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Sexual and reproductive health (SRH) of women migrant workers in the ASEAN region: a systematic narrative review and synthesis.

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Sexual and Reproductive Health (SRH) of Women Migrant Workers in the ASEAN region: A Systematic Narrative Review and Synthesis

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Abstract

Context

Sexual and reproductive health (SRH) is central to achievement of UN sustainable development goals (SDGs). Women's migration has wide-reaching implications for their SRH, increasing vulnerabilities and risky behaviours with potential negative implications for both migrants' fitness to work and host countries' public health systems. Given the scale of migration within the ASEAN region, we synthesise the literature and identify priorities for future research.

Methods

Systematic narrative review and synthesis of empirical research. Following application of inclusion criteria, a systematic search of databases (Medline-PubMed, EBSCO host, BioMed Central, CINAHL, Psych INFO, Web of Science and Scopus) using keywords to identify relevant literature published between 2010 and 2020 identified 42 papers for review.

Findings

Empirical studies focus primarily on HIV/AIDs, unwanted pregnancies, contraception and abortion, rendering other SRH needs under-explored. Access to SRH information, contraceptives and culturally sensitive SRH interventions each promote health-seeking behaviours. Barriers include vulnerabilities informed by personal and socio-economic characteristics; unfamiliar surroundings; limitations of local health care systems and lack of regulatory / employer support; and adverse institutional / social /cultural norms. Successful interventions require integration of migrants into host communities; cultural responsiveness; state responsibility; use of familiar technologies to facilitate access; and sensitivity to workplace characteristics. Significant methodological weaknesses in evaluations of SRH service interventions to date severely hampers the development and dissemination of robust, evidence-informed SRH services for these women.

Conclusions

While much is known of the nature of the services required to safeguard the SRH of women migrant workers, we outline the limitations of the current evidence base and indicate research priorities to address the limitations of this inchoate field.

(266 words)

Keywords: sexual and reproductive health, women's health, migration, women migrant workers, health interventions, health protection, ASEAN

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Introduction

Globalisation affords many opportunities for employment-related migration. Currently, women constitute almost half of the global migrant population, and their numbers are rising (The ASEAN Secretariat Jakarta, 2017). Being in unfamiliar environments may lessen migrants' abilities to manage their health, affecting their well-being and compromising public health systems within host countries (Spitzer et al, 2019). Given the scale of women's migration within the ASEAN region, and the importance of sexual and reproductive health (SRH) to attainment of UN Sustainable Development Goals, our review focuses on women migrants' SRH. Effective service provision requires understanding the challenges these women face in managing their SRH, and how they may best be supported. We address these concerns through a systematic narrative literature review to inform recommendations for future research, policy and practice. In the sections below we introduce the ASEAN context, explore the evolution of the SRH agenda and trace the importance of SRH needs in meeting UN Sustainable Development Goals. We then detail our review methodology, present our synthesis and draw out implications for future research.

Women's Migration and the Association of South East Asian Nations (ASEAN)

Created in 2015, The ASEAN Economic Community (AEC) supports regional economic expansion and global competitiveness. Labour migration is a significant driver of economic growth, with an estimated 9.9 million migrants emanating from the ASEAN region, of whom 6.9 million moved between countries within the region (The ASEAN Secretariat Jakarta, 2017). Approximately 96 per cent of these intra-ASEAN migrants moved to just three countries - Malaysia, Singapore, and Thailand – and 48.7 percent of them are women, overwhelmingly of reproductive age (The ASEAN Secretariat Jakarta, 2017). The expected trend is for migration within ASEAN to increase, stimulated by large income and demographic differentials between member states, and female migration is expected to continue to expand (Tuccio et al, 2017). While unhealthy migration has negative repercussions for economic and political growth, initiatives to address migrant health have been slow to develop. Regional cooperation is hampered by member countries having different migration agendas, unequal capacity to implement social protection schemes to cover migrants and lack of collaborative structures involving relevant stakeholders in migrant health governance (Nodzenski et al, 2016). Universal health coverage reforms in countries within ASEAN is uneven (Van Minh et al, 2014), excluding migrants from even basic healthcare (Guinto et al, 2015).

Centrality of SRH Rights to UN Sustainable Development Goals

Sexual and reproductive health are fundamental human rights (Haider, 2008; Sen, 2014; Sen & Govender, 2015). The World Conference on Human Rights in Vienna (1993), International Conference on Population and Development (ICPD) in Cairo (1994) and Fourth World Conference on Women in Beijing (1995) declared women's rights to bodily integrity and autonomy and choice regarding sexuality and reproduction. The right to health encompassed rights to decision making, control, autonomy, choice, bodily integrity, and freedom *from* violence and the fear *of* violence (Sen, 2014). SRH rights were subsequently integrated into United Nations (UN) Millennium Development Goals (2000) MDG4 (reduction of child mortality), MDG5 (improve maternal health) and MDG6 (combat HIV/AIDs, malaria and other diseases) and are core to UN 2030 Sustainable Development

Goals SDG3 (health) and SDG5 (gender equality and empowerment). They are, today, at the heart of international development.

SRH is increasingly recognised as central to women's *empowerment*. There are strong positive correlations between SRH (e.g. ability to regulate fertility, use of contraceptives) and abilities including working and earning an income (John et al, 2020), improved educational attainment and employment rates (Pande et al, 2020) and enhanced mobility between jobs and movement into higher paying occupations (Bahn et al, 2019). Limited family size (Bloom et al, 2009), use of contraceptives (Joshi & Schulz, 2013) and higher maternal age at first birth (Finlay & Lee, 2018) improve women's agency, education and labour force participation. Similarly, there are positive correlations between women's empowerment and reproductive outcomes, including between indicators of empowerment - such as labour force participation, equitable household decision making and levels of knowledge - and lower fertility (Phan, 2013); likelihood of giving birth in a health facility (Corroon et al, 2014); and improved contraceptive uptake and use (Blackstone, 2016; James-Hawkins et al, 2018).

SRH rights of women migrant workers

Despite growing empirical support for the link between SRH and women's empowerment, it remains unclear how best to support the specific SRH needs of women migrant workers, a distinct and significant population. Women migrants – variously categorised as 'legal' 'refugees', 'asylum seekers', 'undocumented' – face continued obstacles to securing good SRH in the EU (Keygnaert et al, 2014), Australia (Mengesha et al, 2017), Africa (Ivanova et al, 2018) and the ASEAN region (Asian-Pacific Resource and Research Centre for Women, 2013). Migration policies within many ASEAN countries are primarily concerned with ensuring continual supply of cheap labour and mitigating unwanted social effects. Whether women migrant workers can achieve good SRH and access SRH care is a question with both political and economic significance as migrants' human and labour rights are precarious and severely constrained (Piper et al, 2017), presenting considerable challenges in accessing social protection systems within host countries (Olivier, 2018). Many ASEAN countries make SRH status a condition for work - a breach of fundamental human rights, exposing women to discrimination in the workplace (Fair Labour Association, 2018). Yet, deliberately 'punitive' workplace policies, such as prohibition from organizing, mean that they cannot negotiate their health needs (International Labour Organisation, 2019). Those employed in the informal economy or who are undocumented are further disadvantaged as they are exempt from social or health insurance cover (Onarheim et al, 2018).

Within this context, SRH services for women migrant workers are underdeveloped and largely reliant on third-sector provision. The International Labour Organisation (ILO) and United Nations continue to support policy development to address women migrant workers' SRH needs, such as the provision of evidence statements to inform the drafting of Malaysia's 12th National Plan. Yet, there is currently no collation of empirical research evidence to inform service development, and further research, of SRH services for women migrant workers. Our review meets this urgent need.

Method

Given our goal of collating and synthesising existing research on Women migrant workers' SRH in ASEAN, we chose a systematic narrative approach (Popay, 2006). We generated a

synthesis embracing the ambiguities associated with the topic, to inform future research priorities and development of practice and policy. The narrative approach to systematic review is well-suited to our objectives and used widely in health care research, on topics as diverse as electronic patient record systems (Greenhalgh et al, 2009); the functions of humour in nursing (McCreaddie & Wiggins, 2008); and governance of patient safety (Millar et al, 2013).

Finding relevant papers for review

To ensure rigour, we applied existing guidance (Greenhalgh et al, 2005) in clarifying the review questions, identifying and collating existing research, and applying clear inclusion criteria (figure 1). We incorporated all work referring to women migrant workers and SRH in the ASEAN region. Papers discussing any category of women migrant workers, e.g. legal / irregular / undocumented, were included, to ensure coverage of broad women migrant worker populations. Papers on either cross-border or internal migration were eligible, and we incorporated all empirical studies published in English, whatever their design. Papers on women migrating into the region to work from non-ASEAN countries (e.g. Bangladesh, Pakistan, Nepal) into the ASEAN region were included.

To maximise our potential coverage we searched relevant international research databases (Medline-PubMed, EBSCO host, BioMed Central, CINAHL, PsychINFO, Web of Science and Scopus) and, given the inchoate nature of the field, ensured maximum sensitivity by using the generic keyword terms “women migrant workers”, “reproductive health” and “Asian”. From this initial pool of 1036 articles, we removed all duplicates and all papers related to non-ASEAN countries to identify a potential review pool 417 papers.

[FIGURE 1 HERE]

Following identification of the review pool, we applied further inclusion criteria to increase specificity and select only relevant articles. To ensure an up-to-date review we focused on literature between January 2010 and December 2020. We included only publications in peer-reviewed journals to ensure that at least minimum scholarly standards were met. We reviewed paper title, abstract and - where necessary - conclusions to ensure papers were only included where SRH formed a central concern. Papers which considered the SRH of both men and women migrant workers were included if they provided sufficient detail on the SRH experiences of women migrant workers to add value to the review. Papers concerning skilled migrants were excluded, as such migrants are generally able to afford healthcare costs in their host countries and their experience is qualitatively different to that of other migrants. Having applied our inclusion criteria, we selected 42 papers for detailed review (Table 1). Finally, we checked the references and bibliographies of these papers to ensure that additional relevant literature had not been missed.

