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Migration and Mental Health in Low- and Middle-Income Countries: A Systematic Review

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Abstract

Objective: Rural-to-urban migration within low- and middle-income countries (LMICs), and migration from one LMIC to another, are prevalent forms of international migration. Migration may be associated with adverse mental health outcomes. The aim of the current study is to systematically review the literature on migration and mental health between and within LMICs.

Methods: This systematic review of PubMed, PsycINFO, Embase, Web of Science, and PILOTS, identified 2,818 total records published between 1991 and 2016, with 139 of these assessed for eligibility. Two authors reviewed full text to assess if they met inclusion criteria, extracted data, and applied a quality assessment to all included studies.

Results: The search identified 37 articles that met the inclusion criteria, based on 28 separate studies. All studies apart from one were cross-sectional studies, and studies utilized a range of sampling methods. In all, 19 of these studies were conducted in China. Studies addressed a range of mental health outcomes, and variation in prevalence was reported. Research questions addressed determinants of mental health outcomes, including analysis of risk and protective factors, such as social, cultural, and economic determinants; migration-related risk factors; and substance use.

Conclusions: Limitations in study design and methodological rigor of studies indicate a limited evidence base concerning migration and mental health in LMICs. Expansion of research to different regions, utilization of adapted and validated measurement instruments, and longitudinal research could significantly strengthen the evidence base.

Rural-to-urban migration within low and middle-income countries (LMICs), and migration from one LMIC to another, for example, for labor purposes, are prevalent forms of international migration. Migrants in LMICs may face significant risks for mental ill health, such as exploitation in workplaces, and a lack of access to social and legal services

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(MacPherson & Gushulak, 2004). Adverse mental health outcomes as a result of migration have been identified in industrialized, Western countries (Cantor-Graae & Selten, 2005), but these data may not be relevant to LMICs. Furthermore, the focus of previous systematic reviews of migration and mental health has focused on specific subgroups exposed to traumatic stressors (e.g., trafficking, armed conflict) (Ottisova, Hemmings, Howard, Zimmerman, & Oram, 2016; Steel et al., 2009); those who migrate due to such traumatic stressors differ substantially from labor and other migrants in LMICs. This leaves gaps in knowledge on risks for mental health in migrating populations, including stigma, reduced social networks, and adverse working conditions. The authors sought to summarize the literature concerning mental health and migration between and within LMICs, expanding on existing systematic reviews in the area (Lindert, Von Ehrenstein, Priebe, Mielck, & Brähler, 2009; Malhotra et al., 2013) by employing a quality assessment measure.

METHODS

This systematic review of migration and mental health was conducted following the PRISMA guidelines.

Eligibility Criteria

A study was considered for inclusion if it (a) quantitatively assessed the relationship between migration and at least one outcome measure of mental health (mental disorders, symptoms, or positive mental health); (b) focused on adult (18 years and older) migrants located in LMICs, and at least 50% of the sample defined as migrants; (c) was published in English in a peer-reviewed journal between January 1991 and March 2016; and (d) described the original data or analysis of secondary data.

Search Strategy

We searched PubMed, PsycINFO, Embase, Web of Science, and PILOTS. Medical Subject Heading (MeSH) terms in PubMed, and Thesaurus terms in PsycINFO were used to identify a string of search terms for migration and mental health concepts that were applied and adapted for the remaining three databases (details available upon request). The search was run in August 2013, and 2,618 records were retrieved. The titles and abstracts for all records were examined, with 113 full-text articles assessed for eligibility. The search was updated in March 2016, with 200 additional records retrieved, and 26 assessed for eligibility.

Study Selection

The selection of studies for inclusion in the review was conducted in two phases. First, two authors (SM, ML) screened titles and abstracts of studies to assess their relevance. Studies that were clearly not relevant and did not meet all the inclusion criteria were excluded. Second, the remaining studies were read in full by two authors (SM, ML) and selected for inclusion in the analysis by consensus. Given expected differences in approaches to mental health measurement and inclusion of predictor variables, we did not perform a meta-analysis and instead focused on narrative synthesis.

Analysis

Two authors (SM, ML) identified key research questions and main results of each study during the data extraction process, following a thematic analysis approach (data available upon request). Data were extracted concerning location of studies, sampling design, measurement of migration-related variables, measurement of mental health outcomes, descriptive epidemiology (prevalence findings) and analytic epidemiology (risk and protective factors). Two authors (SM, ML) independently performed a methodological quality assessment (QA) of all included studies. The QA checklist was adapted from a prior systematic review and included quality criteria focused on sampling, measurement, and analysis (full details available upon request) (Oram, Stockl, Busza, Howard, & Zimmerman, 2012). Differences in coding were discussed and consensus reached.

