Review article/Metaanalysis:

A narrative review of the literature on the reproductive health of female sex workers having age below twenty years

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Abstract:

Objective: Female sex workers (FSWs) under 20 years of age range from 1,000 to 575,000 in different cities and countries across the globe. There is only a handful of information on the reproductive health (RH) issues of these younger FSWs in the perspective of service utilization and healthcare system. We reviewed existing literature with a view to describe the reproductive health problems, service utilization, and service availability as well as information sources among the FSWs ages <20 years. ***Materials and methods:*** A web-based search using Google, Google Scholar, MEDLINE/ PubMed/ PubMed Central, HINARI and JSTOR was performed in English Language. The prevalence of a health issue and percentage of service utilization had been shown using ranges of minimum and maximum value which were calculated by different studies. ***Results:*** Findings identified the following RH problems: unintended pregnancies (52% - 95%), induced abortion (51% - 53%), repeated or multiple abortions (13% - 43%), childbirth experiences, sexually transmitted infections (74%-84%), HIV (1% - 60.6%), violence (beaten, robbed, not paid, forced or coerced sex, rape) and mental disorders (depression, suicidal thoughts). The consistent use of condom (26%-55%) was not satisfactory. Overall 64% of under 20 years FSWs reported little or no access to healthcare in the previous year and access to RH information sources was also poor. ***Conclusion:*** This review has potentially meant to bring forward the RH issues of younger FSWs to the policy makers and programme planners to implement targeted reproductive health interventions for the FSWs ages <20 years.

Keywords: female sex workers; reproductive health; unintended pregnancies; contraceptive use; healthcare seeking

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Introduction

Female sex workers (FSW) who get involved with sex trade in very early ages like below 20 years of old either for sex trafficking or different reasons, face higher health risks than older FSWs or general adolescents. These health risks are low condom and other contraceptives use, unintended pregnancies or childbirth, abortion, sexually transmitted infections (STIs) etc. which may drive to seek harmful healthcare practices. They seems to exist in all regions of the world. Jay G Silverman (2011) mentioned that up to 40% female sex workers initiated their sex trade at under 19 years of their age[1]. Wills and Levy (2002) showed that showed that the number of adolescents sex workers ranges from 1000 to 575000 in different cities and countries across the globes[2].

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Only one review article on adolescent FSW is available which has be enpresented with information about their hiddenness, violence and, HIV (1). Information about the reproductive health of under twenty year old FSWs is limited and are available in a scattered manner. Therefore, gathering information and knowledge is essential to develop intervention stargeting younger FSWs and we reviewed existing literature to : i) identify reproductive health issues as experienced by the FSWs aged below 20-year old, ii) assess their health service utilization, iii) list available health services or interventions targeting this younger FSWs and iv) identify available health information sources.

Methods

Web-based search using key terms

We conducted a web-based search using Google, Google Scholar, MEDLINE/ PubMed/ PubMed Central, HINARI, and JSTOR search engines, to find published research articles on FSWs issues. In addition, the web-based search facilities (https://vpn.chula.ac.th/+CSCOE+/portal.html) using a library of Chulalongkorn University, Bangkok, Thailand was utilized to get access to abstract following full articles. Primarily common key words were used to identify a broader range of literature on our interest or study objectives: adolescent female sex workers, female sex workers who entered sextrade below 20 years, reproductive health problems of FSWs, healthcare seeking behaviour, health needs of FSWs and available health services.

Inclusion criteria

The inclusion criteria to select articles for review were the original journal articles that(a) consisted of an abstract and, in the main body: introduction, methods, results and discussion b) contained information on FSWs aged 10 to 19 years old (c) articles that were published in the last 20 year publications (Jan' 1997 to Dec' 2017) (d) the articles were written in English.

Exclusion criteria

We excluded articles on the following condition: a) research articles that described only a protocol; b) the review articles; c) articles on youth and adult FSWs without age-specific information on FSW.

Review steps

Two authors performed this web-based literature search using four steps (title-abstract-full article-add from references of full articles) process**(Figure 1)**. At first, available titles were gathered using key terms, and selected using the said inclusion and exclusion criteria. In the second step, abstracts of the selected titles were searched. In the third step, full articles of the screened abstract were downloaded and checked for selection according to our inclusion and exclusion criteria. Both authors conducted this exercise independently. The duplicate titles, abstracts, and articles were discarded by combining searches from both authors. In step four, the references of full articles were visited to find out whether some paper matching our inclusion criteria were skipped. Of 355 titles identified at the first step, 28 full articles were finally selected for analysis **(Figure 1)**. All articles were given identification number. The abstract and result section of each selected articles were read carefully and key reproductive health issues and availability of health services were identified. These issues were shared with senior authors until a consensus was reached on what to include in the final interpretation and analysis. The prevalence of a health issue and percentage of service utilization had been shown using ranges of minimum and maximum value which were calculated by different studies.

