; Patel et al., 2018). In Nepal, the number of mobile device contracts (i.e., 27.85 millions) are more than the total population of the country (i.e., 26.49 million) (Rijal, 2016). A few studies have assessed if mobile devices can be used to improve maternal and new born care (Harsha et al., 2015); support health workers in the rural district hospitals (Bhatta, Aryal, & Ellingsen, 2015); collect health surveillance data from rural areas (Meyers et al., 2017) and SMS reporting of neonatal health information (Shrestha, 2014). None of these studies assessed the feasibility of using mobile technologies in mental health care. Recently, a group of researchers from Nepal, United Kingdom, United States of America, and the WHO Geneva, have initiated a research programme that aims to test the feasibility of implementing an e-version of the mhGAP intervention guides in primary healthcare settings in Nepal (Pokhrel et al., 2021). In line with this research, future studies should assess the feasibility, acceptability and effectiveness of using mobile technology in mental health care, particularly in remote areas where specialist mental health services are unavailable.

Fifth, although traditional healing practice in Nepal is gradually decreasing (Baniya, 2014), more than 50% of the population still rely on traditional or complementary medicines (Shankar & Paudel, 2006). There is no systematic data on the relationship between mental health and traditional healing practices despite the strong belief in traditional healing practices, which is likely because of the complexity in evaluating mental health services provided by traditional healers (Nortje, Oladeji, Gureje, & Seedat, 2016). In both baseline and follow-up community surveys, a significant proportion of the participants with depression and AUD reported that they had received treatment from traditional providers, such as traditional healers, and spiritual leaders, and also used traditional and complimentary medicines (Luitel et al., 2019). The treatment of mental health problems from traditional healers or the use of complimentary medicines may likely be more prevalent because of misconceptions about the causes of mental illness. People in Nepal often believe that an illness is caused by Gods or it is due to the results of a witchcraft when the causes of an illness is not rationally explained or diagnosed by medical professionals. Despite the use of traditional healing practices or complimentary medicines by a significant portion of the population, there is lack of evidences on the effectiveness of treatment provided by traditional providers or complementary medicines in Nepal. In a recent study, traditional healers claimed that treatment they provided was effective for mild to moderate psychological distress (Pham, Kaiser, et al., 2021), and they also recommended a collaboration between traditional and biomedical providers by establishing a two-way referral mechanism (Pham, Koirala, & Kohrt, 2021). Therefore, future research should evaluate the effectiveness of mental health treatment provided by traditional healers or complimentary forms of medicines, and explore the possible roles of traditional practitioners in mental healthcare.

Sixth, although there is no nationally representative data on the prevalence of perinatal depression in Nepal, available data suggest approximately 5 to 12% of women in the perinatal period experience depression (Clarke et al., 2014; Ho-Yen, Bondevik, Eberhard-Gran, & Bjorvatn, 2006; Regmi, Sligl, Carter, Grut, & Seear, 2002). Similarly, suicide has also been reported as a leading cause of death among women of reproductive age in Nepal, contributing to 16% of all deaths (Suvedi et al., 2009). The high prevalence of mental health problems and alarming rate of suicide among women in the reproductive age is not surprising given the discriminating cultural norms restricting self-expression, lack of educational opportunities, poor empowerment, and other social hardships women experience (Marahatta, Samuel, Sharma, Dixit, & Shrestha, 2017). Despite the high rates of perinatal depression, the trained primary health care workers in our studies failed to detect perinatal depression during routine primary care. One of the possible reasons for this could be that women who visit primary healthcare facilities for pregnancy check-ups and other pregnancy-related complications consult with non-prescribing health workers, who do not conduct assessments or diagnose mental illness. We conducted a small pilot study (the results of which are not presented in this dissertation) to assess the feasibility and acceptability of using a universal screener for detection of perinatal depression in the routine maternal healthcare system demonstrated promising results. Non-prescribing health workers, who were trained on the Edinburgh Postnatal Depression Scale (EPDS) and a brief protocolized psychological intervention (i.e. Healthy Activity Program), successfully screened more than 1500 pregnant women and offered evidence-based brief psychological intervention to those who screened positive for depression. Although the pilot study revealed encouraging results, the accuracy of the screening and the effectiveness of the psychological treatment provided by the trained non-prescribing health care workers have not yet been systematically evaluated. Therefore, future research should evaluate the accuracy of universal screening in routine maternal healthcare and the effectiveness of psychological treatment provided by the non-prescribing health care workers.

10.4.2 Programmatic implications

I) Adequate training and supervision

Based on the results of the studies presented in this dissertation and on my observations, short and one-time training is not sufficient to build the necessary clinical skills and capacity of primary health care workers to diagnose and manage mental disorders in primary care. They require adequate training from the beginning, refresher training after six months, and clinical supervision and mentoring on a regular basis. Since the existing pre-service training curriculum of primary health care workers in Nepal does not include mental health, we provided a 10-day training for prescribing health workers, which included training content on the awareness of mental health and mental illness, assessment and diagnosis using the mhGAP-IG, basic psychosocial support, pharmacological treatment, and follow-up care. During the training, health care workers were also exposed to patients in an inpatient psychiatric department at a district hospital to provide the opportunity to interact with people who have mental illness. Non-prescribing health care workers also received 10-day training in two phases. Phase 1 of the training included training in the awareness of mental health and mental illness, basic concept and principles of psychosocial interventions, basic communication skills, psycho-education and emotional support. Phase 2 of the training focused primarily on the brief protocolized problem-focused psychological interventions HAP and CAP. The duration of these trainings were longer than the duration suggested in the mhGAP-IG.