RESULTS

Included Studies

The searches identified 37 articles that met the inclusion criteria, describing 28 separate studies (list of studies available upon request). Table 1 presents key aspects of all included studies, including study design, sampling approach and sample characteristics, mental health exposures, and outcomes. Of the 28 studies identified in the review, all but one were cross-sectional. Krahl and Hashim's (1998) study is a longitudinal cohort study of all migrants from Association of Southeast Asian Nations (ASEAN) countries presenting in a psychiatric ward in Malaysia over a one-year period.

There was great variation in sampling design and samples across the studies. Sampling approaches included convenience sampling ($n = 5$), clinic-based sampling ($n = 1$), special methods developed to identify migrants workers (e.g., utilizing lists of registered migrant workers as a sampling frame) ($n = 2$), adapted probability methods or respondent-driven sampling ($n = 8$), and probability sampling ($n = 10$). Two studies included two samples with different sampling methods (Wei et al., 2013; Wong et al., 2010). In total, 20 of the 28 of studies were conducted in the Western Pacific region, three in the Southeast Asian region, one in Europe, and four in the Americas, as defined by World Health Organization (WHO) regions (<http://www.who.int/about/regions/en/>); 19 of the 20 studies conducted in the Western Pacific region were conducted in China.

Measures and Quality Assessment

We found that 29 articles used migration-specific measures. For example, Wong et al.'s (2010) study of the association between migration characteristics and illicit drug use among male migrants in Shanghai assessed reasons for leaving hometown, years away from home, length of time in Shanghai, cities visited before residing in Shanghai, and job prior to coming to Shanghai. Other articles used scales that measured migration-specific components. For example, Wang et al.'s (2010) article included a preparation for migration scale, which measured preparedness for working and living in the city, and included three subscales: information gathering, anticipation, and readiness.

Instruments to assess mental health focused on a range of outcomes, including general mental health, depression, general psychological well-being, quality of life and well-being, alcohol abuse and dependency, and illicit drug use. Several studies used structured clinical interviews. Four studies used diagnostic measures for mental disorders based on the *Diagnostic and Statistical Manual of Mental Disorders (DSM; n = 1)* and the *International Classification of Diseases, Tenth Edition (ICD-10; n = 1)*, as well as the WHO World Mental Health Composite International Diagnostic Interview (WMH-CIDI) ($n = 2$), which draws on diagnostic criteria from both the ICD-10 and DSM-IV.

We determined quality of measurement in the included articles: scores between 10 and 12 were judged to have measurement that was high quality; scores of 6 to 9 moderate quality, and scores 5 or below low quality. Eight articles met criteria for high-quality measurement, 24 papers met criteria for moderate-quality measurement, and five papers met criteria for low-quality measurement (details available upon request).

Descriptive Epidemiology

Several papers addressed the question of prevalence of mental health outcomes. Outcomes assessed were poor psychological health ($n = 4$), clinically diagnosed mental disorders ($n = 4$), symptoms of depression ($n = 4$), symptoms of anxiety ($n = 2$), post-traumatic stress disorder (PTSD) ($n = 1$), substance use/abuse ($n = 5$), and suicidality ($n = 1$). Wide variation in prevalence of all mental health outcome measures was identified. For example, depression prevalence rates ranged widely, from 3% to 51%. The prevalence of depression was greatest among male migrants in Shanghai, 50% (Wong et al., 2010), and rural-to-urban, unemployed migrants in eastern China, 51% (Chen et al., 2012). The lowest reported prevalence levels for depression came from a study in Malaysia, where 3% of the sample of migrant workers that were admitted to a psychiatric ward of a local hospital were reported to have severe depression (Krahl & Hashim, 1998). The lifetime prevalence of illicit drug use among male migrants in Shanghai was 12.1% (Wong et al., 2010), while a study in Kazakhstan found rates of alcohol abuse among migrant workers of 8.7% (Ismayilova et al., 2013).