Results

The basic information

The overview of 28 selected articles has been shown in **Table 1**. All the selected articles were published in good quality journals, indexed in Scimago Journal & Country Rank and most of the journals were ranked inquartiles 1 (Q1). Most (n=19) of the articles were identified to be from five countries in Asia including Thailand (3), India (8), China (6), Laos (1) and Philippines (1).Although eight of the studies were conducted in India, their focus was mainly on STIs/HIV. Under 20 year old FSWs were directly interviewed in about three-fourth of the papers. Although the majority of the studies included quantitative survey or in-person interviews on collected data, a total of 11 studies used purposive or targeted or snowball and/or convenience sampling. Some procedures such as physical, gynocological, pelvic, clinical examinations, blood test, biological test and review of STI and HIV data record were also used.

To be aligned with the objectives of this review, the following four broader themes were used to present the findings of the analysis: A) Reproductive health problems of under 20 year old FSWs;(B) Healthcare seeking pattern of under 20 year old FSWs;(c) Available health services or intervention with perceptions of benefits or barriers; d) Reproductive health-related information and knowledge of under 20 year old FSWs.

A) Reproductive health problems

A number of reproductive health-related problems

or issues illustrated in different literature were summarized in **Figure 2**. RH problems of under 20 year old FSWs were unintended pregnancies, induced abortion, abortions, childbirth experiences, sexually transmitted infections, violence and mental disorders.

- ***Unintended pregnancy***

A few studies[3-7] reported the rate of unwanted pregnancies among FSWs having age less than 20 years. Two studies in China [3,6] reported the prevalence which varied from 52% in to 95%. Only one study reported that the median age of first pregnancy among study participants was 16 years[7].

- ***Abortion***

Induced abortion, as an outcome of unwanted pregnancies was reported in a few studies[3,4,6,8]. About 51% to 53% FSWs in China had it at least once and 13% to 41% had repeated or multiple abortions in their lifetime[3,6,8]. Besides, miscarriages (4 FSWs in one study) or spontaneous abortions were also mentioned[6,7]. Moreover, one study added that about 54% of 136 FSWs having ever had an abortion, faced‘ ever abortion’ related complications, namely menstrual disturbances (29%), vaginal discharge (24%), pain (21%), fever and vaginal bleeding (4%) and uterine perforations (0.7%)[6].

- ***Childbirth experiences***

A very few articles documented having childbirth experiences of these young FSWs[4-7]. A study conducted in China showed that 5% of FSW shaving pregnancy experiences gave birth and the outcomeof this childbirth included9 live births and 1 stillbirth[6]. In Puerto Rico, about 19 % FSWs sought hospital admissions due to childbirth[5]. The use of substances or drugs during pregnancy led them to more vulnerable conditions with adverse outcomes like having a stillbirth or a baby with birth defects[7].

- ***Sexually transmitted infections (STIs)***

Self-reported data[3,9] from China showed that about 74%-84% adolescents had any symptoms of STIsincluding vaginal itching or irritation, burning urination, lower abdominal pain, unusual leucorrhoea, or rashes, lumps or blisters around the genitals or anus. Laboratory testing-based studiesindicated a prevalence of STIs from19.2% in Puerto Rico to 30.4%in China[5,9]. A few studies showed specific information on different types of STIs:syphilis (1.5% - <10%) and chlamydia (12.8%), Neisseria gonorrhoeae (13.1%), Chlamydia trachomatis (14.7%), Condylomaacuminatum (6.9%) and genital HSV-2 infection (0.5%)[5] and 51.9/100 woman-years (WY) for GC and 47.4/100 WY for CT[10]. None of the FSWs of a study in China enquired whether their clients had an STI diagnosis or not because they perceived that their clients were healthy[4].

- ***HIV***

The prevalence of HIV among different-aged adolescents ranged from1% to 60.6%[5,9,11-17]. This figure is comparatively higher in Asia (up to 60.6%) than other regions, such as- 2.6% to 16.7% in North America and 3 of the 10 participants in Zimbabwe of Africa. compared to other regions. Girls who were trafficked at a younger age(15.9 years) were more likely to report being HIV positive compared to older group (17.2 years) and this was marginally, statistically significant[17]. One study conducted in Thailand, showed that those that entered into commercial sex before fifteen years of age were more likely to have HIV-1 infection[18]. Both FSWs and their clients were less interested in asking whether they were tested for HIV or not, as they perceived that they were healthy and the need to use a condom lies with adult FSWs only[19].

- ***Violence***

Violence faced by FSWs was highly prevalent and a large proportion of the reviewed literature (11 of 28 articles) discussed this issue[3, 6, 7, 10-12, 19-23]. About 23% to 55% adolescents were exposed to different form of physical and sexual violence by their clients, pimps, traffickers, paying or non-paying intimate partners[3,6,10,12,21,22]. The type of sexual violence included forced or coerced sex and rape while physical violence included verbal abuse, physical attacks, being beaten, physical confinement, threats, being robbed, or deceived or not being paid after sex. Other studies explained that adolescents had low capability to negotiate condom use or resist clients who want to remove or break a condom which led to being physically beaten coerced to have sex or raped[19].