Making Sense of the Published Literature

Our three central concerns in undertaking the review were to: (i) identify the range of SRH needs of women migrant workers in the ASEAN region; (ii) conceptualise and map barriers which prevented these workers from meeting their SRH needs; and (iii) empirically explore the extent to which such barriers have been overcome. In order to address (ii) and (ii) above

we undertook thematic analysis informed by Framework (Ritchie & Lewis, 2003) to identify recurrent themes. Themes within 'barriers' included personal and socio-economic characteristics; unfamiliar surroundings; support of local health care systems; regulatory and employer support; and institutional / social /cultural norms affecting access to care. Themes related to 'support' included integrating migrants into host communities; developing culturally responsive interventions; state responsibility; use of technology familiar to migrants; and workplace / industry characteristics. Below, we provide a brief summary of the range of SRH needs of women migrant workers identified in the literature, and explore sequentially themes related to 'barriers' and 'support'.

Findings

The range of SRH needs of women migrant workers in the ASEAN region

In terms of presenting issues, the literature is primarily focused on HIV/AIDs and other sexually transmitted diseases, contraceptive use, unwanted pregnancies and abortions, with a smaller cluster of papers focusing on reproductive tract infections. Research is primarily centred on cross-border migrants to Thailand and Singapore, and internal migrants within Thailand, Cambodia and Vietnam. There is currently no research on the SRH needs of migrants from Indonesia, Myanmar, The Philippines or Brunei – and very little on migrants from Laos and Malaysia).

These results confirm the extent to which the field is dominated by research on a limited range of SRH needs informed by a public safety discourse, couched in terms of the protection of wider constituencies rather than the SRH rights of women migrant workers. Research is thus urgently required to identify how women migrant workers address other SRH needs – such as menstruation-related pain, sexual violence, complications in pregnancy and childbirth, pre and post-natal care and management of reproductive cancers – and the extent to which these needs can best be supported. We were unable to find material on any of these conditions in the ASEAN context. Although pre- and post- natal care is valued in relation to local populations, it is largely absent from the literature on women migrant workers' SRH. Of greater concern still is the absence of literature on the impact of Gender Based Violence (GBV) on reproductive health from the SRH literature, for both local and migrant populations alike.

Specific barriers preventing women migrant workers from meeting their SRH needs

These include individual personal and socio-economic characteristics (e.g. education, knowledge of SRH, religion, age, gender, marital status, attitudes toward sexuality); capacity of health care providers to respond to migrants' SRH needs; social and cultural norms related to SRH and the extent to which migrant access to SRH care is permitted by local regulations and / or supported in the workplace, considered sequentially below.

Personal and socio-economic characteristics

Low levels of HIV testing was found among migrant workers from Myanmar in Thailand (working in fisheries, seafood processing factories, construction or agriculture). Take-up of HIV testing was related to gender, education, knowledge of HIV testing sites, and availability

of HIV test counselling in migrants' native language (Musumari & Chamchan, 2016). Barriers preventing responsible contraceptive use among young migrants (labourers) in Chiang Mai City, Thailand – placing them at risk of HIV and other STIs - include: limited ability to understand contraceptive materials written in Thai, low literacy levels, lack of health insurance and consequent preference for self-treatment, reluctance on the part of those without work permits to engage with public health educators for fear of repercussions, beliefs that condom use meant sexual promiscuousness or reduced sexual pleasure and fear that asking partners to use condoms signalled distrust (Manoyos et al, 2016).

Poor family planning experiences of Myanmar migrant workers in the rubber industry in the Surat Thani province of Thailand resulted from low levels of family planning knowledge, limited birth control (sole responsibility falling to women) and limited awareness of the importance of undergoing cervical and breast cancer examinations (Sarnkhaowkhom & Hounnaklang, 2018). Similarly, rural (married) refugee and migrant women on the Thai-Myanmar border exhibited major gaps in family planning knowledge, attitude and practices. Fears and misconceptions about contraception reduced their uptake of long acting contraception, they lacked awareness of emergency contraception, feared that undergoing sterilization would prevent them from working, and could not estimate when child bearing years ended (Salisbury et al, 2016). Similar challenges are reported in Cambodia, where women migrant workers expressed fear and hesitation in using modern contraception, in part, because of a belief that such use led to infertility (Masuda et al, 2020).

Lack of knowledge regarding contraceptives were found among Myanmar migrant women in Thailand, negatively affecting their sexual health and behaviours. While 25% of a sample of migrant factory workers in the Bang Bon District in Bangkok had premarital sexual relationships and 60% of both married and unmarried youths used contraception, their knowledge about sexually transmitted diseases and contraception was poor (Han et al, 2010). Low levels of knowledge regarding the benefits, use and side effects of contraception among married women (154 or 51.9% of the sample were working women) in Phang-Nga Province, Thailand limited their choice of, and access to, contraceptive methods (Soe et al, 2012). Similarly, the poor reproductive health knowledge, attitude and behaviour were reported among migrant women workers in Thai factories were likely to cause reproductive health problems in society (Khamthanet & Suthutvoravut, 2020).

Meanwhile, cost, shyness and stigmatizing attitudes on the part of healthcare providers deterred migrant women beer promoters in Cambodia, Thailand, Laos and Vietnam from accessing SRH care (Webber & Spitzer, 2010). In Thailand, HIV positive Myanmar women migrant workers were reluctant to use contraceptives with partners due to a fear of stigmatisation (Jirattikorn et al, 2020). In Vietnamese industrial zones, migrants' vulnerability to reproductive tract infections is related to marital status (i.e. married tended to have more sexual intercourse and thus increased RTI risk, and were more knowledgeable about RTI thereby able to detect more abnormalities), education levels, number of migrations and from poorer socio-economic backgrounds e.g. living in rented own accommodation (Le et al, 2018). Contraceptive use by unmarried women migrant workers in industrial parks in Vietnam was significantly linked to age, education, employment in private companies and income levels (Tran et al, 2018).

Unfamiliar surroundings

New and unfamiliar environments affected migrants' SRH negatively. For young migrant workers from Myanmar in Thailand in search of work opportunities, migration afforded

opportunities to express their sexuality and enter relationships openly, without fear of parental disapproval or offending traditional moral values. While access to modern communication technologies enabled new relationships to be formed easily, limited knowledge of contraceptives and contraceptive use increased risks of unsafe sexual behaviours. As they did not know their entitlements in their new environments, migrants also did not access services available under the health insurance system (Tangmunkongvorakul et al, 2017). Conversely, a long residence period in their host country was found to reduce the vulnerability of Myanmar and Cambodian migrants in Thailand (migrant labourers) to HIV infection. Length of stay was positively related to an increase in both AIDs knowledge and condom use with regular partners (Ford & Chamratrithirong, 2012), most likely due to outreach HIV prevention programmes in workplaces, living quarters, entertainment and drop in centres.

Extent of support by local health care systems

Access to reproductive health care by women beer promoters across Laos, Cambodia, Vietnam and Thailand was impeded by the cost and inconvenient location of health institutions, as well as discrimination on the part of healthcare providers against migrants, friendliness of healthcare providers, clinic confidentiality and long waiting times (Webber et al, 2015). Similarly, while Burmese migrants working in Thailand engaged in risky sexual behaviours they tended not to access HIV/AIDS health care services or interact with public health officers due to fear of arrest and because of tight working schedules (Boonchutima et al, 2017). While these migrants had little knowledge about HIV/AIDs treatment and prevention, more than three-quarters of public health officers indicated that they had not imparted information on HIV/AIDS to any migrants within the past 12 months. Some of the challenges experienced by public health officers included a lack of efficient translators and lack of cooperation from migrant community.

The experience of pregnant (legal) Burmese migrant women workers (fishery workers, fish processing, or factory workers and were casual or temporary employees) of antenatal care in southern Thailand is one of limited availability, resulting in unhealthy behaviours such as consuming energy drinks and herbal tonics to improve work performance (Phanwichatkul et al, 2019). Marginalized populations were often unreached by national reproductive programmes, preventing them from planning and spacing the number of children and leading to unintended pregnancies and associated social, economic and health repercussions.

Extent of regulatory and employer support

Local laws often discriminated against women migrant workers, preventing or discouraging them from accessing SRH health care. For example, despite many migrant-related policies and laws in Sabah, Malaysia, there was no protection for migrant workers' SRH. Policies prioritised controlling the adverse social impacts of migration, rather than protect their health and rights (Lasimbang et al, 2016; Loganathan et al 2020b). Cost was also a barrier to health care in Malaysia, with migrants required to pay almost double that of local citizens for healthcare (Loganathan et al 2020a).

Lack of employer interest in the reproductive health of women workers may similarly increase women migrant workers' vulnerabilities to reproductive tract infections (RTIs). While RTIs are a common and treatable health problem, in the absence of effective collaboration between the local health system and employers they may not be identified or treated. Among women (internal) migrant workers in the Sai Dong industrial zone in

Vietnam, for example, the annual employer health inspection was found to ignore RTIs (Kim et al, 2012).

Institutional, social, and cultural norms affect migrants' ability to manage SRH

Based on domestic women migrant workers' experiences in Hong Kong, Singapore and Qatar, structural vulnerabilities prevented access to SRH care. These included the extent to which national laws, policies and practices excluded them from protections; whether employers and migrants' associations were sympathetic to their SRH needs; and the level of these women's own awareness of SRH. The outcomes of collaborations between government officials and civil society organisations who worked with migrant domestic workers were also influential in determining migrants' ease of access to health systems (Truong et al, 2014). In a similar fashion, social and cultural norms surrounding contraceptive use affected the high maternal mortality risks among unmarried Cambodian migrant women (temporary economic migrants) across the Thai-Cambodia border. Despite life threatening complications arising from unsafe abortions, these women used abortion as a preferred birth control method, as sexual norms required unmarried women to reject contraceptive use to avoid infertility after marriage. Women resorted to traditional methods, illegal and counterfeit abortion drugs from unregistered sellers, herbalists, and traditional healers to induce abortions. Consistent with these mores, health services focused on supporting married women, rather than unmarried migrant women of reproductive age (Hegde et al, 2012). Finally, although the disclosure of HIV positive status is a critical step in the management of HIV infection, socio-cultural factors prevented female Shan migrant workers living with HIV in Northern Thailand (labourers on construction sites or farms, or as housekeeping staff in private homes/shops/offices/companies) from telling their husbands and partners (Ayuttacorn et al, 2019), as they feared marital conflicts and losing social and financial support. Non-disclosure to friends, family and other community members were related to fear of rejection and discrimination due to HIV. Gender norms additionally meant that women could not negotiate condom use, despite having HIV.