Analytic Epidemiology

The included papers also addressed research questions focused on the determinants of mental health outcomes, including gender, age, marital status, and employment status. Table 2 displays the various risk and protective factors addressed in studies, the variables measured, and example research questions from specific articles. Several studies explored social, cultural, and economic influences on mental health outcomes. For example, associations between discrimination and perceived social inequality with mental health problems were identified by several studies (Lin et al., 2011; Wang, Li, Stanton, & Fang, 2010; Zhang, Li, Fang, & Xiong, 2009). Some studies identified low social support and difficulties with interpersonal relationships as risk factors for mental health problems; for example, in a study of PTSD among migrants who experienced a snowstorm in China, those with low levels of social support in the four years prior to the snowstorm were 1.62 times more likely to experience PTSD compared to participants with social support (Chen et al. 2013). Associations with gender differences and poor mental health were examined across

studies, including several studies in China documenting that being male was predictive of poor mental health (e.g., Chen et al., 2013).

Several studies identified migration-related variables as risks factor for mental health problems. In a study among rural-to-urban migrants in Beijing and Nanjing, China, higher rates of mobility (more frequent moves in relation to duration of migration) increased risks for depressive symptoms, reduced life satisfaction, and increased substance use (Li et al., 2006). A study of migrant workers from Myanmar in Thailand identified associations between prevalent stressors in agriculture, factory, and sex industries, as well as stressful interactions with authorities, and depression and anxiety (Meyer et al., 2016).

DISCUSSION

This systematic review of quantitative studies of migration and mental health in LMICs identified 37 articles fitting our inclusion criteria. The majority of the included studies were cross-sectional, limiting the ability of researchers to determine causality in several important research questions in this field. Particularly, the lack of premigration mental health assessments is a critical limitation, considering its likely importance for postmigration mental health (Mirsky, 2009).

Of the 28 studies, 19 were conducted in China; there is a primary focus in the literature included in this systematic review on rural-to-urban migration in China. Therefore, the evidence base offers an incomplete picture concerning the relationship between migration and mental health in LMICs. Efforts to expand the regional focus of this body of literature are needed.

Included studies addressed a wide range of research questions, including the prevalence and determinants of several mental health outcomes. However, use of different outcomes and different measurement of outcomes precludes direct comparison of prevalence rates across studies. Moreover, quality of measurement of these outcomes was limited in terms of validity and reliability testing. In addition, few studies reported adapting or piloting measures to specific populations, and reporting of cultural validity of measures was limited. The lack of validation of outcome measures in the specific contexts in which instruments were utilized significantly affects the quality of this body of literature. While instrument adaptation and testing in different cultural contexts is challenging in LMICs, there is a growing body of literature focused on different methods that can be used to select, adapt, and validate mental health measures (e.g., Haroz et al., 2014; Kohrt et al., 2011).

The included studies identified risk and protective factors for adverse mental health outcomes among migrant populations studied. Predictors of good outcomes despite exposure to adversity (i.e., resilience) were less commonly studied. Several of the associations identified in these studies are established in broader literature on the risk and protective factors for mental health outcomes. For example, discrimination is an established risk factor for adverse mental health outcomes (Pascoe & Smart Richman, 2009). Low social support is associated with poor mental health across several studies and contexts (Kawachi & Berkman, 2001) and, conversely, has been found to be a protective factor in the context of

stressors (Coker et al., 2002). Yet the narrow evidence base limits conclusions as to how or if relationships and associations identified in high-income settings or with other vulnerable populations can assume to hold for migrant populations.

Research questions were varied and relevant for the different contexts studied, but as a body of literature the studies identified in this systematic review do not easily cohere into an evidence base that can address whether or how migration within and between LMICs affects mental health outcomes. In comparison to the extensive literature on migration and mental health in high-income settings, the evidence base concerning migration and mental health in LMICs is very limited. The reviewed studies suggest that migration stressors are associated with psychological distress and mental disorders. However, studies of resilience among migrants in LMICs are few, and study design, as noted previously, precludes conclusion that migration is causally related to adverse mental health outcomes.

In conclusion, this systematic review identified limited literature on migration and mental health in LMICs, indicating the need for improved study design, rigorous adaptation and validation of measurement instruments, and expansion of the regional focus of the literature.