- ***Mental disorders***

Only three studies measured the level of mental disorders among FSWs[5, 24]. A study conducted in Puerto Rico showed that about 66% of the FSWs were suffering from depressive symptoms, and there was a positive association between depressions and negative health outcomes, like unintended pregnancies or STIs [5].One study conducted in India observed that about 41% of FSWs aged less than 20 had suicidal attempts in the preceding three months[24]. A study in Southwest China showed high depression (mean with SD: 17.16 ± 9.10), suicidal thoughts (13.4%) and suicidal attempts (4.8%) among FSWs aged≤20[25].

B) Healthcare seeking pattern

Table 2 summarized the utilization of the following reproductive health services: contraception including condom use, abortion and post-abortion care (PAC), maternal healthcare and HIV/STIs. Overall 64% of FSWs reported having little or no access to RH care in the preceding year[7].

Only one study calculated the need for contraception (eg.,35%) among this group[6]. The reporting of different types of modern contraceptive methods including condom was 16.9%-93%[6, 8, 10]. Besides condoms, emergency contraception pills were used by a good proportion of participants (5%-44%)[6, 8]. Although condom use was reported among 69%-97% participants, its consistent use was low (26%-55%)[6, 8, 9]. Findings from one study showed that about 80% of the participants reported facing barriers on negotiating or accessing condom (data not shown in Table 2)[7]. Dual contraceptive method (condom plus one other modern method) use was practiced by 7%-34% [6, 8]. About 6%-54% had practiced on traditional methods like douching, herbal mixtures, withdrawal or rhythm[4, 6, 8].

A few studies reported the type of health facilities used by FSWs to seek abortion services[6, 8]. Public hospitals were used by most of them (23%-50%), followed by private unofficial small clinic (41%) and private hospitals/clinics (13%-30%).

No evidence was found in all reviewed literature on maternal healthcare services including antenatal care (ANC), delivery care or postnatal care (PNC).

About 79% of study participants had a medical consultation for HIV/STI in the preceding year[6]. About 66%-77% were reported receiving free condom services from HIV interventionprogrammes[6,9]. Nearly one-third of FSWs were tested for HIV. About37.7% FSWs sought care for symptoms of STIs from private health facilities while one-fourth of them visited public hospitals[9]. A study conducted in Laos showed that two-third of FSWs who did not seek treatment for STIs were from adolescent FSW group[26].

c) *Available health services or intervention*

We divided the available interventions or services into three categories (**Table 3**): i) general services targeted at all reproductive-aged women, ii) youngerFSWs or adolescent FSWs specific interventions, iii) others (self-detoxification experience and traditional healers).

The availability of Government in running public health services for all (general women and younger FSWs) has been mentioned by FSWs. None of the articles mentioned the benefit of using public services. In contrast, many articles documented perceived barriers in public health hospitals which include fear of being identified as FSWs, judgmental attitudes of health providers, can't bear such eyes and tones or verbal abuse, stigmatization, inconvenience, lack of medical insurance, too many patients, too many procedures with too many questions on occupation, address, contact number, and marital status or partners, lack of confidentiality, health provider's demand for fees or charges for medicine although those should be free[4, 7, 19].Participants identified some benefits in using healthcare from thesmall private clinic where they can bargain the cost of treatment and feel comfort with the healthcare providers regarding attitudes andbehaviours[4]. Some FSWs who accessed public healthcare mentioned that they prefer hiding their profession to get rid of fear and verbal abuse[19].

FSWs specific interventions were mainly HIV prevention programmes by different project which included free condom distribution, breaking stigma through peer network influences, group sessions or workshops and compulsory or encouraged HIV testing[4, 6, 8, 19, 27]. Although these interventionare beneficial to the subjects, some challenges were identified, such as- information gap on service availability among AFWs, not informing the AFSWs about the results of HIV testing and lack or poor referral.

Based on this literature review, the following list of service preferences or need of FSWs were identified[6,8,9,19]:

- Affordable and accessible FP services: 51%
- Free condoms: 50.8%- 61%
- Low-cost STI diagnosis and treatment: 42%-53.7%
- Reproductive or obstetric services: 45%-87%
- Free contraceptives: 21%
- Exclusive healthcare services targeted for AFSWs: 50%
- Aspecialized department within the hospital for the general population: 50%

C) RH information and knowledge

Younger FSWs with under 20-years age lacked information about condom use and reproductive healthat the age of entry in the profession[12, 19]. Sometimes, pimps and traffickers were the sources of information to have protected sex with clients[12]. Low level of knowledge and information among these FSWs were linked with severe health risks like unintended pregnancies, prolonged sexual

intercourse with drug use and not using acondom[4]. A study conducted in thePhilippines showed that 77% of 56 FSW aged 14 to 17 years had talked to someoneabout how they can prevent AIDS, 86% were ever taught about how to use a condom properly, 77% were convinced by a co-worker ever to use condoms with clients[22].A few studies explored what type of information FSWs would like to get and identified the following RH related information about: HIV/ STI (69%), contraception (42%) and general health knowledge (77.1%)[6, 9] (Data not shown in Table).