Similarly, we developed a unique supervision system i.e. 'psychiatric case conference' where trained health workers were invited to bring their patients they had difficulty in diagnosing or managing to a case conference. In the psychiatric case conference, a trained health worker narrates a difficult case in front of other health workers and describes what the difficulties are. The supervisor (i.e., psychiatrist) provides appropriate diagnosis and treatment options for the patient and discuss the case further among health workers after the patient leaves the venue. Health workers and patients' parties reported appreciating this approach because the patients who attended a supervision session receive free specialist treatment in their own community, while health workers have the opportunity to learn from real cases discussed during the supervision session. Based on suggestions from the trained health workers, the psychiatric case conferences were conducted on monthly basis in the beginning and once every three months after six-month from the training. This approach was also used in the supervision of non-prescribing health workers. Supervision sessions were found to be more effective if the same mental health specialist who trained health workers was also involved in supervision.

In the recent years, the mhGAP-IG has increasingly been used for in-service training of non-specialist health care workers. A recent systematic review revealed an encouraging result that mhGAP-IG can also be used in pre-service training for a range of future health carders, including medical and nursing students (Chaulagain et al., 2020). If mhGAP-IG is integrated into the pre-service training of primary health care workers, this could reduce a number of barriers that have been encountered in the in-service training. The integration of mhGAP-IG into pre-service training could also promote a common understanding of mental illness among different cadres of health care workers. Pre-service training may also be much cheaper than in-service training. Most importantly, this approach could help to address barriers created by the frequent transfer of trained health care workers. Patients who were dropped out of care reported frequent transfers of trained health workers as one of the major reason for dropping out from primary care-based mental health services (Luitel et al., 2020). The use of mhGAP-IG in pre-service training could also be a sustainable strategy to minimize the enormous treatment gap in mental health care by addressing the paucity and unequal distribution of mental health human resources in Nepal (Luitel et al., 2015).

II) Involvement of all primary health care worker

There is a substantial body of evidence demonstrating that mental health services can be delivered effectively by trained lay health care workers. Despite this, there is no accepted guideline or protocol regarding the basic qualification that is required to be a mental health worker. In our studies, Medical Officers (with MBBS degree), Health Assistants (HAs) (having 3–year training on community medicine after high school) and Auxiliary Health Workers (AHWs) (having 18-month training on community medicine after high school) were trained using the mhGAP-IG. AHWs are the lowest level of primary health care workers in Nepal who are allowed to prescribe medicines with some restriction. Based on the routine data, AHWs were the health workers who assessed approximately 60% of all mental health patients in primary healthcare facilities in Chitwan. The Standard Treatment Protocol recently developed by the MoHP does not include training AHWs on mhGAP-IG, and AHWs are also not allowed to diagnose or prescribe psychotropic medicines. This protocol does not align with the evidence generated in our studies. The treatment protocol has created a risk of leaving many people without care even in settings where the government mental health model is implemented because Medical Officers or HAs are not available in all primary healthcare facilities, particularly in rural areas. Therefore, AHWs should also be involved in the mhGAP training and should also be allowed to diagnose and manage mental disorders with restrictions if needed.

II) Improve coordination among health care workers

In the studies presented in this dissertation, both prescribing and non-prescribing primary health care workers were trained to deliver psychological and pharmacological services. Prescribing health workers were trained on the assessment, diagnosis, and management of mental disorders using the WHO mhGAP-IG, while non-prescribing health care workers received training in psychological interventions such as brief HAP for depression (Chowdhary et al., 2015) and CAP for AUD (Nadkarni et al., 2013). In the existing system, all patients attending primary healthcare facilities are assessed by prescribing health care workers. If a prescribing health worker does not refer a patient requiring psychological treatment to non-prescribing health worker, there is no alternative pathway for a patient to consult non-prescribing health care workers. Except in a few health facilities, coordination between prescribing and non-prescribing health care workers was extremely poor. Non-prescribing health workers reported that prescribing health care workers do not refer patients to them because they believe non-prescribing health workers lack necessary qualifications and skills to deliver psychological interventions. This was one of the reasons that many patients requiring psychological treatment failed to receive services even when services were available in the primary healthcare clinics. Therefore, the coordination between prescribing and non-prescribing health workers should be strengthened to increase the uptake of psychological interventions in primary care.

IV) Provision of confidential space

We found that the lack of confidential space for consultation and delivering psychological interventions as one of the most persistent challenges in maintaining the confidentiality of patients attending primary healthcare facilities. Due to the lack of separate and confidential room for consultations, most of the primary health care workers at health facilities in the study performed assessments and consultations in the same room where other patients wait for medical services. In the qualitative study (reported in Chapter 8), service users reported they were reluctant to share their problems in front of other people due to lack of confidential space for consultation. This has also been supported by the high proportion of the participants reporting perceived stigma in the follow-up community survey. Similarly, health care workers also reported "lack of confidential place for consultation" as one of the most important barriers to integrating mental health services into the primary healthcare system (Upadhaya et al., 2020). Therefore, a separate and confidential space should be made available in each health facilities for consultation and psychological intervention.