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REFERENCES

- Cantor-Graae E, & Selten JP (2005). Schizophrenia and migration: A meta-analysis and review. *American Journal of Psychiatry*, 162, 12–24. doi:10.1176/appi.ajp.162.1.12 [PubMed: 15625195]
- Chen G, Shen H, Chen G, Kerr N, & Zhao J (2013). The psychological impact of exposure to the 2008 snowstorms on migrant workers in China. *Asia-Pacific Journal of Public Health*, 27(2), NP1952–NP1961. doi:10.1177/1010539513481800 [PubMed: 23572371]
- Chen L, Li W, He J, Wu L, Yan Z, & Tang W (2012). Mental health, duration of unemployment, and coping strategy: A cross-sectional study of unemployed migrant workers in eastern China during the economic crisis. *BMC Public Health*, 12, 597. doi:10.1186/1471-2458-12-597 [PubMed: 22856556]
- Coker AL, Smith PH, Thompson MP, McKeown RE, Bethea L, & Davis KE (2002). Social support protects against the negative effects of partner violence on mental health. *Journal of Women's Health and Gender-Based Medicine*, 11(5), 465–476. doi:10.1089/15246090260137644
- Haro EE, Bass JK, Lee C, Murray LK, Robinson C, & Bolton P (2014). Adaptation and testing of psychosocial assessment instruments for cross-cultural use: An example from the Thailand Burma border. *BMC Psychology*, 2(1), 31. doi:10.1186/s40359-014-0031-6 [PubMed: 25685351]
- Ismayilova L, Lee HN, Shaw S, El-Bassel N, Gilbert L, Terlikbayeva A, & Rozental Y (2013). Mental health and migration: Depression, alcohol abuse, and access to health care among migrants in central Asia. *Journal of Immigrant and Minority Health*, 16(6), 1138–1148. doi:10.1007/s10903-013-9942-1
- Kawachi I, & Berkman LF (2001). Social ties and mental health. *Journal of Urban Health*, 78(3), 458–467. doi:10.1093/jurban/78.3.458 [PubMed: 11564849]
- Kohrt BA, Jordans MJ, Tol WA, Luitel NP, Maharjan SM, & Upadhaya N (2011). Validation of cross-cultural child mental health and psychosocial research instruments: Adapting the Depression Self-Rating Scale and Child PTSD Symptom Scale in Nepal. *BMC Psychiatry*, 11(1), 127. doi:10.1186/1471-244X-11-127 [PubMed: 21816045]
- Krahl W, & Hashim A (1998). Psychiatric disorders in ASEAN-migrants in Malaysia: A university hospital experience. *Medical Journal of Malaysia*, 53(3), 232–238. [PubMed: 10968159]

- Li X, Stanton B, Chen X, Hong Y, Fang X, Lin D, ... Wang J (2006). Health indicators and geographic mobility among young rural-to-urban migrants in China. *World Health and Population*, 8(2), 5. doi:10.12927/whp.2006.18148 [PubMed: 18277098]
- Lin DH, Li XM, Wang B, Hong Y, Fang XY, Qin XO, & Stanton B (2011). Discrimination, perceived social inequity, and mental health among rural-to-urban migrants in China. *Community Mental Health Journal*, 47(2), 171–180. doi:10.1007/s10597-009-9278-4 [PubMed: 20033772]
- Lindert J, Von Ehrenstein OS, Priebe S, Mielck A, & Brähler E (2009). Depression and anxiety in labor migrants and refugees: A systematic review and meta-analysis. *Social Science and Medicine*, 69(2), 246–257. doi:10.1016/j.socscimed.2009.04.032 [PubMed: 19539414]
- MacPherson DW, & Gushulak BD (2004). Irregular migration and health. Geneva, Switzerland: Global Commission on International Migration.
- Malhotra R, Arambepola C, Tarun S, De Silva V, Kishore J, & Ostbye T (2013). Health issues of female foreign domestic workers: A systematic review of the scientific and gray literature. *International Journal of Occupational and Environmental Health*, 19(4), 261–277. doi: 10.1179/2049396713Y.0000000041 [PubMed: 24588033]
- Meyer SR, Decker MR, Tol WA, Abshir N, Mar AA, & Robinson WC (2016). Workplace and security stressors and mental health among migrant workers on the Thailand–Myanmar border. *Social Psychiatry and Psychiatric Epidemiology*, 51(5), 713–723. doi:10.1007/s00127-015-1162-7 [PubMed: 26661796]
- Mirsky J (2009). Mental health implications of migration: A review of mental health community studies on Russian-speaking immigrants in Israel. *Social Psychiatry and Psychiatric Epidemiology*, 44(3), 179–187. doi:10.1007/s00127-008-0430-1 [PubMed: 18726240]
- Oram S, Stockl H, Busza J, Howard LM, & Zimmerman C (2012). Prevalence and risk of violence and the physical, mental, and sexual health problems associated with human trafficking: Systematic review. *PLoS Med*, 9(5), e1001224. doi:10.1371/journal.pmed.1001224 [PubMed: 22666182]
- Ottisova L, Hemmings S, Howard LM, Zimmerman C, & Oram S (2016). Prevalence and risk of violence and the mental, physical and sexual health problems associated with human trafficking: An updated systematic review. *Epidemiology and Psychiatric Sciences*, 25(4), 317–341. doi: 10.1017/S2045796016000135 [PubMed: 27066701]
- Pascoe EA, & Smart Richman L (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, 135(4), 531. doi:10.1037/a0016059 [PubMed: 19586161]
- Steel Z, Chey T, Silove D, Marnane C, Bryant RA, & Van Ommeren M (2009). Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: A systematic review and meta-analysis. *JAMA*, 302(5), 537–549. doi:10.1001/jama.2009.1132 [PubMed: 19654388]
- Wang B, Li X, Stanton B, & Fang X (2010). The influence of social stigma and discriminatory experience on psychological distress and quality of life among rural-to-urban migrants in China. *Social Science and Medicine*, 71(1), 84–92. doi:10.1016/j.socscimed.2010.03.021 [PubMed: 20403653]
- Wei Z, Hu C, Wei X, Yang H, Shu M, & Liu T (2013). Service utilization for mental problems in a metropolitan migrant population in China. *Psychiatric Services*, 64(7), 645–652. doi:10.1176/appi.ps.201200304 [PubMed: 23545903]
- Wong FY, He N, Huang ZJ, Young D, O’Conor C, Ding YY, ... Arayasirikul S (2010). Migration and illicit drug use among two types of male migrants in Shanghai, China. *Journal of Psychoactive Drugs*, 42(1), 1–9. doi:10.1080/02791072.2010.10399780 [PubMed: 20464801]
- Zhang J, Li X, Fang X, & Xiong Q (2009). Discrimination experience and quality of life among rural-to-urban migrants in China: The mediation effect of expectation–reality discrepancy. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care, and Rehabilitation*, 18(3), 291–300. doi:10.1007/s11136-009-9454-6