Discussion

This study provides an initial understanding of global-wide adolescent reproductive health issues and care-seeking behavior among female sex workers who entered sex trade below 19 years of age. It also provides evidence of limited or low-level access to information and services to health care by the under 20 year old FSWs. The extent of vulnerability of younger FSWs on reproductive health matters in Asia appears higher comparing other regions of the world as per review of the literature.

The unintended pregnancies among under 20 year old FSWs were probably similar or higher in different countries (52% to 95%) than this general figure and it is understandable that being poor, low educated and socially exploited this population group is much more vulnerable.Our review also showed that a majority of FSWs had induced abortion (51% to 53%), and a noticeable proportion repeated or multiple abortions (13% to 43%) resulting from unwanted pregnancies. The non-use or low use of modern contraception, unintended pregnancies and abortion are interrelated factors that affect the wellbeing of adolescent girls. We found that the use of modern contraception, except condoms, was very poor. Although theuse of condom was relatively high compared to other contraceptive methods, the consistent use of acondom(26%-55%) was not satisfactory.

Our review indicated childbirth experiences with alive birth or premature stillbirth among FSWs although detailed information on prevalence or extent of the problem is lacking. We noticed the unpublished or under-reporting of childbirth-related morbidities and mortalities among FSWs as none of the literature we reviewed mentioned pregnancy, delivery or postpartum complications including death in this crucial period of life. In this regard, one multi-country study demonstrated that one-fifth of the pregnant adult FSWs died during the precedingthree years due to pregnancy or delivery (28).Information about healthcare seeking practices during childbirth of under- 20 yearsFSWs is also not available in the existing literature. Most of the deliveries probably took place at home or in parks or streets assisted by unskilled health professionals with poor knowledge, information,and fear of recognition or identity may drive FSW away from formal health services.

Experiencing symptoms of STIs (74%-84%) and HIV (1% to 60.6%) was very common among under-20 years FSWs. Data also showed that an inquiry about thetesting of STIs or HIV was absent between both clients and under- 20 years FSWs due to thepoor perception that under- 20 years FSWs would not be affected by STIs/HIV. Data collected from adult FSWs on their experiences during adolescence strongly support that adolescents are more vulnerable or weaker in terms of negotiation of condom use or asking for a STIs or HIV testing to both paying and non-paying partners compared to adult FSWs. One study on under- 20 years FSWs demonstrated the poor utilization of public (25.5%) and private (37.7%) hospitals for the management of STIs[9] which provide some ideas of delayed or unhealthy health-seeking behaviour for STIs care. There is evidence that delayed, untreated or mistreated STIs cause infertility, ectopic pregnancies, cervical cancer and increased risks for HIV infection[29-31].

Being exposed to physical or sexual violence was wide-spread among under- 20 years FSWs. They were beaten, robbed, not paid, forced or coerced into sex, raped and had now here to go to seek help as they were minor and hidden population. Police and other law enforcement persons, influential national and international stakeholders, policy makers should take active actions in formulating and implementing policies and strategies to prevent such adverse situation of adolescent girls. In addition, there are very few studies which incorporated an objective to assess the mental health status among under- 20 years FSWs. A variety of factors may be responsible on mental health problems, such as-violence by intimate partners, conflicts, unintended pregnancies, low empowerment, fears, stigma, substances use which arecommonly prevalent among under- 20 years FSWs and as a consequence, they may feel depressed or have suicidal thoughts. The presence of depressive symptoms or suicidal attempts emphasizes the need for mental support-based intervention focusing on under- 20 years FSWs.

Our review listed availability of the different type of reproductive health services which included both Government-run and private health care. A number of barriers to accessing public health services were

noticed whichwere very similar to those experienced by adult FSWs[32-37]. Adopting strategies, such as –conducting advocacy meeting with healthcare providers, introducing aspecial financial scheme for under- 20 yearsFSWs to get healthcare, improving the privacy and confidentiality in hospitals are key to overcome such barriers. Under- 20 years FSW-specific interventions were desired by FSWs, however, barriers like-poor referral system or hard to reach targeted population were identified in implementing such interventions[27]. The RH needs among under- 20 years FSWs as expressed by themselves were very basic and essential needs including affordable and accessible FP services, free condoms, low cost STI diagnosis and treatment, reproductive or obstetric service.

Finally, this review tried to assess the level of knowledge on reproductive healthcare and access to information sources by the under- 20 years FSWs which revealed a very poor situation. The concept of "Zanzibar Youth Education Environment Development Support Association (ZAYEDESA) should be considered to scale up in other countries as they developed a successful peer network among under- 20 years FSWs and provided education to the community and health staffs on building supportive attitude toward under- 20 years FSWs[19].This type of targeted intervention can play important role in increasing access to RH information.

A few limitations on this literature review should be reported. There may be study reports, knowledge briefs, and abstracts from conference proceedings or other literature available on RH of under- 20 years FSWs which we did not consider in this review as we considered only full research articles. Only articles written in English were considered where publications of other languages in this area were excluded. This review report may add more value if results can be shown by stratifying age of FSWs as 18-19 years and <18 years which can't be done in current analysis because of non-availability of data organized in this way in the selected papers. Therefore, future study is needed to get information by stratifying age. A number of articles which were reviewed in the present study had qualitative methodology, purposive or convenient sampling and small sample size which could be main limitations for the generalizability. Researchers faced sometimes difficulties including under- 20 years FSWs in their research as it goes against child labour laws[11, 38, 39], the purposive sampling with small samples is likely to be the only available option for data collection. However, considering broader benefits on improving there productive health of under- 20 years FSWs, large scales studies comprising of bigger sample size should be undertaken in targeting under- 20 years FSWs.