V) Targeted interventions to create demand for mental health service

Despite the efforts made in the community to sensitize community members to mental health issues and available services through community awareness and sensitization program, the community survey failed to demonstrate a significant change in the proportion of the people receiving care for depression and AUD before and three years after the implementation of the district MHCP. Similarly, the community-level activities included in the MHCP also failed to reduce the barriers to seeking mental healthcare. One of the possible reasons for not achieving significant improvement in the treatment contact coverage and barriers to care is lack of targeted community-level interventions for specific barriers. The community sensitization program primarily targeted increasing mental health literacy and promoting awareness about the services available in people's community. Studies conducted in high-income settings indicate that mental health literacy can help to change attitudes, but there is little evidence that literacy programs help to improve help-seeking (Gulliver, Griffiths, Christensen, & Brewer, 2012). However, the available evidence suggests that help-seeking attitudes and intention can predict behaviour (ten Have et al., 2010). A recent qualitative study conducted with service users, their caregivers, and primary health care workers also reported mental health stigma as a major contributing factor for the low utilization of mental health services in western Nepal (Devkota et al., 2021). Therefore, future community interventions should target reducing stigma or negative attitudes towards seeking mental health care, rather than only providing information about mental illness and available services. The community informant detection tool (CIDT) has shown effective in improving help-seeking, particularly, in the settings where FCHVs (community informants) are well-connected with communities (Jordans et al., 2017).

The CIDT can also be used with other community stakeholders such as members of mother groups, traditional healers, and teachers to widen the coverage. Therefore, a targeted anti-stigma intervention along with CIDT should be universally implemented to improve the demand for mental health service.

VI) Regular supply of psychotropic medicines

The MoHP has recently revised the list of essential and free drugs to include the six psychotropic medicines initiated by PRIME. Local governments – Municipalities and Rural Municipalities – can now procure and distribute these medicines in their respective Municipalities through local-level budgets. Even though the PRIME team took lead role in the procurement and distribution of psychotropic medicines, a few medicines were stocked-out several times during the study period because of the lengthy administrative and procurement process for medication. A recent study suggests that the procurement and distribution of psychotropic medicines often take longer time than the procurement of other medicines because of extra precaution and restrictions (Upadhaya et al., 2018). The procurement of psychotropic medicines requires strict pre-approval, quantity restriction for production and import, and a mandatory record keeping system (Upadhaya et al., 2018). Similarly, the unavailability of essential psychotropic medicines in primary healthcare facilities and the frequent stock-out of the medicine were the two commonly reported reasons for patients dropping out of care (Luitel et al., 2020). Psychotropic medicines play an important role in treating mental disorders, particularly for severe mental illness (Eaton, 2008). Because of the availability of a limited psychotropic medicines, patients requiring multiple medicines often need to purchase the medicines by themselves when they are not available in primary healthcare facilities. Therefore, the current drugs procurement process needs to be revised to facilitate quick and efficient supply of medicines, and a range of psychotropic medicines should be made available in primary healthcare facilities.

VII) Strategy to improve detection of depression

It is reported that globally more than 10% of the patients attending primary healthcare facilities are likely to have major depressive disorder (Craven & Bland, 2013), and about half (45%) of suicide cases are found to have contacted with primary health care workers within one month of their suicide (Luoma, Martin, & Pearson, 2002). Primary healthcare facilities should be considered as the most appropriate places for the timely detection and management of depression because people experiencing depressive symptoms are more likely to contact primary health care workers rather than mental health specialists (Reilly et al., 2012). While depression is common among people attending primary health care facilities (Rait et al., 2009), less than half (47.3%) of people with depression are correctly being detected by primary health care workers (Mitchell et al., 2009). Our results also revealed that 1 out of 5 women, and 1 out of 9 men attending primary healthcare services had depression (Luitel, Baron, Kohrt, Komproe, & Jordans, 2018), while the trained primary health care workers were able to detect only 24% of those cases immediately after the mhGAP-based training. If primary health care workers fail to detect depression, this may pose a serious concern about the viability of integrating mental health services into primary healthcare system given that depression is the most common mental health disorder. Routine screening in primary care has shown to be effective in improving detection rates of depression (Gilbody, Sheldon, & House, 2008). Therefore, various measures, such as the Patient Health Questionnaires (PHQ-9, PHQ-2) and the WHO Well-Being Index (WHO-5), have been recommended as universal screeners for use in primary care. The sensitivity of these screening tools in cross-cultural setting have not been widely evaluated (Kroenke, Spitzer, & Williams, 2003) and using PHQ9 as a universal screener in primary healthcare may not be feasible due to limited time and resource in most LMICs. In Nepal, the 2-item local idiom "heart-mind problem" and associated "functional impairment" scale found to be highly sensitive in identifying people with depression compared to the Composite International Diagnostic Interview (CIDI) (Kohrt et al. ,2016). The recent validation study in Nepal reported that the use of heart-mind problems scale in the routine healthcare system reduces the number of patients requiring full PHQ9 by 50%. Therefore, a combination of heart-mind problem scale and PHQ9 could be a potential strategy to improve detection of depression in primary healthcare system in Nepal (Kohrt et al., 2016).