TABLE 1.

Study Characteristics

Variable	Number of papers (<i>n</i> = 37)	%
Country		
China	27	73.0
India	1	2.7
Indonesia	1	2.7
Malaysia	1	2.7
Thailand	1	2.7
Kazakhstan	1	2.7
Brazil	3	8.1
Peru	2	5.4
Study design		
Cross-sectional	36	97.3
Longitudinal	1	2.7
Sampling procedure		
Convenience	7	19.0
Help seeking/clinic based	1	2.7
Special population	4	10.8
Adapted probability	12	32.4
Probability	12	32.4
Type of migration		
International migrant	3	8.1
Internal (rural to urban)	34	91.9
Mental health outcomes		
Alcohol abuse and dependency	4	10.8
Anxiety	5	13.5
Depression	9	24.3
General mental health	14	37.8
General psychological well-being	1	2.7
Illicit drug use	3	8.1
Quality of life and well-being	5	13.5
Structured clinical interviews for mental disorders	4	10.8

TABLE 2.

Analytic Epidemiology and Research Questions

Risk or Protective Factor	Specific Variable	Example Research Questions
Social, cultural, and economic risk factors		
	Discrimination	What are the effects of social stigma and discrimination on psychological distress and quality of life?
	Low social support	What is the prevalence of PTSD among migrant workers four years after the 2008 snowstorm in China? And what are the associated risk factors among migrant workers in a severely affected area?
	Gender	What are the relationships between migration status, mobility patterns, and health and mental health outcomes among male and female migrant workers in Kazakhstan?
	Economic hardship	What are the work-related factors (both physical and psychosocial) associated with the mental health status of the workers in small and medium enterprises in South China?
Migration-related stressors		
	High mobility	What is the association of increased geographic mobility with indices of health status and health-seeking behaviors among rural-to-urban migrants?
Substance use and sexual risk behaviors		
	Illicit drug use	What are the HIV-related health risks among young migrant women working in entertainment venues?
	Risky sexual behaviors	What is the prevalence of alcohol intoxication and sexual risk behaviors among this population? And what is the association between alcohol intoxication and sexual risk behavior among rural-to-urban migrants in China?
Protective factors		
	Positive life appraisal	What is the impact of migration stress and meaning of migration in influencing mental health and well-being outcomes?
	High social support	What are the mediating and moderating roles played by social support in the relationship between migration stressors and mental health of migrant workers?