

HEALTH CONSEQUENCES OF SEX TRAFFICKING: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Sex trafficking is one of the most common forms of human trafficking globally. It is associated with health, emotional, social, moral and legal problems. The victims of sex trafficking when returned home are often ignored. This study aimed to explore the health consequences of sex trafficking among women and children.

Methods: Medline EMBASE, PsycINFO and CINAHL were systematically searched, from date of inception to July 2016 using a combination of Medical Subject Headings (MeSH) and text words on health risks and consequences of sex trafficking. Electronic searches were supplemented by searching the reference lists of included papers and citation tracking. Both Qualitative and quantitative primary studies published in English and exploring health-related problems among sex trafficked women and children were included in this review. Health outcomes considered were: physical, psychological or social risks and consequences of sex trafficking among women and children. No restrictions were applied to geographical regions as sex trafficking involves victims being trafficked between different countries, and within countries. Data were extracted and study quality independently appraised by two reviewers and narrative synthesis was conducted for this review.

Results: A total of fifteen articles were included covering health risks and well-being related to sex trafficking. Sexual and physical violence among victims such as rape and repetitive stress and physical injuries were common. The prevalence of STI (sexually transmitted infections) and HIV (human immunodeficiency virus) was also reported as high. Being trafficked at a young age, having been in brothels for a longer period and sexual violence and forced prostitution were linked with a higher risk for HIV infection. Physical health problems reported included headaches, fatigue, dizziness, back pain, memory problem, stomach pain, pelvic pain, gynaecological infections, weight loss, lesions or warts, unwanted pregnancies and abortions. The studies on mental health reported that depression, anxiety and post-traumatic stress disorder (PTSD) were commonly reported health consequences among sex trafficking victims.

Conclusion: there is a compelling need for interventions raising awareness about sex trafficking among young girls and women most at risk of being trafficked. Most studies in this review have focussed on the physical health problems of the trafficked victims although there is also remarkable mental burden amongst those victims. Key policy makers, government officials, public health officials, health care providers, legal authorities and non-governmental organisations (NGOs) should be made aware about the health risks and consequences of trafficking. Trafficking consequences should be recognised as a health issue and all the sectors involved including regulating bodies should collaborate to fight against sex trafficking. Due to the heterogeneity of the articles, no meta-analysis could be conducted.

Keywords: *sex trafficking, violence, rape, health consequences*

INTRODUCTION

Human trafficking is broadly defined as “the recruitment, harbouring, transportation, provision or obtaining of a person for labour or services, through the use of force, fraud or coercion for the purpose of subjection to involuntary servitude, peonage, debt bonding, or slavery”¹. According to the United Nations Office on Drugs and Crime (UNODC) sexual exploitation accounts for most (87%) of all trafficked victims². Sex trafficking leads victims into severe exploitative conditions generating huge profits for the traffickers³. Women and children are the largest groups of victims of sex trafficking according to UNODC 2006 data².

The trafficking of women and children for sexual exploitation not only violates their basic human rights, but both the (a) violence associated with trafficking process and (b) exploitative condition of sex trade have additional adverse effects on victims^{3,4}. During the stage of travel and transit in the trafficking process, victims are risk of starvation, drowning and suffocation (due to poor means of transportation), violence and communicable diseases⁴.

The directly observed health consequences of sexual servitude are sexually transmitted infections (STIs), which can create irreversible complications such as infertility, ectopic pregnancy, or in the long run, cervical cancer⁵. The victims often face physical assaults resulting in broken bones, stab wounds, frequent fainting, head injuries, cigarette burns and stress injuries. The commonly reported problems by the sex trafficked victims include general gynaecological problems like chronic pelvic pain, vaginal discharge and pain, pelvic inflammatory disease (PID), unwanted pregnancy and miscarriage. Other commonly occurring physical health symptoms include: headache, fatigue, dizziness, back pain, stomach or abdominal pain, difficulty in remembering⁶. In addition, sex workers are at higher risk of self-mutilation, suicide and homicide⁷. The psychological problems range from anxiety, depression, substance abuse (alcohol and illegal drugs), posttraumatic stress disorder (PTSD), eating disorders⁷, complex mental problems due to forced sex/rape, sexual exploitation and slavery⁸. In short, trafficked persons are abused physically, emotionally and mentally.

Although there are several primary studies conducted on sex trafficking, no systematic review has been conducted to date. Considering the magnitude of the problem this systematic review explores the physical, psychological and social health consequences of sex trafficking among women and children. The analysis assesses the associations between consequences of sex trafficking and characteristics of the victims including age, education, socio-economic status, or duration of sexual servitude.