VIII) Dedicated psychosocial workers

A separate cadre of psychosocial workers (i.e. para-professional psychosocial counsellors) were recruited to implement the manualized psychological interventions in both primary healthcare facilities and in community settings when there was no space in the health facilities. A randomized controlled trial (RCT) embedded within the cohort studies indicated that treating depression in primary healthcare appeared to be effective only if patients receive psychological treatment from para-professional psychosocial counsellors (Jordans, Luitel, Garman, et al., 2019). This is not a surprising result given that the psychological interventions delivered by para-professional psychosocial counselors has resulted significant treatment outcomes in Nepal (Markkula et al., 2019) and other countries (Patel et al., 2010; Singla et al., 2017). Both service users and caregivers perceived psychological interventions delivered by the para-professional psychosocial counselors to be more effective than pharmacological treatment. In Nepal, there are no mid-level mental health workers, as there are in many other countries (Razzouk, Gregório, Antunes, & Mari, 2012). A mid-level cadre of health worker, like para-professional psychosocial counselors, could be an effective strategy to bridge the current gap between mental health specialists and trained primary health care workers. This approach could also minimize the work burden of primary health care workers, particularly in delivering psychological treatment in primary healthcare facilities. These counsellors could also fulfill the current lack of mental health supervision for non-prescribing health care workers and FCHVs. Although our recommendation for recruitment of a community counsellor in every 3-4 health facilities has not been approved and endorsed by the MoHP, a few municipalities in Chitwan have continued to employ the same counsellors who were a part of PRIME.

IX) Capacity building of health managers and coordinators

The constitution of Nepal 2015 replaced the unitary government with a federal system of government (Thapa et al., 2019). The new constitution assigned the management of basic healthcare services (BHCS) to 753 local governments, i.e., Municipalities and Rural Municipalities. The previous healthcare delivery system coordinated by the district (public) health offices should now to be delivered by provincial and local-level governments. This has created opportunities for the local governments for the effective budgeting and need-based planning of healthcare delivery in Nepal. Health coordinators appointed at local levels are primarily trained to offer health services and most of them lack skills on planning, managing (including procurement and distribution of psychotropic medicines), implementing health programmes in their respective Municipalities. Therefore, health coordinators of all Municipalities and Rural Municipalities should be trained on WHO mhGAP Operations Manual, which offers practical guidance to health managers and coordinators on implementing mhGAP-IG and possible solutions for the barriers that may arise during implementation (WHO, 2018).

X) Strategies for promotion of mental health and prevention of mental disorders

Except for a few community level awareness and sensitization programmes, the MHCP lacks targeted interventions for the promotion of mental health and the prevention of mental disorders, which is indispensable for achieving population mental well-being. There is strong evidence that interventions are effective for promoting mental health and preventing mental disorders, especially among young people (Barry, Clarke, Jenkins, & Patel, 2013). Although prevention and promotion programmes are often implemented universally, it may be cost-prohibitive to implement them universally in settings like Nepal. Therefore, prevention and promotion programmes can be targeted to those who are more at risk for mental health problems, such as females, members from lower caste groups, members of poor and marginalized communities, widows/widowers, and those affected by humanitarian emergencies (Kane et al., 2018; Kohrt et al., 2012; Luitel et al., 2013). Mild or moderate depression or anxiety can potentially be preventable if a dimensional approach is used that balances the focus on treatment with equal emphasis on promotion and prevention (Barrera, Torres, & Munoz, 2007). Prevention and promotion programmes could also be helpful to achieving UN SGDs targets, such as reducing by one-third premature mortality from non-communicable disease through prevention, treatment and the promotion of mental health (United Nations, 2015).

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NEDERLANDSE SAMENVATTING

Evaluatie van de integratie van geestelijke gezondheidszorg binnen het primaire gezondheidszorg systeem in Nepal

Er is wereldwijd sprake van een enorme kloof tussen het aantal mensen dat geestelijke gezondheidszorg nodig heeft en het aantal mensen dat deze zorg daadwerkelijk ontvangt. De afgelopen jaren is een grote hoeveelheid bewijsmateriaal gegenereerd dat erop wijst dat zorgverleners uit de eerstelijns- en gemeenschapszorg met behulp van taakverschuivende benaderingen effectief geestelijke gezondheidszorg kunnen leveren. Bij de taakverdelende benadering zijn specialisten in de geestelijke gezondheidszorg betrokken bij het ontwerpen en managen van geestelijke gezondheidszorg, het vergroten van de klinische capaciteit van eerstelijnszorgverleners, het bieden van begeleiding en het waarborgen van de kwaliteit van de zorg. De Wereldgezondheidsorganisatie (WHO) pleit ervoor om de geestelijke gezondheidszorg te integreren in het eerstelijnszorgsysteem, als een praktische en effectieve manier om de behandelingskloof op het gebied van de geestelijke gezondheidszorg te verkleinen. De WHO heeft daarom de 'Mental Health Gap Action Programme Intervention Guide' (*mhGAP-IG*) ontwikkeld, ter ondersteuning van een effectieve integratie van de geestelijke gezondheidszorg in de eerstelijnszorgsystemen van met name lage- en middeninkomenslanden. Hoewel deze integratie alom wordt bepleit, is nog niet systematisch geëvalueerd hoe deze in de praktijk uitpakt. Dit proefschrift presenteert verschillende studies die zijn gedaan om nieuw bewijsmateriaal te genereren op het gebied van de implementatie en evaluatie van de geestelijke gezondheidszorg in het eerstelijns- en gemeenschapszorgsysteem van Nepal.