Supporting women migrant workers' SRH needs

Integrating migrants into their host communities

Cross-border women migrant workers may benefit significantly from better integration within their communities. Among migrant workers from Myanmar, Cambodia and Laos working in Thailand, social integration – measured as a compound of residence duration, conversational Thai, acquisition of a Thai nickname and social participation with Thai and migrant communities - was positively related to HIV prevention and reflected in higher levels of knowledge of AIDs and consistent condom use (Ford et al, 2014). Obstacles to social integration included difficulties securing permanent residence status, stigma against undocumented workers, discrimination against migrant workers and xenophobia in Thai society. A similar positive relationship was also found between labour migrants' social integration and likelihood of reporting a HIV test (Ford & Holumyong, 2016).

While language barriers adversely influenced access to maternal and child health care among women migrant workers from Myanmar and Cambodia in Thailand, the availability of social support mitigated the effect of "acculturative stress"; and migrants who were supported by friends, family and other significant stakeholders (e.g. employers, health workers / volunteers) were more likely than others to access health care (Holumyong et al, 2018).

Culturally responsive interventions

Given the vulnerabilities of young, cross-border migrants in Thailand from Burma, Laos and Cambodia to HIV and other sexually transmitted diseases, interventions required educators who spoke the languages of migrants. Interventions should also be consistent with migrants' cultural norms and values (Manoyos et al, 2016). Indeed, the importance of SRH service provision in migrants' native languages and which was sympathetic to their culture is explicitly noted (Musumari & Chamchan, 2016). The unavailability of health care services in Bangkok for Myanmar women migrant workers, and consequent high levels of unplanned pregnancies and unsafe abortions, required provision of community and workplace education, health care services and help-lines in the Burmese language to increase visibility of reproductive health services (Thein et al, 2018). Similarly, non-condom use among Vietnamese and Thai entertainment workers in Singapore exposed them to risk of HIV/STI infections (Wong et al, 2012). They worked in an environment which is culturally and linguistically different from their countries of origin. In promoting better contraceptive use, Lim et al (2017; 2018a; 2018b) emphasised the benefits of interventions which were culturally-responsive, involved the women themselves and engaged peer educations with similar socio-cultural backgrounds and who spoke the same language to overcome cultural and language barriers faced by these women.

State and community programmes

There is a significant role for state institutions in addressing the SRH needs of women migrant workers. In Thailand, Boonchutima et al (2017) advocated government education programmes to promote AIDs awareness, treatment and prevention among Burmese migrants. Adoption of a peer-education cascade model - in which trained migrants themselves educated other migrants – could overcome language / communication barriers faced by local health officers. In addition, government documentation of Burmese migrants to remove their unregistered status would make them easier to reach as they would no longer fear arrest / deportation.

Legal protection from discrimination - such as that faced by migrant workers in Sabah, Malaysia – together with provision of lower cost, high quality services would enable migrants and domestic workers to claim SRH their rights (Lasimbang et al, 2016). In Cambodia, government policy requiring 100% condom use in brothels could be expanded to cover migrant factory workers who often supplemented their income with casual sex work outside of the brothel setting (Webber et al, 2010). Finally, community programmes, such as that of the Safe Abortion Referral Programme (SARP) in Chiang Mai (Thailand) for migrant women from Burma, offer one possible service model (Tousaw et al, 2017). Unwanted pregnancies were common and unsafe abortions a major contributor to maternal death and disability. Barriers to safe abortion included lack of facilities and providers, misunderstanding of Thai law, linguistic differences between care providers and patients, cost, restrictions on travel, and social and cultural taboos surrounding abortion. SARP addressed these through a sympathetic approach, covering costs of travel and abortion procedures, providing an interpretation service and accompanying women during the process. Such services were invaluable to undocumented migrant workers, who otherwise would not have been able to obtain healthcare.

Use of technology familiar to women migrant workers

Technology affords considerable potential for supporting women migrant workers' SRH needs. Vu et al (2016) developed a mobile health (mHealth) intervention model in a factory in the Long Bien industrial zone of Hanoi, Vietnam where the majority of women migrants were young and sexually active but had low awareness of STIs. The intervention provided SRH services through text messaging, information booklets, maps, and free hotline counselling. High service uptake increased women's SRH knowledge and encouraged safer behaviours. The hotline service enabled calls to be made after work hours and ensured confidentiality. The SMS service, covering a wide range of SRH topics, was sent regularly and messages were easy to understand. The distribution of maps showing local health services providers provided information about the nature of services offered and on reproductive health topics important to the women.

Significant challenges exist in reducing new HIV infections among female entertainment workers in restaurants, karaoke bars, beer gardens, cafes, pubs and massage parlours in Cambodia. Phone use and texting practices among a sample of such workers indicated that mobile technology could be utilised to link them to health services (Brody et al, 2016). An mHealth intervention enabled information about SRH, access to health care services and advice about health seeking behaviours to be disseminated via SMS text messages. Women reported feeling comfortable receiving private health messages (despite some sharing their phone with others), although low literacy levels may compromise the efficiency of mHealth interventions. Texting, voice calls and Facebook were all found to be potential routes through which to instigate health behavioural changes among these women (Brody et al, 2017). A mobile health intervention (utilising SMS and voice messages) to address HIV, STIs, contraception and gynaecological health was subsequently developed by involving female entertainment workers in the design, for use by their community (Brody et, al, 2018; Chhoun et al , 2019) The SMS and voice messages were based on health content prioritised by the women themselves, and their involvement in the design enabled the development of initiatives to link these women to health services and monitor their health seeking behaviours.

Workplace / industry characteristics

Workplaces can support women migrant workers' SRH needs. While many women migrant workers in Cambodia's garment factories undertook sex work to supplement their incomes, risk of HIV infection could be reduced if factories set up peer orientation committees for new employees to reduce a sense of loneliness and isolation to prevent them from making unsafe choices (Webber et al, 2010). Such committees could also act as a source of SRH knowledge, and factories could work with healthcare providers, local authorities, government and labour organisations to make affordable and accessible health care services available.

Female entertainment workers in Cambodia are vulnerable to undergoing abortions as they are often involved in sex work, a prevalent practice in such an industry. Yet, abortions were not carried out in public health or NGO facilities, by trained abortion providers (Yi et al, 2015). Similarly, it is noted that industry characteristics hindered women migrant beer promoters in Cambodia, Laos, Thailand and Vietnam from taking care of their sexual and reproductive health. Work demands prevented these women from accessing SRH care, as did environmental and services factors (cost, location, waiting times, staff attitudes and clinic hours hours) (Webber et al, 2012). Interventions can overcome the barriers preventing access to healthcare in the industry, notably through providing evening and weekend clinics; free or

low cost clinics; reduced waiting times; health insurance; mobile clinics to visit workplaces or free transportation to clinics; and reduced prejudice on the part of health care providers.

Discussion

Current research highlights a range of SRH needs among women migrant workers in ASEAN: HIV/AIDs and other sexually transmitted diseases (Wong et al, 2012; Ford & Chamratrithirong, 2012; Manoyos et al, 2016; Ford et al, 2014; Ford & Holumyong, 2016; Musumari & Chamchan, 2016; Boonchutima et al, 2017; Lim et al, 2018a; Lim et al, 2018b, Ayuttacorn et al, 2019); reproductive tract infections (Kim et al, 2012; Le et al, 2018); contraception and unwanted pregnancies (Soe et al, 2012; Tran et al, 2018; Thein et al, 2018; Thein & Thepthein, 2020), the need for safe abortions (Hegde, et al, 2012; Yi et al, 2015) and better family planning (Salisbury et al, 2016; Phanwichatkul et al, 2019).

Barriers and challenges to meeting these SRH needs, both for internal and cross-border women migrant workers, include low awareness of SRH issues on the part of these women (Han et al, 2010; Soe et al, 2012; Manoyos et al, 2016; Musumari & Chamchan, 2016; Salisbury et al, 2016; Sarnkhaowkhom & Hounnaklang, 2018), being in a new environment (Ford & Chamratrithirong, 2012; Ford et al, 2014; Ford & Holumyong, 2016) and experiencing a new-found sense of freedom (Tangmungkongvorakul et al, 2017). These encouraged risky behaviours on the part of women migrant workers. Concerns over cost, prejudice on the part of health care providers / public health officials, long waiting times, unfriendly clinic hours, non-availability of medications deterred them from accessing healthcare (Webber & Spitzer, 2010; Webber et al, 2012; Webber et al, 2015; Boonchutima et al, 2017). Meanwhile, discriminatory laws excluded these workers from local health care services (Troung et al, 2014; Lasimbang et al, 2016). Migrant women fall outside of the reach of national reproductive programmes in some instances (Tousaw et al, 2017; Phanwichatkul et al, 2019). Employer support could not always be relied on (Webber et al, 2010; Kim et al, 2012). Often, the problems experienced by women migrant workers were compounded by the nature of the industry in which they worked. Many women migrant workers undertake sex work to supplement their incomes, exposing them to sexual risks (Webber et al, 2010). In other cases, sex is a core part of the women's work, yet the industry within which they work ignores SRH needs (Yi et al, 2015; Lim et al, 2018a, 2018b). Finally, traditional norms and beliefs about contraceptive use acted as barriers to women migrant workers seeking SRH care (Hegde et al, 2012). In other cases, again due to socio-cultural norms, women feared that sharing SRH needs with husbands, family and the community would lead to marital conflict, rejection and loss of support (Ayuttacorn et al, 2019).

More positively, the review identified a series of interventions intended to increase SRH knowledge, and encourage safer sexual behaviours and attitudes and enable better access to SRH care. It is clear that assimilation into local host communities may provide supportive networks leading, in turn, to improved AIDs knowledge and contraceptive use (Ford & Chamratrithirong, 2014; Ford & Holumyong, 2016). There is also evidence that culturally sensitive interventions may improve SRH knowledge and promote health-seeking behaviours (Musumari & Chamchan, 2016; Thein et al, 2018; Lim et al, 2018a, 2018b). Research further demonstrates potential benefits of setting up m-health interventions for women familiar with mobile technology, in which SRH education is integrated with counselling, hot lines, mobile health clinics and provision of free contraceptives and gynaecological examinations (Vu et al, 2016; Brody, et al, 2016; Chhoun et al, 2019). Finally, support in the workplace can mitigate

the effects of poor SRH management on the part of women migrant workers (Webber et al, 2010).

Limitations of current literature, and implications for future research

Our review suggests a series of limitations with available literature. These concern limited coverage in relation to both the *range* of SRH needs considered and variation in the SRH needs of *different sub-populations* of migrants (internal / external migrants, those working in industrial / entertainment / domestic settings, undocumented migrants); the reciprocal responsibilities of countries of origin and host countries in relation to existing SRH needs at point of migration; the potential contribution of community / work-place interventions to meeting SRH needs; and methodological weaknesses of intervention studies, specifically concerning assessment of outcome and impact, which limit their dissemination and wider adoption. We address each in turn and consider the implications for future research.