MATERIALS AND METHODS

Study Design

This review considered quantitative, qualitative and mixed-methods studies that focussed on health risks and consequences of sex trafficking.

Primary studies published in English and exploring health-related problems among sex trafficked women and children were included in this review. Health outcomes considered were: physical, psychological or social risks and consequences of sex trafficking among women and children. No restrictions were applied to geographical regions as sex trafficking involves victims being trafficked (a) between different countries, and (b) within countries.

Search Strategy

A robust search strategy was developed using appropriate Medical Subject Headings (MeSH) terms and key words relating to 'sex trafficking', 'women and children' and 'health consequences'. These three blocks were combined using Boolean operators "OR" and "AND" where appropriate. These electronic searches were supplemented by searching the reference lists of included papers and citation tracking. The electronic databases Medline EMBASE, PsycINFO and CINAHL were systematically searched for relevant paper from date of inception to July 2016. The search strategy for Medline was developed and then adapted for other databases. Two authors independently scanned titles and abstracts of all the identified papers. Any discrepancies encountered were resolved by discussion within the team. The potentially eligible articles were selected and full texts were obtained for data extraction. Reference lists of included studies were also cross-checked to identify relevant papers.

Data Extraction

Two authors independently extracted data using a standard data extraction form that was developed, piloted and modified for the review. Data on study participants, methodology and outcome measures were extracted from the included studies (Table 2). The data extraction form was developed using the Centre for Reviews and Dissemination guidance template⁹, which records basic information first (authors, date, title of paper and journal details), then detailed information about each study i.e. study design, study location, aims of the study, study population, sample size and major findings.

Quality Assessment

The studies were assessed for their quality using the Critical Appraisal Skills Programme (CASP) checklist. The checklist assesses not only the methodology of the study but also its aims and objective, data collection methods, data analysis, findings, contribution of the study and whether the study is eligible for the review.