Dit proefschrift bestaat uit zeven delen en tien hoofdstukken. Acht hoofdstukken (hoofdstuk 2 tot hoofdstuk 9) zijn elk gebaseerd op een aparte studie. Deel 1 (hoofdstuk 1) introduceert de context en de probleemstelling. Deel 2 (hoofdstuk 2 en hoofdstuk 3) presenteert epidemiologische studies over psychische problemen onder volwassenen in Nepal. De eerste studie onderzocht de prevalentie van depressie, angst en posttraumatische stressstoornis (PTSS) onder volwassenen die getroffen zijn door het Maoïstisch Conflict, terwijl de tweede studie zich focuste op depressie en stoornissen in het gebruik van alcohol onder volwassenen die gebruikmaken van eerstelijnszorg. De resultaten toonden aan dat de prevalentie van depressie en angst veel hoger waren onder de populatie die is getroffen door het Maoïstisch conflict in vergelijking met de hulpzoekende bevolking. Binnen die laatste groep waren de prevalentiecijfers veel hoger onder vrouwen, leden van lagere kasten en etnische groepen, en mensen wie een conflict in de gemeenschap een negatieve impact heeft gehad. Aan de andere kant was de prevalentie van stoornissen in het gebruik van alcohol significant hoog onder mannen en mensen uit bepaalde kaste- en etnische groepen die traditioneel alcohol drinken.

Deel 3 (hoofdstuk 4 en hoofdstuk 5) presenteert de stand van zaken wat betreft de geestelijke gezondheidszorg in Nepal, met name op het gebied van de beschikbaarheid van diensten en middelen, en de kloof tussen het aantal mensen dat geestelijke gezondheidszorg nodig heeft en het aantal dat die zorg daadwerkelijk ontvangt. De resultaten gaven aan dat de formele geestelijke gezondheidszorg zich beperkt tot een aantal ziekenhuizen in de grote steden. In het verleden hebben zowel de overheid als niet-gouvernementele organisaties gemeenschapsprogramma's opgezet op het gebied van geestelijke gezondheidszorg, i.e. het trainen van zorgverleners in de eerstelijns- en gemeenschapszorg. Door een gebrek aan toezicht en het feit dat essentiële psychotrope medicijnen niet beschikbaar waren, zijn deze programma's niet op regelmatige basis voortgezet. Ondanks de beschikbaarheid van geestelijke gezondheidszorg in zowel private als publieke ziekenhuizen in Chitwan, bleek slechts een klein deel van de mensen met depressie en stoornissen in het gebruik van alcohol zorg te hebben ontvangen voor deze problemen. De grootste belemmeringen om behandeld te worden voor depressie of stoornissen in het gebruik van alcohol zijn: een gebrek aan financiële middelen om de zorg te kunnen betalen; een gebrek aan informatie over de beschikbare geestelijke gezondheidszorg; de angst om vanwege psychische problemen te worden gezien als zwak; aarzeling om over gevoelens, emoties en gedachten te praten; en de voorkeur voor alternatieve behandelingen.

Deel 4 (hoofdstuk 6) presenteert de inhoud van het 'Mental Health Care Plan' (MHCP) en het proces en de stappen die gevolgd zijn om dit plan op te stellen. Het MHCP is ontwikkeld op basis van de resultaten van een kwalitatieve formatieve studie en de Theory of Change-workshops die werden gehouden met een breed scala aan stakeholders, waaronder beleidsmakers, specialisten op het gebied van geestelijke gezondheid, eerstelijnszorgverleners, en mensen die van de zorg gebruikmaken. In totaal bestond het MHCP uit twaalf interventiepakketten om in te zetten op drie verschillende niveaus in de gezondheidszorg: het niveau van de gezondheidszorgorganisatie, het niveau van de gezondheidsinstellingen en het gemeenschapsniveau. De twee interventiecomponenten van het deel dat zich richtte op de gezondheidsorganisatie waren betrokkenheid bij het programma van hooggeplaatste functionarissen van het Ministerie van Volksgezondheid en doorverwijzing voor gespecialiseerde zorg. Op dezelfde manier waren er zes interventiecomponenten in de pakketten op het niveau van de gezondheidsinstelling die zich voornamelijk richten op de beoordeling van en omgang met geprioriteerde psychische stoornissen aan de hand van de mhGAP-IG van de WHO. De interventiepakketten op het gemeenschapsniveau richten zich op de sensibilisering van de algemene bevolking voor psychische aandoeningen, het opsporen en doorverwijzen van mensen met psychische aandoeningen door vrijwilligers uit de gemeenschap door middel van een proactieve opsporingsstrategie, de levering van psychologische interventies in de gemeenschap aan de hand van protocollen, en nazorg door middel van huisbezoeken.