This study provided evidence of high RH problems and low health service use of under- 20 years FSWs which have multiple policy implications. Initiatives should be taken to make contraceptive services available and easilyaccessible to the under- 20 years FSWs. Future studies should be conducted in targeted under- 20 years FSWs to understand the proportion of under- 20 years FSWs having child birth, what was the outcome of those deliveries including their antenatal, delivery and postpartum care rate. Intervention should be tested to educate and empower under- 20 years FSWs on their rights and available laws with future plan to scale up if the result is successful in preventing violence. A well-developed referral network should be planned from the beginning of introducing under- 20 years FSW-specific interventions. The healthcare system of all countries where under- 20 years FSW exist, should consider their basic health needs and incorporated strategies so that this poor, underserved and vulnerable population can easily get access to their RH health rights. The program implementers and policy makers should not only make accurate RH information available but also develop sexual and reproductive health education system targeting under- 20 years FSWs. They should include a separate section or unit focusing on under 20 ages FSWs with the existing interventions which are targeted all or adult FSWs.

Conclusion

This review portrayed overall RH problems and limited or poor access to healthcare and information by AFSWs. Many countries have published research findings on adult FSWs but they have ignored the need of under- 20 years FSWs as they do not have a single easily identifiable paper on under- 20 years FSWs. Thus, this paper has potential to bring the RH issues of under- 20 years FSWs forwardamong International Donors and other stakeholders to allocate resources including funds to implement under- 20 years FSWs targeted specific reproductive health interventions. The policy makers, programme planners and development partners can also use this document as an evidence for developing their strategies and future planning to improve the reproductive health of the under- 20 years FSWs.

Conflict of interest

The authors declare no competing interest

Authors contribution

TW and SZ did the literature search. FAH, SS, AA helped TW to identify theme issues. LJ assisted preparing the tables of result section. AP and RS gave critical feedback on overall manuscript writing. TW wrote the first draft script, sent to all co-authors and received approval from all to submit to journal.

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Table 1: Summary of selected articles

Ref.	Scimago journal rank in 2017	Article ID	Publication year	Country	Study design	Data collection methods	Sampling	Sample size	Study population		Main outcome variables
									AFSWs (Yes=√, No=×)	Adult FSWs but contained AFSWs related information (Yes=√, No=×)	
(11)	Q1	01	2014	Zimbabwe	Qualitative	In-depth narrative interviews	Purposive	10	√	×	Health risks: HIV, sexual and physical violence
(12)	Q1	02	2015	Mexico	Ethnographic fieldwork	Observations, in-depth interviews, biological testing for HIV and other STIs	Targeted sampling	AFSWs=31 and their service providers= 7	×	√	Prevalence of HIV
(26)	Q1	03	2012	Laos	Cross-sectional	Survey	Mapping and include all	Adult FSWs=407, AFSWs=199	√	√	Care seeking behaviour for RTI/STI symptoms
(20)	Q1	04	2016	Kenya	Baseline data of a randomized controlled trial	in-person interview	-	816	×	√	Violence
(17)	Q1	05	2006	India	Secondary data review	Case and medical records	All that met inclusion and exclusion criteria	175	√	√	HIV prevalence and predictors
(3)	Q1	06	2016	China	Cross-sectional study	Quantitative interviews	one-stage cluster sampling	310	√	×	Violence
(4)	Q1	07	2015	China	Qualitative inquiry	Repeated focus group discussions	Purposive	4	√	×	Sexual and reproductive health risks
(5)	Q2	08	1999	Puerto Rico	NG*	Personal interviews	Purposive	78	√	×	Unintended pregnancies and sexually transmitted infections, depression
(21)	Q3	09	2012	Romania	Descriptive study	Interviews	A snowball sample	300	√	√	Violence
(7)	Q2	10	2015	Mexico	Qualitative study	In-depth, semi-structured interviews	Purposive	25	×	√	Reproductive and sexual health