Our results confirm the extent to which the field is dominated by research on a limited range of SRH needs. Studies overwhelmingly address HIV/AIDs and other sexually transmitted diseases, unwanted pregnancies and need for safe abortions. Research is urgently required to identify how women migrant workers address other SRH needs – such as menstruation-related pain, sexual violence, complications in pregnancy and childbirth, pre and post-natal care and management of reproductive cancers – and the extent to which these needs can best be supported.

The SRH needs of various sub-populations of migrant women workers also requires further attention. Cross-border women migrant workers are not well represented in the existing literature, making it difficult to generalise and draw conclusions about their SRH experiences or interventions best suited to supporting SRH needs across national borders. Research on SRH in internal migration contexts is better supported and, while it is pragmatic to draw from this literature, some barriers and challenges are unique to women migrant workers migrating across national borders. These include cultural differences, language barriers when seeking health care, lack of awareness of legal entitlements within the host country and reduced ability to navigate the local healthcare system. We still lack clear understanding of how these challenges may best be addressed, and further research is required. Similarly, research to date within ASEAN focuses on women migrant workers in the industrial / manufacturing and entertainment sectors. The SRH needs and experiences of those in other industries - hospitality, domestic, agriculture, construction, food, and mining - would provide appropriate bases for action to meet SRH needs of a larger population of women migrant workers. Female domestic workers worldwide face health problems associated with working conditions, mental health, infectious diseases and knowledge-attitude-practices relating to sexual and reproductive health (Malhotra, 2013). Premarital unplanned pregnancies are also known to have profound effects – economic, health and social – on the lives of migrant domestic workers in regions outside of ASEAN (Ullah, 2010). The challenge is in reaching these women, who work in isolated conditions and who remain hidden from, and invisible to, advocates and researchers alike.

The SRH experiences of irregular / undocumented women migrant workers are investigated alongside that of legal workers in several of the papers reviewed (e.g. Hegde, 2012; Ford et al, 2014; Lasimbang et al, 2016; Musumari & Chamchan, 2016; Ford & Holumyong, 2016; Holumyong et al, 2018; Tousaw et al, 2017; Thein et al, 2018). The former are at increased risk of poorer SRH outcomes due to their invisibility and illegal status, and vulnerable to increased risk of exploitation. They fear using health services where they do not have valid documentation. The specific needs of this group, and how best to address them, requires separate / independent consideration (Onarheim et al, 2018).

The promotion of SRH *prior* to departure for the host country is important, as women migrant workers may have SRH needs which precede their migration. ASEAN countries who are net exporters of labour (e.g. Indonesia, The Philippines, Myanmar and Cambodia) each have an economic interest in ensuring the health of their nationals who migrate within the region – such women are significant economic contributors in these countries (e.g. Chan, 2014; Tigno, 2014). We did not find any research on initiatives taken by exporting countries to support the SRH needs of their nationals within host countries, despite the scale of migration. Enabling women to manage their SRH needs prior to departure, by promoting SRH education and health-seeking behaviours, could contribute considerably toward better management of their health within host countries. As yet, there is no research on how best to provide such support, nor evaluation of its cost-effectiveness in terms of health outcomes.

While there is only limited research available within the ASEAN region, community and workplace-based educational programmes in China have been shown to improve knowledge, attitudes and behaviours around sexual and reproductive health, leading to healthier sexual behaviours among women migrant workers (e.g. Mendelsohn et al, 2015; Xu et al, 2020). Such programmes typically provide an integrated service, including distribution of SRH materials, free lectures, counselling classes, hotlines, access to contraceptives and gynaecological care interventions. They address the expressed needs of young, unmarried women migrant workers with low levels of SRH knowledge – a vulnerable group likely to adopt risky sexual behaviours which in turn increases risks of reproductive tract infections, STIs, unintended pregnancies and abortions. We encourage researchers to explore the feasibility of such interventions in the ASEAN region, ensure that they address the concerns of migrant workers within the locale and evaluate programme outcomes to inform dissemination.

Much of the literature consists of cross-sectional quantitative studies assessing the prevalence of risk and / or risky behaviours (Hedge et al, 2012). Such studies are helpful to the extent that they inform priority setting of service provision for particularly vulnerable groups within industrial (Le et al, 2018) or entertainment (Yi et al, 2015) industries. Similarly, many qualitative studies are available which explore women's use of SRH services, such as antenatal care (Phanwichatkul et al, 2019) and treatment of RTIs (Kim et al, 2012), as well as barriers to health care use (Holumyong et al, 2018). Such studies may be particularly helpful in informing the programme logic of service interventions, ensuring that they are designed to address known risks / limitations / barriers to access.

While cross-sectional quantitative and qualitative studies are potentially very useful in informing the design of service interventions intended to improve women migrant workers' SRH, the current literature on evaluation of the *efficacy* of such service interventions is especially underdeveloped, with very few process or outcome evaluations available. A pre / post design process evaluation of SMS message alerts indicated service acceptability and use (Vu et al, 2016), although no outcome data on the impact of such changes on proxy indicators is offered. Similarly, a quasi-experimental evaluation of intervention to support consistent condom use to reduce STIs (Lim et al, 2018b) showed a positive impact on reported condom use, although no hard outcome data on STI reduction. Only one quasi-experimental outcome evaluation and economic evaluation study was identified (Brody et al, 2018), on use of SMS messaging to engage FEWs in SHR services, and this is yet to report its findings. Strong evaluation designs of service interventions are urgently required, capable of tracing women migrant workers' behavioural changes – and consequent improved

outcomes - over time. Given the complexity of such interventions and social basis of many known barriers to service access, theory-based evaluation (Chen, 1990) is particularly well suited. Such evaluation designs enable consideration of not only *if* interventions work, but also *how* they work – which is particularly helpful in wider dissemination in complex settings. Qualitative studies exploring migrant women workers' perspectives facilitate the theory development required to underpin theory-based empirical evaluations of the efficacy of interventions.

Conclusions

Women are migrating within ASEAN in increasing numbers in search of work. Migration has wide-reaching implications for these women's SRH, yet the lack of careful attention as to how these women's SRH needs can be addressed exposes them to poor health outcomes. The consequences for women migrant workers in countries which make SRH status (e.g. non-pregnancy, freedom from STIs) a condition for work is even harsher; forcing them to hide / deny their SRH needs. Migration rates across ASEAN are predicted to increase, making it even more urgent for evidence-informed practices to support women migrant workers' SRH needs.

Our review indicates the scale of need for additional research to strengthen the evidence base of SRH service interventions for women migrant workers. The paucity of outcome evaluations to assess service effectiveness and inform wider service implementation / dissemination is a major concern. Robust outcome evaluations, informed by quasi-experimental and / or theory-based designs, of service interventions are urgently required to assess the extent to which interventions informed by community-development principles achieve their intended outcomes and may be more widely disseminated. Theory-based evaluations may be especially helpful here, given the complexity of known barriers to service access and diversity of cultural expectations which may be used to inform explicit programme theory in the design of interventions. Such designs are also helpful in assessing the extent to which interventions may prove transferable to other settings, in which similar programme logic may be applicable.

Understanding women migrant workers' experience of managing their SRH is crucial in informing the design and evaluation of health interventions. Such support is in turn central to these women's economic empowerment and achieving the Sustainable Development Goals of promoting health and gender equality. This review is a resource for researchers, practitioners, and policymakers. In detailing the strengths and weaknesses of the current evidence base, we urge policy-makers to address areas of weakness, encourage practitioners to generate additional evidence-informed services, and prevail upon researchers to ensure robust evaluation to support service dissemination.

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Table 1: Summary of Empirical Studies Exploring the Sexual and Reproductive Health (SRH) Needs of Women Migrant Workers in the ASEAN Region