Deel 5 (hoofdstuk 6, hoofdstuk 7 en hoofdstuk 8) presenteert de uitkomst van het MHCP. Deze uitkomst is met verschillende methoden en indicatoren op vijf gebieden geëvalueerd: de dekking van behandelcontacten op populatieniveau; de opsporing van psychische stoornissen in de eerstelijnszorg; het starten van een minimaal adequate behandeling na een gestelde diagnose; vermindering van de ernst van symptomen en verbetering van het functioneren van de patiënt; en de perceptie van zorggebruikers op eerstelijns geestelijke gezondheidszorg. De verandering van de dekking van behandelcontacten op populatieniveau werd onderzocht met herhaalde cross-sectionele gemeenschapsenquêtes en gegevens over het gebruik van de zorg. De resultaten van de enquêtes lieten geen significante stijging zien in het aandeel mensen dat geestelijke gezondheidszorg ontving voor en na de implementatie van de MHCP, terwijl de daadwerkelijke gebruiksgegevens wel een significante verandering lieten zien in het aandeel mensen dat eerstelijns geestelijke gezondheidszorg ontving. Veranderingen in de opsporing van depressie en stoornissen in het gebruik van alcohol in eerstelijnszorginstellingen is onderzocht met behulp van een herhaalde instellingsdetectie-enquête, die aantoonde dat na de mhGAP-trainingen sprake was van een significante verbetering in de juiste opsporing van depressie en stoornissen in het gebruik van alcohol. De opsporingspercentages daalden 24 maanden na de training echter significant voor zowel depressie als stoornissen in het gebruik van alcohol. Het aandeel van de deelnemers dat na een correcte diagnose een minimaal adequate behandeling startte, nam significant toe voor zowel depressie als stoornissen in het gebruik van alcohol. Voor de mhGAP-training werd geen enkele met depressie of stoornissen in het gebruik van alcohol gediagnosticeerde deelnemer behandeld, terwijl na de training elke deelnemer met een diagnose een minimaal adequate behandeling ontving.

De evaluatie onthulde ook dat de behandeling die door getrainde eerstelijnszorgverleners werd gegeven, in de twaalf maanden na de behandeling resulteerde in een significante vermindering van de ernst van symptomen en een verbetering in het functioneren van mensen met depressie, psychose en stoornissen in het gebruik van alcohol. De veranderingen in het aantal epileptische aanvallen en het functioneren van de groep mensen met epilepsie waren echter niet statistisch significant. Hoewel zowel de zorggebruikers als hun verzorgers een hoog niveau van tevredenheid rapporteerden over de door de getrainde zorgverleners geleverde zorg, stopte ongeveer een derde van de patiënten die waren begonnen met een behandeling bij een eerstelijnszorginstelling voortijdig. Vaak genoemde redenen om te stoppen waren onder meer: de niet-beschikbaarheid van dezelfde zorgverlener bij vervolgafspraken; medicijnen die vaak waren uitverkocht of benodigde medicijnen die niet beschikbaar waren bij eerstelijnszorginstellingen; en een gebrek aan ruimte voor vertrouwelijk overleg.

Deel 6 presenteert het implementatieproces, en de bevonden belemmerende en bevorderende factoren voor de integratie van de geestelijke gezondheidszorg in de eerstelijns- en gemeenschapszorg. Er werden meerdere methodes toegepast, waaronder: kwalitatieve interviews met zowel zorgverleners als zorggebruikers; profielen van districten, gemeenschappen en zorginstellingen; maandelijkse implementatielogboeken; evaluaties voor en na de trainingen; en gegevens van patiënten. De MHCP heeft voldaan aan de meeste proces- en uitkomstindicatoren die in de veranderingstheorie werden geschetst. Het aandeel eerstelijnspatiënten dat geestelijke gezondheidszorg ontving, steeg ook significant gedurende de implementatieperiode van drie jaar. De belangrijkste obstakels voor de implementatie van de zorgpakketten bleken te bestaan uit: overbelaste eerstelijnszorgverleners; frequente verplaatsing van de getrainde zorgverleners; stigma's over psychische gezondheid onder zorgverleners; een gebrek aan adequate fysieke faciliteiten in de meeste eerstelijnszorginstellingen; de lange tijd die het kost om geneesmiddelen te verkrijgen en te distribueren; en een gebrek aan toezicht op de geestelijke gezondheidszorg in het bestaande zorgsysteem. De belangrijkste factoren die een succesvolle implementatie van het MHCP mogelijk maakten, waren: actieve betrokkenheid van het Ministerie voor Volksgezondheid en het Districtsbureau voor Volksgezondheid; de aanschaf van nieuwe psychotrope medicijnen via het projectbudget; en de start van een nieuw systeem voor toezicht, i.e. een psychiatrische casusconferentie en het inhuren van toegewijde psychosociaal werkers om psychologische interventies te plegen in de gemeenschapssetting. De resultaten en best practices van deze onderzoeken zijn op grote schaal gebruikt door het Ministerie van Volksgezondheid bij de ontwikkeling van nieuwe wetgeving en beleid, zoals het 'Standard Treatment Protocol' (STP), het 'Community Mental Health Care Package' (CMHCP), en een curriculum voor de training van eerstelijnszorgverleners. De zes medicijnen met het gebruik waarvan tijdens het project is begonnen, zijn nu een onderdeel van de lijst met essentiële geneesmiddelen.