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									AFSWs (Yes=√, No=×)	Adult FSWs but contained AFSWs related information (Yes=√, No=×)	
(22)	Q1	11	2014	Philippines	NG*	Face-to face survey interviews	NG*	770	√	√	Socio-structural factors and risk to HIV
(8)	Q2	12	2014	China	Cross-sectional study	Semi-structured interviews, a gynaecological examination and biological sampling collection	snowball and convenience sampling	201	√	×	HIV prevention knowledge, self-reported history of symptoms of STIs, contraceptive practices, lifetime abortion, and health service utilization
(6)	Q1	13	2014	China	Cross-sectional study	Face to face interviews	one-stage cluster sampling	342	√	×	Knowledge and unmet need for modern contraception
(40)	Q3	14	2012	Thailand	Cross-sectional, nonrandomized	Survey	Convenience sampling	130	√	×	Condom use
(27)	Q1	15	2016	Zimbabwe	Process evaluation methods	Monthly staff reports, Observations by external consultant, Discussions with Staff, Participatory M&E activity (one per site), Aggregated clinic records	NG*	143	√	√	Identify programme strengths, challenges, and recommend changes
(41)	Q1	16	2005	India	NG*	In-person interviews, Surveys	Stratified sampling	1588	×	√	Sex work patterns and implications for HIV prevention
(9)	Q1	17	2012	China	Cross-sectional survey	Survey interviews, a gynaecological examination and biological testing	Snowball and convenience sampling	201	√	×	HIV and sexually transmitted infections, health-seeking behaviourand service use
(10)	Q1	18	2007	Madagascar	Randomized controlled trial	STI testing	NG*	1000	√	√	Risks of STIs
(13)	Q1	19	2006	India	Cross-sectional community-based study	HIV testing	NG*	558	√	√	Prevalence of HIV
(19)	Q1	20	2017	Tanzania	Qualitative study	In-depth interviews, key informant interviews	Purposive	in-depth interviews =19, key informant=20	×	√	Which kind of healthcare service they preferred, available intervention

Ref.	Scimago journal rank in 2017	Article ID	Publication year	Country	Study design	Data collection methods	Sampling	Sample size	Study population		Main outcome variables
									AFSWs (Yes=√, No=×)	Adult FSWs but contained AFSWs related information (Yes=√, No=×)	
(18)	Q1	21	1999	Thailand	Prospective cohort study	Administration of questionnaires, physical examinations, and laboratory evaluations	NG*	500	×	√	Associated factors of HIV-1 infection
(42)	Q1	22	2010	Thailand	Secondary analysis	Survey data	NG*	815	√	√	Violence, STIs
(24)	Q1	23	2009	India	Cross-sectional study	Interviewer-administered questionnaire	Respondent-driven sampling	326	√	√	Suicidal Behavior
(23)	Q1	24	2010	India	Integrated behavioural-biological assessments	Surveys, face to face interviews	Simple random sampling	3,852	×	√	Violence
(14)	Q1	25	2006	India	Cohort study	Interviews, HIV Serology, pelvic examination, physical Examination, blood testing	NG*	1359	√	√	Prevalence of HIV
(15)	Q2	26	2005	India	Cross-sectional study	HIV testing	NG*	362	√	√	Prevalence of HIV
(16)	Q2	27	2008	India	A community-based cross-sectional study	The Interview was followed by a collection of 4-5-mL blood samples using an unlinked anonymous method	NG*	580	√	√	Violence, Negotiating Skill, and HIV
(25)	Q1	28	2014	China	NG*	Survey	NG*	1022	√	√	Mental health problems, HIV

***NG=Not given**

Table 2: Utilization of RH services by under 20-years FSWs based onreview of the literature

Type of issues	% of service utilization	References
Over all RH care		
Sought healthcare in last one year	60.0	**(5)**
Littleor no access to health care	64.0	**(7)**
Specific health services		
a) ***Ever or current use of contraception***		
Unmet need of modern contraception	35.0	

Type of issues	% of service utilization	References
No contraceptive use ever	1.0 – 27.0	
Current use of contraception including condom	16.9 – 93.0	
Oral pill	0 – 38.0	
Emergency contraceptive pill	5.0 – 44.0	
Condom	• Consistent or inconsistent use: 69.0 to 97.0 • Only consistent use: 26.0 -55.0	
Intrauterine device (IUD)	0 -1.0	**(4, 6, 8-10)**
Implant	0 -0.3	
Female sterilisation	0 -0.3	
Injectable	0 – 1.0	
Diaphragm or a spermicide	0	
Dual protection (condom plus one other modern method)	7 – 34.0	
Any LARC ((long acting reversible contraception) includes an implant, injection, and IUD)	3.0	
Traditional methods (i.e., douching, herbal mixtures, withdrawal or rhythm)	6.0 – 54.0	
b) ***Abortion service use***		
Public hospital	23.0 – 50.0	
Private hospitals/clinics	13.0 -30.0	
Private unofficial small clinic	41.0	
Family planning clinics	1.0 – 17.0	**(6, 8)**
Take-home medication/ None, self-administered use oral mifepristone-misoprostol	3.0 – 6.0	
c) Maternal health services		
Use of antenatal, delivery or postnatal services	Not available	
d) ***HIV services***		
Received a medical consultation for HIV/ STI in the past year	79.0	
Received free condom services from STIs/ HIV intervention	66.0 – 77.0	**(6, 9)**
Received methadone/clean needles	6.5	
Received HIV testing(past year)	29.9	
Aware of HIV testing results	46.7	
e) ***Other STI services***		
Sought care for STI symptoms (past year)		
At private clinic or hospital	37.7	
At public clinic or hospital	25.5	**(9)**
Self-treatment for STI	52.4	

Table 3: Available health services or intervention with perceptions of benefits or barriers