Author / country	Participants	Aims	Design / Methods	Summary of findings
Ayuttacorn et al (2019) Thailand	18 HIV+ female migrants (23-54) and 29 healthcare workers	Explore HIV status disclosure and risky sexual behaviour in HIV+ Shan female migrant workers in Thailand	Qualitative interviews, thematic analysis of HIV status disclosure, sexual risk behaviour and ART adherence	1. Non-disclosure of HIV+ status to partner related to fear of conflict / loss of financial support and prevented negotiation of condom use. 2. Non-disclosure to others reflected fear of discrimination / stigma. 3. Gender norms and male dominance over women influenced decision-making for safe sex. 4. Perception of low risk of HIV transmission with good ART adherence.
Boonchutima et al (2017) Thailand	66 women and 40 men public health officers	Evaluating the ongoing initiative and perception of public health officers about Burmese migrants' public health knowledge on HIV/AIDS.	Questionnaire, SPSS descriptive statistics and multiple correlation analysis of demographic characteristics, frequency of visit, HIV/AIDS issues discussed, challenges communicating with Burmese migrants and strategies for intervention programmes.	1. 77.4% Public Health Officers had never engaged with Burmese migrants. 2. Treatment and treatment rights were least discussed. 3. Burmese migrants not seen as a critical target group in disseminating HIV/AIDS information. 4. Suggests the importance of reaching out to Burmese migrants through group training in workplace, and posters, flyers in intervention programs.
Brody et al (2016) Cambodia	96 Female Entertainment Workers (FEWs), aged 18-35 years	Exploring phone use and texting practices of FEWs to determine feasibility of text messaging to link FEWs to health services	Cross-sectional survey (structured closed-Qs). Statistical analysis of demographic characteristics, SMS use, phone use practices, and attitudes toward privacy SMS	1. Health interventions using texting messages (vs app-based) is feasible for reaching FEWs. 2. (51%) reported sending text messages daily; (47%) own a smartphone; most (98%) comfortable receiving private health messages, despite (40%) sharing their phone with others. 3. Younger FEWs more likely to own a smartphone than older FEWs.
Brody et al (2017) Cambodia	15 Female entertainment workers (FEWs), aged 18-35 years	Explore the phone use patterns of FEWs in Cambodia in order to inform health intervention using text / voice message, and to identify potential challenges.	Ethnographic study of 8-hour non-participant observation to capture FEWs' normal daily use of mobile devices; post-observation survey and semi-structured interview Quantitative descriptive statistical analysis of observations	1. Communicating through voice calling, Facebook and text messaging were the most common ways participants using their phones, these can be useful tools for health behaviour change among FEWs. 2. FEWs were interested in receiving health messages and disregard about privacy issues. 3. Customers respond to Health-related behaviour change messages sent via SMS/VM with added incentives.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Brody et al (2018) Cambodia	600 FEWs	To inform development, and evaluate the efficacy, of the *Mobile Link*, an intervention to engage young FEWs in Cambodia with existing high-quality HIV, SRH, and other related services through frequent SMS/VMs Specific objectives: (1) developing the *Mobile Link* intervention (2) evaluating the efficacy of the *Mobile Link* at the individual and venue level in improving HIV and SRH behaviours and increasing the uptake of comprehensive HIV, SRH and other related care services among sexually active FEWs (3) determining the cost-effectiveness of the *Mobile Link* for FEWs	12-month, two-arm randomized controlled trial (RCT) of Control Group and one Intervention Group; Participant observation; in-depth interviews (IDIs); and revision workshops 1. Baseline questionnaire survey of service use; 27 focus group discussions (FGDs) on semi-structured guides and explored topics related to HIV, SRH, GBV, and substance use; Workshops to revise and refine Mobile Link messaging within the topic areas: gynaecologic health; condom use; HIV; STIs; contraception; substance use; violence; infertility; cancer; and pregnancy. 2. Phase ii: Intervention: Face-to-face baseline behavioural survey; participants receive a message from a different topic each week for 10 weeks; Participants receive a weekly 5–7-question survey that asks about more common and/or time sensitive issues such as STI symptoms, vaginal infection/ irritation, support for GBV, or psychological issues. 3. Phase III: Cost-effectiveness analyses: Cost of engaging and linking participants, the cost-effectiveness of adding the SMS/VM component to SRH services. Five measures of effect: uptake of regular HIV test, first visit to a SRH care provider, any visits to a SRH care provider for any testing, services, or counselling, and condom use. 4. Analyses of participant characteristics; analyses of primary and secondary outcomes; sensitivity and per-protocol analyses; sub-group analyses; thematic analysis on qualitative interviews	Awaited: Recruitment to trial not yet started. The intervention allows participants to choose the message medium (SMS or VM) that best link them to services. It is the first RCT of a mobile-phone-based behaviour change intervention using SMS/VMs to support linkage to SRH services in Cambodia. It is a method to reach out to the hidden, hard-to-reach, and dynamic population of high risk FEWs population.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Chhoun et al (2019) Cambodia	165 venue-based (KTV / massage parlour / beer garden) and non-venue- based (street or on-call) FEWs, aged 18-30 Five pilot focus groups, 15 venue-based groups (five karaoke, five massage parlours, five beer gardens), two groups with "on-call" FEWs, three focus groups with street-based sex workers and two groups with parenting/pregnant FEWs. Six FEWs living with HIV for IDI.	Detailed development of a mobile health intervention using short message (SMS) and voice message (VMS) services via participatory methodologies; develop SMS/VM messages, prioritising health content by key population preferences.	1) 27 focus group discussions on SRH topics, six in-depth interviews (IDIs) with FEWs HIV+ 2) Convenience sampling and snowball recruitment of FEW participants 3) Content and matrix analysis for FGDs and IDIs to identify prioritized themes for messages. 4) Two data validation workshops to FEWs and outreach workers, included activities stimulating participation such as listening to sample message to determine health priorities, message tone and style.	1) The preferred tone, timing, content and delivery mode of the messages for FEW communities identified. 2) Friendly, professional female voice preferred for VM. 3) Health priorities on gynaecologic issues (vaginal infections/ irritation) and cervical and breast cancer emphasized over HIV / family planning. 4) Misconceptions about contraception were revealed. 5) Trust building is important for engagement of FEWs in interventions. 6) Supportive messages reduce depressive feelings of HIV+ FEWs 7) FEWs liked the possibility of anonymously consultations and access to healthcare services, without fear of discrimination.
Ford & Chamratrithirong (2012) Thailand	Total of 3374 migrants: 2712 (M) and 662 (F), aged 15-49 Myanmar: 2026 (M), 397 (F) Cambodia: 428 (M), 38 (F) Laos: 258 (M), 227 (F)	To assess the influence of duration of residence and movement in Thailand on AIDS knowledge and sexual risk behaviours of migrant labourers from Myanmar and Cambodia.	Survey, multiple linear and logistic regression for assessing factors related to AISD knowledge and risk-taking behaviour	1) Duration of migrant workers' stay in Thailand was related to factors that decrease and increase vulnerability to HIV infection. 2) Duration of residence in Thailand contributes to an increase in AIDS knowledge and in condom use with regular partners. 3) The length of stay was also related to an increase in visits to unpaid non regular partners and a decrease in visits to paid non regular partners. 4) The movement within Thailand's provinces was related to a decreased in paid and unpaid non regular partners but not related to AIDS knowledge. In other words, migrants with high frequency of mobility have lower level of partners may due to reduced income because of instable employment.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Ford & Holumyong (2016) Thailand	2600 sexually active male and female migrants from Myanmar, Cambodia, and Lao Resident in Thailand >3 months aged 15-59	To identify factors related to the use of HIV testing among cross border migrants in Thailand.	Cross-sectional Survey Measures of vulnerability (social integration and legal/economic status) and HIV knowledge, risk behaviour, and demographic factors tested for association with HIV testing.	1) The measures of social integration and legal income status, and exposure to AIDS programming were positively related to HIV testing for both male and female migrants. 2) Sexual risk behaviour increased the rate of HIV testing for males and having a child increased the rate for testing for females. 3) Men and women from Cambodia and men from Myanmar were more likely to report HIV testing than men from Laos.
Ford et al (2014) Thailand	3405 male and female migrant workers from Myanmar, Cambodia and Laos. Age 15- 59 years	To determine whether social integration, demographic, relationship and other factors were related to migrants' ability to prevent HIV infection through AIDS knowledge and condom use.	Cross sectional Survey Regression analysis	1) Social integration, participation in an AIDS prevention program, self-efficacy, demographic, and relationship factors increased AIDS knowledge and condom use with regular and non-regular partners. 2) Social integration of migrants in the Thai community contributes to strengthening HIV prevention efforts. However, female migrants had lower levels of social integration than male migrants because they did not speak Thai or have a Thai nickname. 3) Migrants with lower levels of education had less knowledge of AIDS and less condom use with non-regular partners.
Han et al (2010) Thailand	413 Myanmar male (193) and female (220) married and single migrant youths, age 15-24 years	To assess the sexual practice and contraceptive usage among Myanmar migrant youths in Thailand.	Survey, Face to face interview Cross-sectional descriptive study	High percentages of contraception usage (60%) because condom is freely and widely distributed by existing health centre. However, unmarried youths have lack of knowledge on STIs and contraception, and vulnerable to sexual and reproductive health risks for discontinuation of contraceptive due to the misconception of the side effects.
Hegde et al (2012) Cambodia & Thailand	15 (10 unmarried and 5 married) returned Cambodian migrant women aged 18 to 28, 15 key informants	To explore unmarried migrant women's attitudes, risk faced by practices of unsafe abortions as chosen birth control methods.	Semi-structured questionnaires through snowballing and purposive sampling on SRH matters; in-depth interviews on experiences of unsafe sex, unintended pregnancies and unsafe abortions; secondary data relating to SRH Thematic analysis for qualitative data	1) Women engaged in unsafe sex due to sexual inexperience, unmet contraceptive need, misconception about female fertility and reproduction, social and sexual powerlessness due to their unmarried status, and their inability to negotiate safe sex. 2) Apart from these factors, the sexual discourse for unmarried women in Cambodia had a strong influence in determining women's contraceptive use. 3) Unmarried migrant women undergoing repeat induced abortions because they reject contraceptive use to avoid infertility following marriage. This resulted in women choosing unsafe abortion as a preferred birth control method instead of prevention from the onset.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Holumyong et al (2018) Thailand	987 migrant workers in Thailand originating from hill tribes & mountain communities in Myanmar / Cambodia.	To evaluate the role of socioeconomic status, acculturative stress, social support from family friends, and assistance from health volunteers and health professionals in influencing health care use	Cross-sectional Survey. Quantitative Structured questionnaires undertaken in 17 provinces for the evaluation of the Prevention of HIV/AIDS among Migrant Workers Thailand Project (PHAMIT-2)	1) Language barriers prevent assimilation and reduce access to maternal care. Social support is needed to reduce acculturative stress. 2) Migrants with support are more likely to access health care. 3) Support from friends, family members, or significant others could increase health care access. Support from the Migrant Health Worker Program and Migrant Health Volunteer Program allowed the formal health sector to utilize the informal social networks to improve care 4) The cultural context negatively effects health outcomes.
Jirattikorn et al (2020) Thailand	43 HIV-infected Shan migrants workers (21 males and 22 females) Age: 20 - 54 years Mean age: 37 29 health-care providers	To examine Myanmar/Burmese migrants' sexual risk behaviour and their HIV knowledge and beliefs. To understand circumstances in which mobility increases HIV risk behaviour and prevalence.	Qualitative study. In-depth interviews. Thematic analysis	1) It is found that majority of the respondents engaged in multiple serial partnerships or having one partner after another with no temporal overlap, increased migrants' likelihood for HIV risk. Migration and AIDS-related mortality lie beneath their social and economic vulnerability. 2) Strong stigmatization of HIV positive women leads to non-disclosure and non-use of condoms with partners. 3) Both genders lack of understanding in relation to HIV symptoms and low risk perceptions, especially among men, increased their risk behaviours.
Khamthanet and Suthutvoravut (2020) Thailand	107 Thai and 107 immigrant women migrant workers. Average age Thai women workers: 31.3 ± 9.5 years Immigrant women workers: 25.3 ± 5.1 years	To compare the knowledge, attitude, and behaviour of reproductive health between Thai and women migrant workers.	Quantitative study. Self-administered questionnaires. Descriptive analysis, chi-square test, and Fisher exact test.	1) The Thai women have better knowledge about the use of intrauterine devices (IUDs) and implants for contraception, exclusive breastfeeding, antenatal care, tetanus toxoid vaccination during pregnancy, use of condoms to prevent STD. 2) The finding shows that women immigrants had a significantly good attitude towards promiscuous sexual activity, concepts of contraception, rest during pregnancy, and cervical cancer screening. 3) In comparison with local Thai women, immigrant women workers have better behaviour of reproductive health in terms of the number of sexual partners and the practice of exclusive breastfeeding 6 months or more.
Kim et al (2012) Vietnam	• Structured questionnaire: 300 female migrants Mean age: 24 years old • Focus groups: (x2 @ 8 members) • In-depth interview: 20	To examine the use of health care services for RTIs by female migrants in the Sai Dong (Vietnam) industrial zone; and (to describe barriers related to the use of health care services	Cross-sectional mixed-method study: (structured questionnaire, FGD and in-depth interview). Frequency and cross-tabulation techniques to analyse the quantitative data. The qualitative data was used to triangulate and to provide more in-depth information.	Factors lead to central barriers to seek information and health care services to female migrants: 1) perspective of users and potential best providers 2) employers did not pay enough attention to reproductive health 3) Limited awareness / understanding of RTIs and RTIs treatment by respondents; limited interest of employers in reproductive health care 4) health system has not effectively collaborated with health care activities of employers 5) Poor communication of information on programs / health care 6) limited use of RTI health care services