Deel 7 (hoofdstuk 10), de discussie en conclusie, reflecteert op de integratie van de geestelijke gezondheidszorg in de eerstelijns- en gemeenschapszorg. Dit wordt gedaan door de belangrijkste resultaten, de best practices, en de faciliterende en belemmerende factoren voor implementatie te presenteren. We doen een reeks belangrijke beleids- en praktische aanbevelingen om de geestelijke gezondheidszorg in vergelijkbare settingen effectief te integreren, of om deze integratie te verbeteren en versterken in settingen waar al met de integratie is begonnen. De belangrijkste belemmeringen voor de integratie van de geestelijke gezondheidszorg in de setting van de eerstelijnszorg bleken te bestaan uit: een gebrek aan ruimte voor vertrouwelijk overleg in eerstelijnszorginstellingen; frequente verplaatsing van getrainde zorgverleners; beperkte beschikbaarheid van psychotrope medicijnen, en stigma. Tot slot, de integratie van de geestelijke gezondheidszorg in de eerstelijns- en gemeenschapszorg van Nepal is haalbaar, acceptabel en effectief; voor een effectieve integratie is het echter noodzakelijk dat wordt gekozen voor een alomvattende aanpak, die niet alleen betrokkenheid van de belangrijkste stakeholders omvat – i.e. beleidsmakers, specialisten op het gebied van geestelijke gezondheidszorg en zorggebruikers) –, maar ook interventies om belemmeringen aan de vraagzijde aan te pakken, adequate training en gestructureerd toezicht op getrainde zorgverleners, regelmatige levering van psychotrope medicijnen in eerstelijnszorginstellingen en de beschikbaarheid van psychologische interventies in zowel eerstelijnszorginstellingen als de gemeenschapssetting.

ENGLISH SUMMARY

Evaluation of the integration of mental health services into the primary and community healthcare system in Nepal

Globally, there is a huge gap between the number of people who need mental health care and those who receive it. In recent years, a large body of evidence has been generated indicating the effectiveness of the task-shifting approach where mental health services are delivered by primary and community health care providers. In the task-sharing approach, mental health specialists are involved in designing and managing mental health services, building clinical capacity of the primary health care providers, and providing supervision and quality assurance. The World Health Organization (WHO) advocates integration of mental health services into the primary health care system as a practical and effective means to lower the treatment gap on mental health care. In this direction, WHO has developed the Mental Health Gap Action Programme Intervention Guide (mhGAP-IG) to help to facilitate the effective integration of mental health services into the primary health care system, particularly in low-and-middle income countries. Although integration of mental health services into primary health care has been widely advocated, this has not been systematically evaluated in a real-world setting. This dissertation presents studies conducted to generate new evidence in implementation and evaluation of mental health services in the primary and community health care system in Nepal.

This dissertation consists of seven sections and ten chapters. Eight chapters (i.e. chapter-2 to chapter-9) are each based on separate individual studies. Section one (chapter 1) presents the context and problem statement. Section-two (chapter 2 and chapter 3) presents epidemiological studies on the burden of mental health problems among adults in Nepal. The first study assessed the prevalence of depression, anxiety, and post-traumatic stress disorder (PTSD) among adults affected by the armed conflict in Nepal, while the second study focused on the depression and alcohol use disorder (AUD) among adults attending primary health care facilities. The results showed that the prevalence of depression and anxiety were much higher in the population affected by the armed conflict compared to those attending primary health care facilities. Among them, the prevalence rates were much higher among females, lower caste/ethnic groups and those who experienced negative impact of conflict in the community. Contrastingly, the prevalence of AUD was significantly high among males and certain caste/ethnic groups who would drink alcohol traditionally.

Section-three (chapter 4 and chapter 5) presents the situation of mental health care in Nepal, particularly on the availability of services and resources, and the gap between the number of people who needed mental health care and those who received it. The results indicated that formal mental health services were restricted to a few hospitals located in the big cities. In the past, community mental health programme, i.e. providing training to primary and community health workers, was initiated by both government and non-governmental organizations. However, due to lack of supervision and non-availability of essential psychotropic medicines, it was not continued regularly. Despite the availability of mental health services in both private and public hospitals in Chitwan, only a small proportion of the people with depression and AUD were found to have received services for their problems. The major barriers for receiving treatment for depression or AUD were lack of financial means to afford care, lack of information about the available services, fear of being perceived weak for having mental health problems, hesitancy in talking about one's feelings, emotions, and thoughts, and preferring alternative treatment for the problem.

Section four (chapter 6) presents the process and steps that were followed in the development of the mental health care plan (MHCP) and its content. The MHCP was developed based on the results from a qualitative formative study and Theory of Change workshops which were conducted with a wide range of stakeholders including policy makers, mental health experts, primary healthcare workers, and service users. Overall, there were 12 intervention packages in the MHCP delivered at three health care platforms: health organization level, health facility level and community level. Engagement of senior level Ministry of Health (MoH) officers in the programme and referral for specialized care were the two intervention components that were included in the health organization level package. Similarly, there were 6 intervention components in the health facility level care packages that focused primarily on the assessment and management of priority mental disorders using the WHO mhGAP-IG. The community level intervention packages targeted the sensitization of the general community on mental illness, detection and referral of mental disorders by community volunteers using a proactive case detection strategy, delivery of protocolized psychological intervention in the community, and follow-up care through home visit.

Section five (chapter 6, chapter 7 and chapter 8) presents the outcome of the mental health care plan which was evaluated using multiple methods and indicators in five different domains: population level treatment contact coverage, detection of mental disorder in primary care, initiation of minimally adequate treatment after diagnosis, improvements in symptoms severity and functioning, and perception of service users on primary care-based mental health service. The change in population level treatment contact coverage was assessed using repeat-cross-sectional community survey and service utilization data. The community survey results did not show a significant change in the proportion of people receiving mental health services before and after implementation of the MHCP however, the actual service utilization data demonstrated a significant change in the proportion of people receiving primary care-based mental health services. Changes in detection of depression and AUD in primary healthcare facilities were assessed using a repeat-facility detection survey, which demonstrated a significant improvement in correct detection of depression and AUD before and after initiation of the mhGAP-based training. However, the detection rates dropped significantly 24-months after the training for both depression and AUD. The proportion of the participants initiating minimally adequate treatment after correct diagnosis increased significantly for both depression and AUD. None of the participants diagnosed with depression or AUD received treatment in the baseline (i.e. before the mhGAP training), while almost every participant who was diagnosed with depression and AUD received a minimally adequate treatment.