Type of services with references	Benefits	Barriers
a) **General health services (for all)**		
• Government-led health services **(4, 7, 19)**	-	- Intentionally avoidance of this services due to fear of recognition of self-identity as AFSWs - judgmental attitudes of health providers - inconvenience - Lack of medical insurance - Too many patients, - Too many procedures with too many questions occupation, address, contact number, and marital status or partners - Can't bear such eyes and tones or verbal abuse - Not maintain confidentiality - Stigma - Health provider's demand for fees or charges for medicine although those should be free medicine - Inability to obtain the health permits required to access routine municipal testing for HIV and/or STIs - Distance to clinics
• Small private clinics **(4)**	- comfortable with the doctors' attitude - sometimes can bargain against the cost	- not reliable on th identity issue - not maintaining confidentiality - Stigma
• Pharmacy	- Reduce fear of identity as AFSWs	-
b) **Specific AFSWs based services or intervention**		
Free condom distribution to FSWs by field workers HIV/STIs prevention programmes**(4, 6, 8)**	- Received free condom services	- Don't know when health workers will come to our working venue
• Compulsory testing for HIV **(4)**		- The test results had not been communicated to the participants, and they were left not knowing their HIV status
• Young women who sell sex or YWSS programme: Conducted monthly interactive workshops for YWSS based on an Activity Pack consisting of 21 sessions organized into six modules. The aim was to encourage YWSS' interaction with each other, build their trust, confidence andskills, and encourage uptake of clinical services **(27)**	- Participants enjoyed the sessions and reported improved cooperation, willingness to negotiate with clients, and self-reflection about their futures. Staff found facilitating sessions easy and activities clear and appropriate	- Challenges included identifying appropriate referrals, initial recruitment of women in some sites, and managing participants' requests for financial compensation.

Type of services with references	Benefits	Barriers
• HIV prevention programme by Zanzibar Youth Education Environment Development Support Association (ZAYEDESA) using a clinic to provide services Key features of this programme: peer networks, empowerment and education support **(19)**	- Strengthened AFSW's sense of self-worth and their resilience against stigma	
c) **Other**		
• Self-detoxification experience**(4)**	**Reasons:** - According to drug user AFSWs, government-funded or private health facilities were difficult to find for treatment and information, or if found there was lack of confidentiality or safety concerns about these services which led them to have self-detoxification experience	
• Traditional healers**(19)**	- Mentioned to seek care from traditional health providers or witch doctors but not available more information	