Author / country	Participants	Aims	Design / Methods	Summary of findings
Lasimbang et al (2016) Malaysia	N/A	Examines the status of SRH of undocumented or low-skilled migrant workers in Sabah and the influence of migrant-related Malaysian laws and policies affecting their SRHR.	Narrative review highlights the status of migrant workers and undocumented migrants related Malaysian law and policies affected their SRH (general assessment of published books, journal articles, national reports and official web-pages)	1) Laws and policies do not offer full protection and rights to legal migrants especially migrant's health and right 2) Undocumented migrant- the most disadvantage group, their presence is criminalised under Malaysian laws 3) Both commercial sex and the domestic migrant workers are at risk to unwanted pregnancy, unsafe abortion, sexually transmitted diseases and issues relating to their sexual reproductive health- least powerful (access to services and information is very limited)
Le et al (2018) Vietnam	6400 female migrant workers aged between 18-49 years old in 4 industrial zone (married and unmarried)	To analyse factors related to RTIs among female migrant workers (FMWs) in four industrial zones across four regions in Vietnam.	Quantitative Sectional Analysis. Cases identified through self-report by FMWs of RTI symptoms experienced in the 1 year prior to study.	1) Female unmarried migrants contracting RTIs accounted for nearly 40% 2) Factors that affected the ability or risk of having RTI symptoms varied by regions; Factors identified: • Marital status • Education • Number of migrations • Social-economic conditions (living in rented rooms/houses or living in their own houses).
Lim et al (2017) Singapore	220 FEWs aged 18 -69 who (1) reporting vaginal, oral or anal sex with paid / casual male partner in last month; and (2) planned to stay for > 6 weeks in Singapore.	To assess the prevalence of consistent condom use and laboratory-confirmed STIs among foreign FEWs engaged in paid / casual sex in Singapore and the factors associated with these characteristics.	A cross-sectional survey, using time-location sampling	1) The proportion of FEWs who negotiated and succeeded in getting their paid / casual partners to always use a condom was lowest for oral sex. 2) More than 1/3 of those who negotiated for condom use failed to get paid partners to always use condoms for vaginal & oral sex 3) Those with secondary and tertiary/university education had a higher STI prevalence than those with no formal education/primary education 4) Low proportion of condom negotiation and usage and corresponding high STI rates suggests a need for condom negotiation skills
Lim et al (2018a) Singapore	376 Vietnamese 330 Thai	To describe the needs assessment phase before intervention implementation where the socio-organisation, sexual risk behaviours and access to health services of foreign FEWs in Singapore were explored.	In-depth interviews, observations, informal conversational interviews, mystery client and critical incident technique	1) Reasons for non-condom use included: • misconceptions on the transmission and consequences of STI/HIV, • low risk perception of contracting HIV/STI from paid/casual partner, • lack of skills to negotiate or to persuade partner to use condom • unavailability of condoms in entertainment establishments and fear of the police using condom as circumstantial evidence. 2) Difficulties in accessing health services due to fear of identity exposure, stigmatisation, cost and language differences 3) The strategy for the intervention (involving FEW's and peer educators), ensured the non-stigmatising and met the FEW's needs, fostering participation through culturally-responsive recruitment strategies, and ensured that the trial was anonymous and acceptable to the FEWs) strategies were effective. 4) As a result the interventions group reported a significant increase in consistent condom use with a reduction in STI incidence compared to no significant change in the comparison group.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Lim et al (2018b) Singapore	220 participants: 115 Vietnamese and 105 Thai for the comparison group, followed by the intervention group (same number)	To assess the efficacy of a multicomponent culturally tailored HIV/STI prevention intervention programme on consistent condom use and STI incidence among foreign Thai and Vietnamese FEWs in Singapore.	Quasi-experimental (pre-test and post-test intervention trial with a comparison group.), in-depth interviews, observations, informal discussions with FEWs and stakeholders in the Entertainment Establishments (EE) industry.	1) Intervention successfully changed the behaviour of female sexual workers towards safe sex. 2) However the use of condom not increased with husband / steady partner: condom use in committed / regular relationships problematic, implying lack of trust or imply that a partner's HIV/STI status is suspected 3) By providing easy access to free condoms, FEW could actively negotiate without having to buy the condoms themselves or depend on their partners or NGOs to acquire them. 4) Sustained reduction of STIs requires regular implemented at scale
Loganathan et al. (2020a) Malaysia and China. - result discussed in Malaysian context	Malaysia: 40 key stakeholders (with expertise in migrant issues) and 4 male and female migrant workers. China: 8 key stakeholders and 15 male and female migrant workers.	To explore policies addressing migrant worker's health and barriers to healthcare access (China) and Malaysia.	Qualitative study. In-depth interviews. Semi-structured interview guides. Review of policy document. Thematic analysis.	1) In Malaysia, immigration policies prohibit migrant workers from pregnancy, however, women do deliver at healthcare facilities. 2) Mandatory HIV testing was imposed on migrants in both countries, where it was unclear whether and how informed consent was obtained from migrants. Migrants who did not pass mandatory health screenings in Malaysia would runaway rather than be deported and become undocumented in the process. 3) Expensive cost of health becomes a factor that avoiding migrant in accessing healthcare. 4) Conditions at immigration detention camps of both countries have been described as overcrowded, with limited available healthcare facilities.
Loganathan et.al (2020b) Malaysia	44 migrant health stakeholders (including 4 migrant workers)	To explore key informants' views on the provision of SRH services for migrant women in Malaysia. To explore the provision of SRH education, contraception, abortion, antenatal and delivery, as well as the management of gender-based violence.	Qualitative study. In-depth interviews. Semi-structured interview guides. Thematic analysis.	1) Female migrant workers are subject to regulation of their reproductive rights with pre-employment and annual screenings for pregnancy, and face termination from employment if found pregnant. 2) Migrant workers face complex barriers in accessing healthcare in Malaysia, including financial constraints, language barriers, discrimination, and physical inaccessibility, and insufficient SRH information. 3) Pregnancy, rather than sexually transmitted infection prevention, is a core concern among migrant women, the latter of which is not adequately addressed by private providers. 4) Abortions are often seen as the only option for pregnant migrants. Unsafe abortions occur which are linked to financial constraints and cultural disapproval, despite surgical abortions being legal in Malaysia. Pregnant migrants often delay care-seeking, and this may explain poor obstetric outcomes.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Manoyos et al (2016) Thailand	442 cross-border migrant workers (220 male and 222 female), aged 15-24 years, living in urban Chiang Mai, Northern Thailand.	To investigate sexual experience and HIV risk-behaviours among young migrant workers. Information to be used to design interventions	Cross-sectional Survey, structured questionnaire	1) Low proportion (36.5%) of young sexually active migrant workers reported condom use 2) Barriers which induce reluctance to get treatment: • limited ability in Thai language • illegal status. 3) While widely available, condom use is reduced due to language barriers, stigma of use and perceptions of reduced sexual pleasure
Masuda et al (2020) Cambodia	16 female garment factory workers (15 were internal migrants) who sought abortion services at private health facilities Age≥ 18 13 private providers of abortion and contraception services	To describe women's experiences of abortion and contraception services.	Qualitative study. Semi-structured interviews. Thematic analysis.	1) The main reasons for abortion in this study were birth spacing, financial constraints. Long working hours away from their families also affected their decision. 2) Many women expressed fear and hesitation to use modern contraception with some reporting a belief that contraceptive pills make women infertile. 3) Respondents' knowledge regarding contraception and abortion was mostly learnt from family, friends or co-workers. 4) Not all women received comprehensive abortion care and contraceptive counselling. Provision of accurate and adequate information about abortion methods and modern contraception was the dominant shortfall in abortion care.
Musumari and Chamchan (2016) Thailand	2169 male & female migrant workers from Myanmar, Cambodia, and Laos, aged 18–49, resident > 3 mths, with or without a work permit, working in fisheries, seafood processing factories, construction or agriculture in 34 provinces	To document the prevalence of, and factors associated with, HIV testing among MWs from Myanmar, the largest group of MWs in Thailand.	Secondary data (structured questionnaire) from the baseline survey of the Prevention of HIV/AIDS among MWs in Thailand (PHAMIT-2) project.	1) HIV infection has remained fairly high among high-risk individuals, including intravenous drug users (IDUs), men who have sex with men (MSM), and commercial sex workers 2) Factors associated with HIV testing: • having a secondary or higher education level • being female (x2 more likely to have been tested than M) • knowing someone who died of AIDS • working in the fishery sector • not having a work permit 3) barriers to testing which could be addressed, that promote migrants' culturally-sensitive and friendly service such as: • facilitating flow of information about places for HIV testing, • availability of language assistance, • ensuring confidentiality of HIV testing