The evaluation study also revealed that the treatment provided by trained primary healthcare workers resulted in a significant reduction in symptom severity and in the improvement of functional outcomes of people with depression, psychosis, and AUD in 12-month follow-up; however, the changes in the number of seizures and functional outcomes in Epilepsy cohort were not statistically significant. Although both service users and their caregivers reported high level of satisfaction with the service provided by the trained health workers, about one-third of the patients who initiated treatment from primary health care facilities dropped out from the service. Unavailability of the same health care provider in the follow-up visits, frequent stock out of medicines or unavailability of the required medicines at primary health care facilities, and lack of confidential space for consultation were some frequently reported reasons for dropping out from services.

Section six (chapter 9) presents the implementation process, barriers, and provision of facilitators for the integration of mental health services in primary and community health care settings. Multiple methods including qualitative interviews with both service providers and service users, district-, community-, and health- facility profiles, monthly implementation logs, pre-post training evaluation and outpatient data were used in the study. The MHCP was able to achieve most of the process and outcome indicators outlined by theory of change. The proportion of primary care patients receiving mental health services increased significantly over the 3-year implementation period. The major barriers for implementation of the care packages were overburdened primary healthcare workers, frequent transfer of the trained health workers, mental health stigma among service providers, lack of adequate physical facilities in most of the primary health care facilities, lengthy drug procurement and distribution process, and lack of mental health supervision in the existing health care system. Active involvement of MoH and District Public Health Office, procurement of new psychotropic medicines through project budget, and initiation of a new supervision system i.e. psychiatrist case conference, and hiring dedicated psychosocial workers to deliver psychological intervention in the community setting were the key facilitators for successful implementation of the MHCP. The results and best practices of these studies have been widely used by MoH with the development of new policy and legislation such as Standard Treatment Protocol (STP), Community Mental Health Care Package (CMHCP), and training curriculum for primary health care workers. The six medicines which were initiated by the project have now been included in the essential drugs list.

Section seven (chapter 10), the discussion and conclusion section, reflects on the integration of mental health services into primary and community health care systems by presenting the key results, best practices, facilitators, and barriers for implementation. We have proposed a set of key policies and practical recommendations for effective integration, improvement, and strengthening of mental health services into primary healthcare settings in similar settings. Major barriers for integration of mental health services into primary healthcare settings were found to be lack of confidential space in primary healthcare facilities, frequent transfer of trained health workers, availability of only a few psychotropic medicines and the stigma. In conclusion, integration of mental health services into the primary and community healthcare system in Nepal is feasible, acceptable and effective. A comprehensive approach engaging all key stakeholders in the programme (i.e. policy makers, mental health specialists, service users), addressing demand side barriers, providing adequate training and ensuring structured supervision alongside regular supply of psychotropic medicines and availability of psychological interventions in both primary healthcare facilities and community settings are necessary for effective integration.

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Curriculum vitae

Mr. Nagendra Prasad Luitel was born on 8 July 1976 in Bhojpur, a remote district in eastern Nepal. After completing higher secondary education (Proficiency Certificate Level) from Morang, he migrated to Kathmandu for higher studies. He completed his undergraduate degree with majors in English Literature and Population Studies from Ratna Rajya Laxmi Campus, Kathmandu in 2000, and master's degree in Population Studies from Central Department of Population Studies, Tribhuvan University Kathmandu in 2003. He has also completed masters of philosophy (MPhil) in Public Mental Health from University of Cape Town, South Africa. After completing master's degree, Mr. Luitel started his professional carrier as a Junior Researcher at Center for Research on Environment Health and Population Activities (CREHPA), a national level research organization at Kathmandu. He worked in different capacities from Junior Researcher, Field Research Supervisor to Data Analyst at CREHPA between 2003 to 2006. He joined the Transcultural Psychosocial Organization (TPO) Nepal, a leading mental health organization in Nepal, as a Research Coordinator in 2006 for evaluation of a Classroom-based Psychological Intervention for children affected by the armed conflict. He was upgraded to Research Manager of TPO Nepal in 2013 to oversee research activities in the organization. Over the past years, Mr. Luitel has co-led numerous multi-year and multi-national research projects that have focused in developing interventions for para-professionals such as teachers, community health workers, primary care workers, and other non-specialists. His research interests include assessment of mental health problems and service needs among the population affected by humanitarian emergencies, adaptation and validation of mental health instruments, and development and evaluation of community-based interventions to increase utilization of mental health services. Recently, Mr. Luitel has been awarded the Wellcome Trust fellowship to develop a social contact-based community intervention to improve help-seeking for depression care. He has presented research findings at many scientific conferences including World Psychiatric Association (WPA), European Congress of Psychiatry, World Congress of Epidemiology, International Conference on Social Work in Health and Mental Health, Annual National Conference of Indian Psychiatric Society, Psychiatric Association of Nepal Annual Conference and National Summits of Health and Population Scientists in Nepal. He has authored more than 80 articles in the international peer-reviewed journals.

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EVALUATION OF

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INTO THE PRIMARY AND COMMUNITY HEALTHCARE SYSTEM IN NEPAL

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