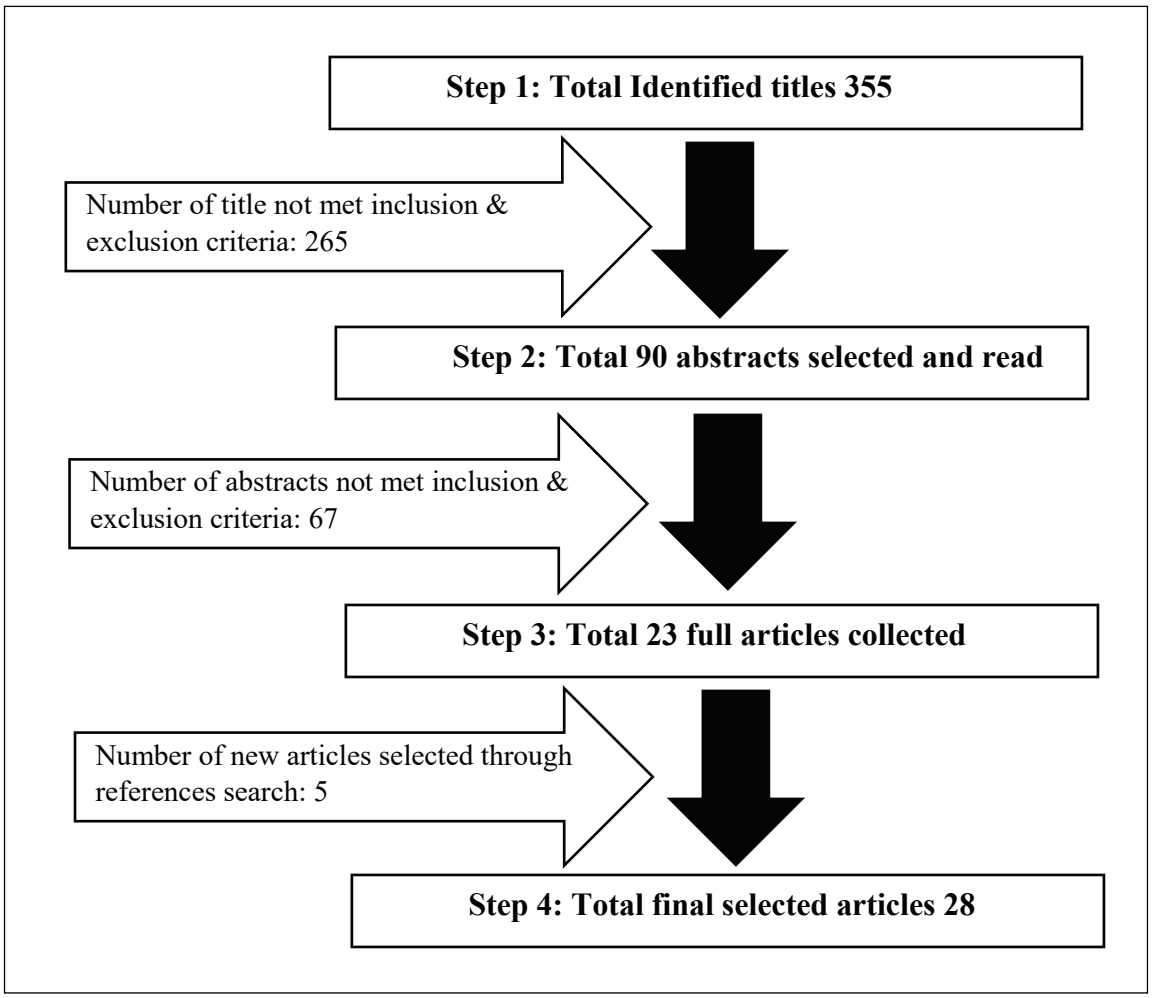

Figure 1: Article selection procedure

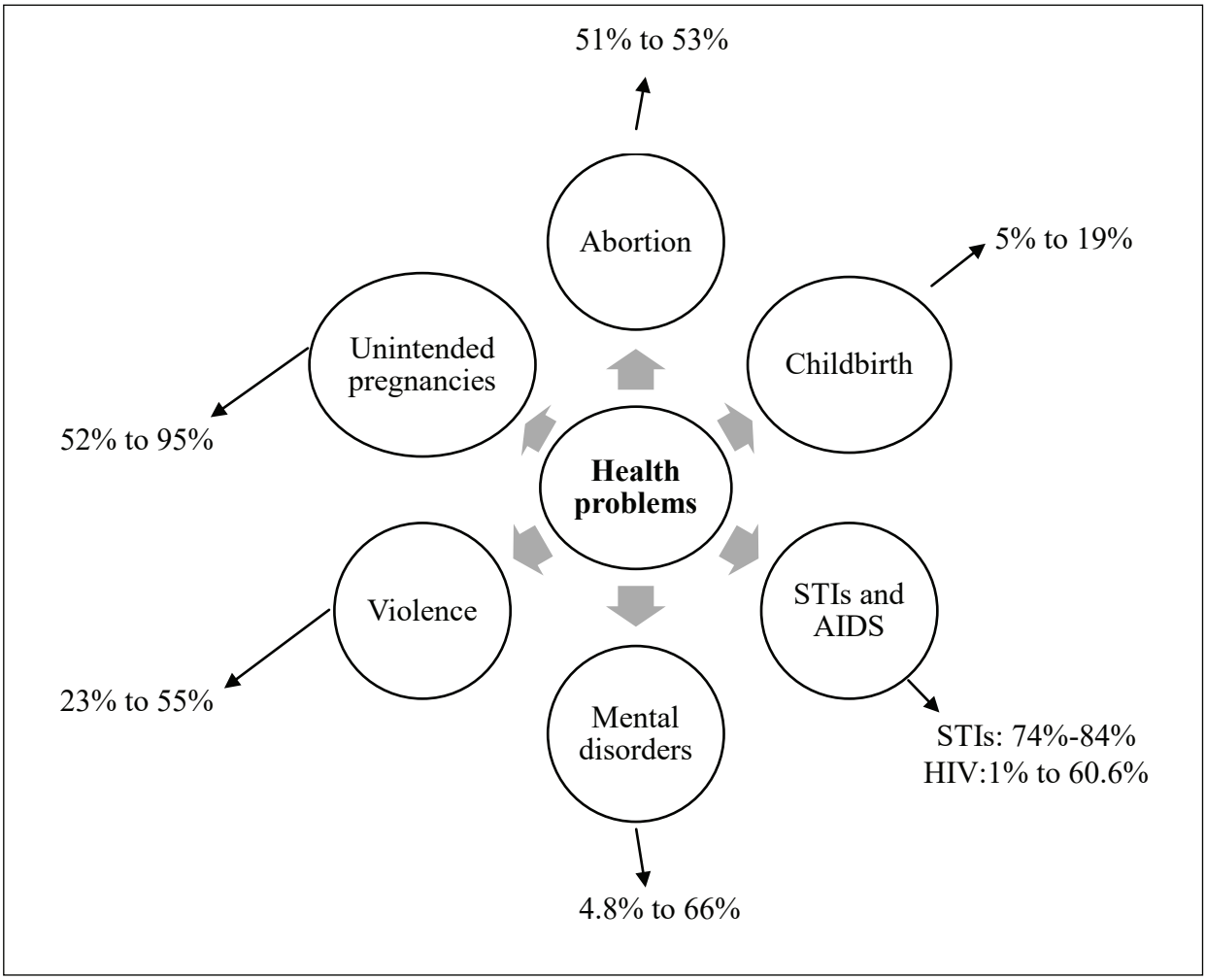

Figure 2: Major Health related issues of under 20-years female sex workers.

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