Author / country	Participants	Aims	Design / Methods	Summary of findings
Phanwichatkul et al (2019) Thailand	10 Burmese legal migrant women	To describe Burmese migrant women's perceptions of health and well-being during pregnancy, their health promoting practices and their experiences with the Thai antenatal services.	Ethnography: Observations in two antenatal clinics	1) Participants wanted to take care of themselves and their baby to the best of their ability; this included following traditional practices and attending the antenatal clinic if able. 2) Negotiating the demands of earning an income, and protecting their unborn baby, sometimes led to unhealthy practices such as consuming energy drinks and herbal tonics to improve performance. 3) Accessing antenatal care was a positive health seeking behaviour noted in this study, however, it was not available to illegal migrants.
Salisbury et al (2016) Thailand-Myanmar Border	FGD: 120 women. IDI: 21 post-partum women Cross-sectional survey: 978 women	To understand family planning KAP amongst refugee and migrant women on the Thailand-Myanmar border	Cross-sectional surveys and focus group discussions (FGDs) in currently pregnant women; and in-depth interviews (IDIs) in post-partum women with three children or more;	1) Many of the reflections noted in this study acknowledge the importance of the roles that fathers, families, community and culture play in decisions about family planning. 2) The main themes that emerged from the IDIs were: • Lack of knowledge • Fear/misconceptions: Fear was identified as a major barrier to sterilization in FGDs and IDIs. • Role of the husband in decision whether to use Family Planning
Sarnkhaowkhom & Hounnaklang (2018) Thailand	20 male and female Myanmar migrant workers able to communicate in Thai, resident > 1 year.	To explore the lived experiences of family planning of Myanmar migrant workers who work in latex rubber factory and rubber tapping in Surat Thani province, Thailand.	Qualitative Case Study In-depth interviews, observation, field notes	1) Thailand's family planning policy aims to cover all Thais including migrant workers. However, differences in factors as culture, tradition and faith become barrier to get the services that has been provided. 2) The family planning for Myanmar migrant workers can be divided into six issues as follows: • The meaning of family planning: being a good wife/husband, planning to have children and saving money as much as possible • Birth control: the woman's responsibility if the family was not ready to have children • Antenatal care: referred a practice to making mother happy, feeling safe especially for mother's safe delivery • Cervical cancer examination: they had no knowledge and never undergone the examination. • Children upbringing: leaving the children in workers' shelter alone and • Access to family planning services provision. 3) Family planning is about the mutual plan and agreement between husband and wife, in terms of when to have a child, the number of children required to be well and properly brought up. 4) However, in this study indicated that the birth control was actually a women's responsibility-so their husband could retain strength and energy as a family's leader and breadwinner. 5) Although the family planning services were offered free of charges to migrants, but they only used the services such as antenatal and postpartum care; not the family planning consultations and family planning related supply.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Soe et al (2012) Thailand	297 married Myanmar migrant women of reproductive age. Age range: 15 - 49 years old.	To determine the prevalence and determinants of contraceptive usage among Myanmar migrant women of reproductive age in Phang-Nga Province, Thailand.	Cross-sectional survey: structured interviews using questionnaire. Descriptive statistics, Chi-square test and multivariate logistic regression.	1) Contraceptive use prevalence of 80.1%. 2) Most preferred methods of contraception were injected and oral pills. 3) Marital duration, number of living children, and education level of migrant women were found to be significantly associated with the usage of contraception. 4) Women with longer duration of marriage were significantly less likely to practice contraception currently. 5) Number of living children had significant positive effect on the contraceptive usage as the use of contraception increased with increasing number of living children. 6) Women who completed secondary education were significantly more likely to practice contraception compared to women with a lower educational level 7) There was lack of association between knowledge about contraception and its use. Additionally, the majority of women had low levels of knowledge regarding benefits, uses and side effects of contraception.
Tangmunkongvorakul et al (2017) Thailand	43 male and 41 female migrant workers. Aged 15 – 24	To document sexual behaviour, lifestyles, relationships and experiences with youth-friendly SRH services among young cross-border MWs in Chiang Mai City.	Qualitative arm of a mixed methods study. Focus Group Discussion in groups of 10-15 people. Content analysis of: 1) Lifestyles and sexual relationships 2) Knowledge, attitudes, and experience of condoms and contraception 3) Use of youth friendly health services	The lack of parental control, pressure to assimilate into Thai society, access to social media and modern communication technologies, and limited knowledge and access to sexual and reproductive health (SRH) services each shaped lifestyle and sexual behaviours, including low condom use among young migrants.
Thein and Thepthein (2020) Thailand	360 sexually active Myanmar migrant women (95.8% were working) living together with their husbands in Bangkok Age: 18-45 Median age: 30±4.5	To explore the prevalence of an unmet need for family planning among Myanmar migrant women in Bangkok, Thailand and its determinants.	Cross-sectional, community based quantitative study. Self-administered questionnaire. Descriptive analysis, simple logistic regression, and multiple logistic regression.	1) The major reasons for non-use of contraception among women with an unmet need was the desire for having more children and the fear of side effects. 2) The unmet need for family planning among these women was still moderately high. One out of every 6 women had an unmet need for family planning. 3) The main factors still keeping the unmet need high among Myanmar migrant women in Bangkok are poor knowledge and accessibility and being older. 4) Women who had low support from their husband/partner or neighbours were expected to have one times more risk of unmet family planning need. 5) Women mostly relied on their personal network to obtain information on family planning, and the sources were mainly pharmacy shops and healthcare facilities.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Thein et al (2018) Thailand	314 Myanmar migrant women aged 18 - 45 Median age: 30 ± 4.5 years old	To explore the level of contraceptive use and associated factors among Myanmar migrant women in Bangkok.	Community-based descriptive cross-sectional study. Interview using a structured questionnaire. Descriptive statistics and logistic regression.	1) The prevalence of contraceptive use among women who were living with their husband/partner was 77.1%. 2) Oral pills and injection were the most common methods. 3) Predictors of contraceptive use include being younger than 25 years, having more than one child, having supportive husband, friends and neighbours, having easy access to contraception, and being able to access contraception at local health outlets.
Tousaw et al (2017) Thailand	22 women migrants who sought abortion care through the Safe Abortion Referral Programme (SARP). Aged 17 – 41. Average age: 29	To document the experiences of women with unwanted pregnancies who accessed the SARP, to inform programme improvement / expansion.	Qualitative study. In-depth interviews. Content analysis and thematic analysis using deductive and inductive techniques.	1) Women were overwhelmingly positive about their experiences using the SARP. They reported lack of costs, friendly programme staff, accompaniment to and interpretation at the providing facility, and safety of services as key features. 2) Financial and legal circumstances shaped access to the programme and women learned about the SARP through word-of-mouth and community workshops. 3) After accessing the SARP and receiving support, women became community advocates for reproductive health.
Tran et al (2018) Vietnam	2996 unmarried female migrant workers. Aged 18–49	To describe premarital sexual behaviours and contraceptive use among unmarried female migrant workers in industrial parks, Vietnam	Cross-sectional quantitative study. Self-administered questionnaires. Descriptive statistics and multivariate logistic regression	1) Premarital sex rate was 12.6%. 2) Most respondents were inconsistent contraceptive users; 27.8% had not used any contraception in the last 6 months. 3) Condom was the most popular contraceptive (61.3%), obtained through pharmacies, kiosk systems. 4) Non-utilization of contraception among unmarried female migrant workers was significantly associated with younger age group, working for private sectors, high school education, and lower income.
Truong et al (2014)	147 Filipina domestic workers and 29 key informants in Hong Kong, Singapore, and Qatar. Age 20-39 (60%), 40-59 (38%), 20 (one), > 60 (one)	To explore the effects of multiple forms of institutional discrimination on migrant domestic workers' SRH problems-solving.	In-depth interviews, focus group discussions	1) Power relations shape respondents' vulnerability to SRH problems. 2) Limited SRH education negatively affected health-seeking behaviour. 3) Traditional gender norms dictating women's ignorance of sex and sexuality reinforce their exclusion from SRH education. 4) Integration of key human rights concepts into public health interventions would help addressing migrants' health. 5) Bilateral, multi-country, and multi-sectoral dialogues would help foster collaboration and partnership in responses to SRH needs. 6) Results show the need for regular access to reproductive health information and services.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Vu et al (2016) Vietnam	Baseline survey: 411 female migrants Average age (baseline): 21.6 ± 3.2 years old Post-intervention survey: 482 female migrants	1) To describe the implementation of the project, 2) To measure the impact of the mHealth intervention on female migrants in Vietnam by tracking changes in their knowledge and practices related to sexual and reproductive health.	Pre / Post intervention process evaluation: Pre- and post-intervention survey, and personal interviews. Descriptive statistics and Chi-square test.	1) There was high uptake of the intervention services and that most women found the services important and useful. 2) There was evidence that the intervention: • Increased women's knowledge of sexual and reproductive health (e.g., proper use of condoms, identification of high-risk behaviours such as having unprotected sex), • Fostered improved practices related to sexual and reproductive health (e.g., increased gynaecological check-ups and use of condoms).
Webber & Spitzer (2010) Cambodia	40 participants including beer promoters, academics, NGOs, government and beer industry from Cambodia, Laos Thailand, Vietnam 71 F beer promoters from Cambodia, Laos, Thailand ,Vietnam Age:18+	To develop a research agenda on the sexual and reproductive health of beer promoters.	Meeting with stakeholders and focus group discussion with beer promoters. Constant comparative method.	1) Three key research themes: • Occupational health (including harassment and violence, working conditions, and fair pay), • Gender and social norms (power relations on women's health), • Reproductive health (knowledge and access to reproductive health care services). 2) The participants in the focus groups in all four countries agreed that these were key priorities for them. 3) Sexual harassment in the workplace and challenges in accessing reproductive health care services because of the barriers of cost, shyness, and stigmatizing attitudes of health care providers were common problems for many of the women.
Webber et al (2010) Cambodia	20 female migrant garment workers. Aged 18 – 39 8 key informants from government NGOs who worked with garment factory workers. 13 health care providers.	To assess the context of HIV prevention for rural-to-urban migrant Cambodian female garment factory workers.	Qualitative study. Semi-structured interviews and focus groups. Constant comparative method.	1) Poverty was the primary motivator for migration. 2) Some migrants had sexual relationships with local men or engaged in sex work to supplement their income. 3) Factory restrictions limited women's ability to access health care services and health education programs. 4) Social and occupational vulnerabilities increased HIV infection risk.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Webber et al (2012) Cambodia, Laos, Thailand and Vietnam	390 female beer promoters from Cambodia, Laos, Thailand and Vietnam. Aged 17 – 47 Mean age: 24.2	To assess access to sexual and reproductive health services for migrant women who work as beer promoters.	Two-phase participatory mixed methods study. Focus groups, survey questionnaire and case studies. Content and thematic analysis, and descriptive statistics.	1) Work demands prevented beer promoters from accessing health care. 2) Institutional factors affecting care included cost, location, environmental factors (e.g. waiting times, cleanliness and confidentiality) and service factors (e.g. staff attitudes, clinic hours, and availability of medications). 3) Personal factors affecting access were shyness and fear, lack of knowledge, and support from family and friends. 4) The survey confirmed that cost, location and both environmental and service factors impact beer promoters' access to health care services 5) Many beer promoters are sexually active, and a significant proportion rely on sex work to supplement their income. 6) Findings were consistent across sites
Webber et al (2015) Cambodia, Laos, Thailand, and Vietnam	390 female beer promoters from Cambodia, Laos, Thailand and Vietnam. Aged 17 – 47 Mean age: 24.2 7 senior staff from healthcare organizations and NGOs	To determine the experiences of female migrant beer promoters in Cambodia, Laos, Thailand, and Vietnam in accessing reproductive health care services in the cities of Phnom Penh, Vientiane, Bangkok, and Hanoi.	Quantitative study. Survey questionnaire and case studies. Descriptive statistics.	1) There were discrepancies between findings from the staff interviews and the experiences of the beer promoters, concerning the affordability of care and length of waiting times. 2) In general, the migrant women were satisfied with the cost, location, friendliness of the health care providers, and knowledge and skills of the providers. 3) They were less positive about confidentiality and waiting times, though many still agreed that these were not an issue.
Wong et al (2012) Singapore	317 FEWs Aged 19 – 45 Mean age: 25.2	To assess the prevalence of sexual services, condom use, and self-initiated screening for STIs and associated variables among foreign FEWs in Singapore.	Cross-sectional Survey Structured questionnaire. Chi-square test and multivariate logistic regression	1) High prevalence (71 %) of sexual services in entertainment establishments with 53 % of FEWs selling sex. 2) Consistent condom use for sex with paying clients (past 3 months) low. 3) Consistent condom use for vaginal sex with clients showed a significant independent association with the entertainment worker's behaviour of asking clients to use condoms 4) Less than half (48.9 %) of the sex workers had ever been screened for STIs either locally or in their home country. 5) The only independent factor significantly associated with STI screening was having to support one's family. 6) A high percentage of foreign FEWs in Singapore reported selling sex. Condom use and STI screening were low.

Author / country	Participants	Aims	Design / Methods	Summary of findings
Yi et al (2015) Cambodia	556 FEWs in Cambodia. Aged 18–47 Mean age: 26.4	To explore risk factors associated with induced abortion among sexually active FEWs in Cambodia.	Quantitative Cross-sectional Survey. Face-to-face interviews using a structured questionnaire. Descriptive analysis, Fisher's exact test, Student t test, multivariate logistic regression model.	1) Less than half (45.6%) respondents reported currently using a contraceptive method, with condom being the most common method, followed by pills. 2) 25% respondents reported having been pregnant at least once, and 21.4% reported having at least one induced abortion during the time working as a FEW. 3) FEWs with a history of induced abortion remained significantly more likely to: • be currently working in a karaoke bar, • have worked longer as a FEW, • have had a greater number of sexual partners in the past 12 months, • be currently using a contraceptive method, • be able to find condoms when they needed them, and • report inconsistent condom use with non-commercial partners in the past 3 months.

Table 2: Range of SRH needs discussed

SRH needs	Research papers (n)	Authors
HIV / AIDS and STI prevention	13	Webber et al, 2010; Wong et al, 2012; Ford & Chamratrithirong, 2012; Manoyos et al, 2016; Ford et al, 2014; Ford & Holumyong, 2016; Musumari & Chamchan, 2016; Boonchutima et al, 2017; Lim et al, 2017; Lim et al, 2018a; Lim et al, 2018b; Ayuttacorn et al, 2019; Jirattikorn et al, 2020
Contraceptive use	5	Soe et al, 2012; Tran et al, 2018; Thein et al, 2018; Loganathan et al., 2020a; Masuda et al, 2020
Unwanted Pregnancies and Abortion	5	Hegde, et al, 2012; Yi et al, 2015; Tousaw et al, 2017; Loganathan et al, 2020b; Masuda et al, 2020
Reproductive tract infections	2	Kim et al, 2012; Le et al, 2018
Pregnancy, baby, ante natal services	2	Salisbury et al, 2016; Phanwichatkul et al, 2019
SRH Knowledge, Attitude & Practice	8	Han et al, 2010; Tangmunkongvorakul et al, 2017; Vu et al, 2016; Brody et al, 2017; Brody et al, 2018; Sarnkhaowkhom & Hounnaklang, 2018; Chhoun et al, 2019; Khamthanet and Suthutvoravut, 2020
Access to sexual and reproductive healthcare	9	Webber and Spitzer, 2010; Webber et al, 2012; Webber et al, 2015; Brody et al, 2016; Lasimbang et al, 2016; Tousaw et al, 2017; Holumyong et al, 2018; Loganathan et al, 2020a; Loganathan et al, 2020b
Institutional discrimination leading to poor SRH	1	Truong et al, 2014
Unmet needs for family planning	2	Masuda et al, 2020; Thein and Thepthein, 2020

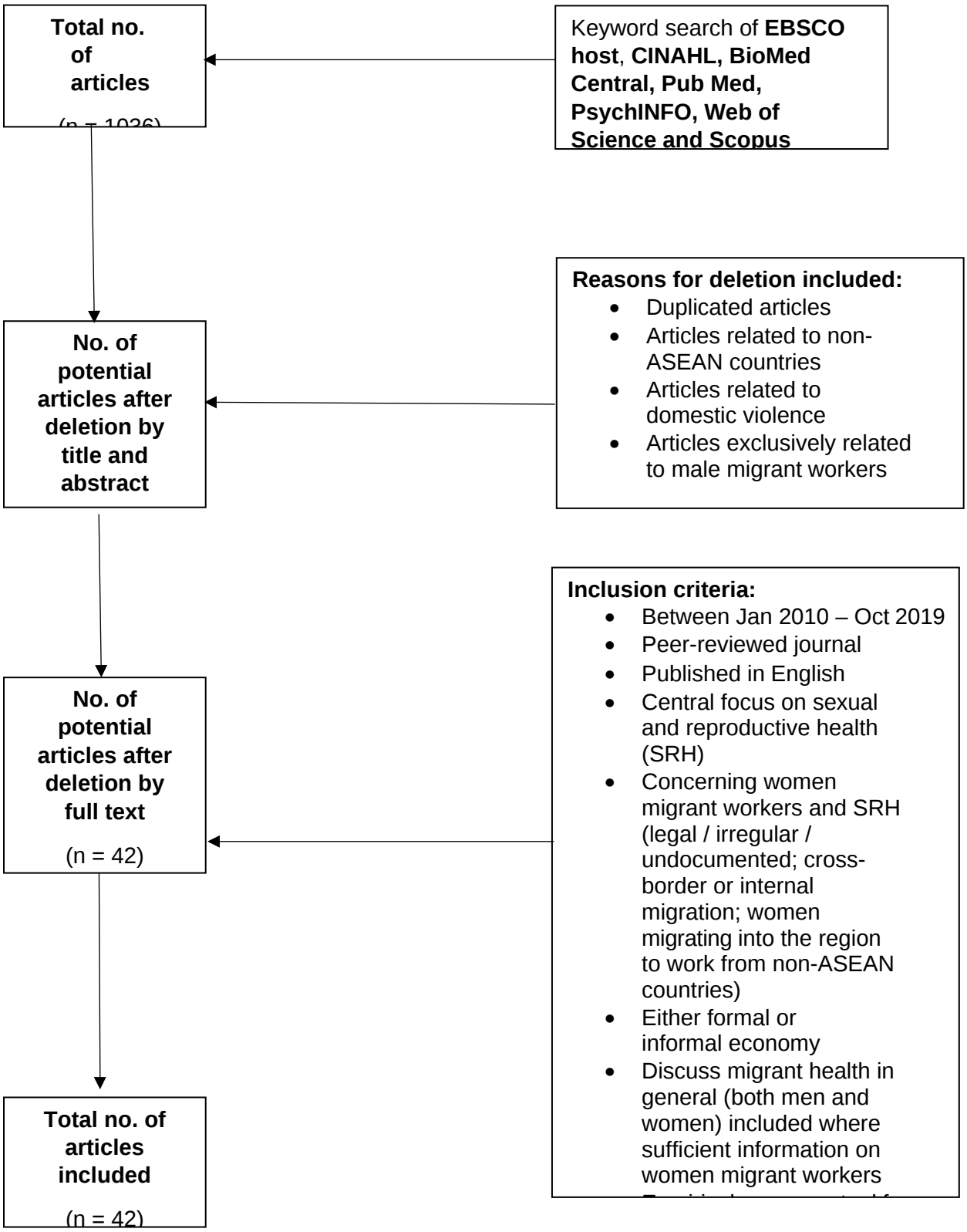
Total number of papers reviewed: 42

Note: while SRH needs cannot be totally segregated (e.g. contraceptive use is linked to unwanted pregnancies) categories refer to the keywords used by the authors.

Table 3: Research output on women migrant workers' SRH, by ASEAN country

ASEAN member Country	Research papers (n)	Cross border migrants	Internal migrants
Thailand	23	Han et al (2010) Soe et al (2012) Ford & Chamratrithirong (2012) Hegde et al (2012) Ford et al (2014) Manoyos et al (2016) Salisbury et al (2016) Ford & Holumyong (2016) Musumari & Chamchan (2016) Boonchutima et al (2017) Holumyong et al (2018) Sarnkhaowkhom & Hounnaklang, (2018) Tangmunkongvorakul et al. (2017) Tousaw et al (2017) Ayuttacorn et al (2019) Thein et al (2018) Phanwichatkul et al (2019) Jirattikorn et al (2020) Khamthanet and Suthutvoravut (2020) Thein and Thepthein (2020)	Webber & Spitzer (2010) Webber et al (2012) Webber et al (2015)
Cambodia	10		Webber et al (2010) Webber & Spitzer (2010) Webber et al (2012) Webber et al (2015) Yi et al (2015) Brody et al (2016) Brody et al (2017) Brody et al (2018) Chhoun et al (2019) Masuda et al (2020)
Vietnam	7		Webber & Spitzer (2010) Webber et al (2012) Webber et al (2015) Kim et al (2012) Vu et al (2016) Le et al (2018) Tran et al (2018)
Singapore	5	Wong et al (2012) Truong et al (2014) Lim et al (2017) Lim et al (2018a) Lim et al (2018b)	
Laos	3		Webber & Spitzer (2010) Webber et al (2012) Webber et al (2015)
Malaysia	3	Lasimbang et al (2016) Loganathan et al (2020a) Loganathan et al (2020b)	

Figure 1: Process of identification and selection of papers for review



Total number of papers reviewed = 42. Papers are listed multiple times as required, under each country in which the research was conducted. No papers were found related to Indonesia, Myanmar, The Philippines or Brunei.