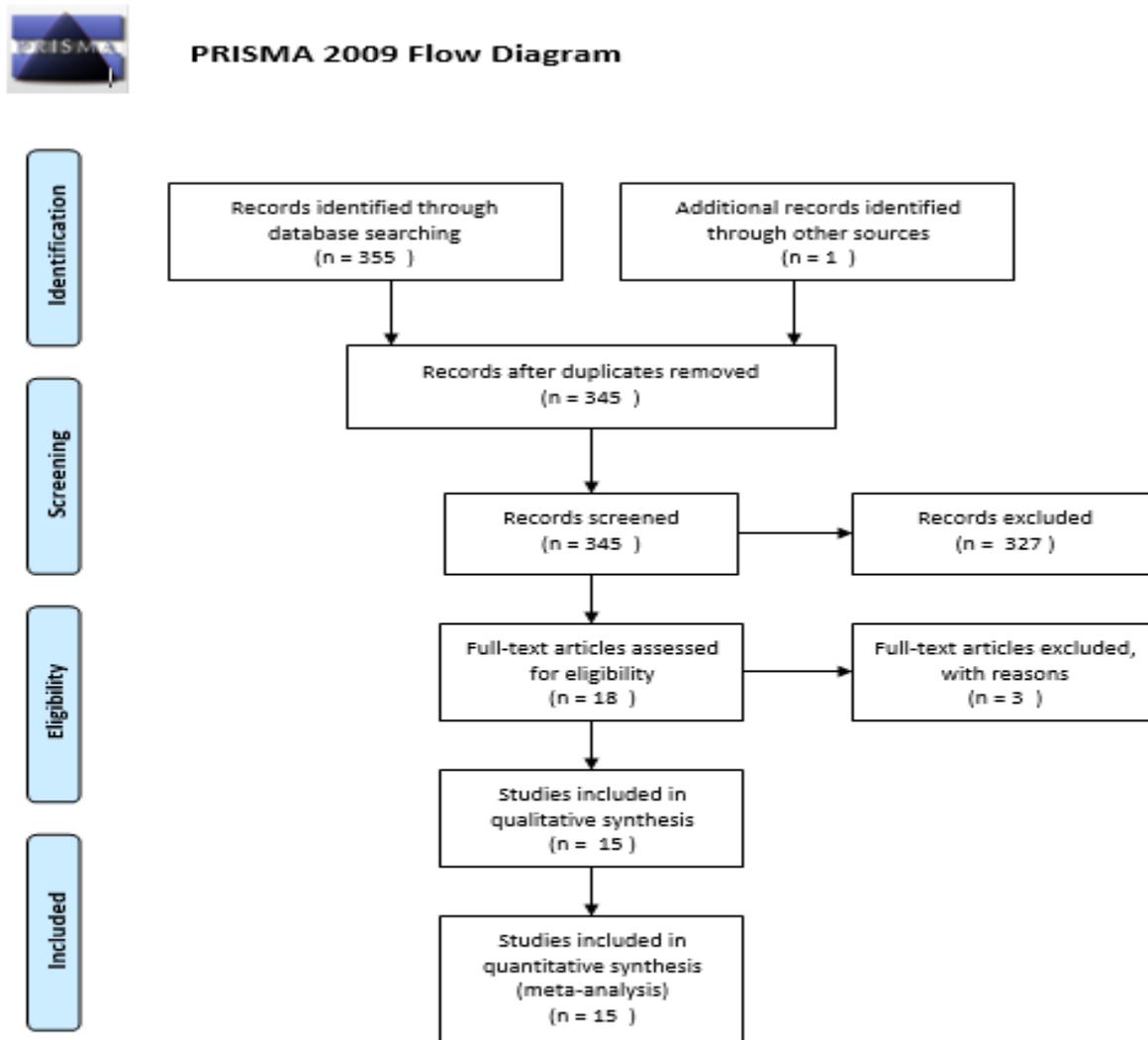
Data Synthesis

Information about study design and sample, definition and method of assessing human trafficking and health problems was summarised. Pooling of the data was deemed inappropriate due to the heterogeneity of the studies. Consequently the results of the review was narratively synthesized and presented by the various health consequences.

RESULTS

A total of 355 records were identified (Figure 1), and 11 duplicates were removed using reference manager software Mendeley. Screening of the remaining 344 titles and abstracts identified 17 potentially eligible studies. After the critical appraisal of full texts of these papers,

three papers were excluded due to insufficient information. Following full text screening, 15 papers were included in the review: 14 were from found through electronic database searching and one from reference searching.



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Figure 1: PRISMA Flowchart for identification and selection of papers

All studies were conducted between 2004 and 2013 and almost 50% included studies were conducted in India followed by Nepal. There were eight quantitative studies, two qualitative studies, one mixed-methods study and four case and medical records review papers. Data were collected by using structured and non-structured interviews. Key characteristics of the studies included in this review are presented in Table 1.

Table 1: Description of studies included in this review

Author/Year	Year study conducted	Location/Setting	Study design	Sample size/ method	Sampling	Mode of information collection	Outcome measured
Abas et al. 2013	2008	Moldova	Qualitative study	120 women	Consecutive sampling	Interviews	<ul style="list-style-type: none"> • Pattern of trafficking • Risk factors for mental disorders
Abdulraheem et al. 2010	2008	Nigeria	Mixed-methods	For Quantitative= 462 women and 100 children	Multistage cluster sampling	Questionnaires survey, interviews and FGDs	<ul style="list-style-type: none"> • Health and social problems of trafficking
Decker et al. 2012	2007	Thailand	Secondary quantitative data analysis	815 participants		Secondary data analysis	<ul style="list-style-type: none"> • Experiences of sexual risk and sexual and reproductive health outcomes
Dharmadhikari et al. 2009	2005	Nepal	Quantitative study	287 women		Case records reviewed	<ul style="list-style-type: none"> • Who are sex trafficked, the high prevalence of HIV and the risk of transmission of TB from and to others.
George et al. 2013	2010	India	Cross-sectional quantitative study	1137 female sex workers (FSW)		Questionnaire survey	<ul style="list-style-type: none"> • Prevalence of sex trafficking as mode of entry into sex work • associations between sex trafficking and HIV risk

						<ul style="list-style-type: none"> • recent violence experience, symptoms of sexual ill health
Gupta et al. 2006 2009	India	Qualitative analysis	61 repatriated women and girls in an NGO	Case narratives reviewed		<ul style="list-style-type: none"> • Potential mechanisms of HIV infection
Gupta et al. 2006 2011	India	Cross-sectional quantitative study	812 FSWs Respondent-driven sampling	Questionnaire survey		<ul style="list-style-type: none"> • prevalence of sex trafficking as a mode of entry into sex work • associations between sex trafficking and recent violence experiences • HIV vulnerability
Oram et al. 2008 2012	Moldova	Qualitative study	120 women Consecutive sampling	Interviews		<ul style="list-style-type: none"> • Physical health symptoms
Sarkar et al. 2008	India	Cross-sectional quantitative study	580 sex workers	Questionnaire survey		<ul style="list-style-type: none"> • understand sex- trafficking, violence, negotiating skills, and HIV
Silverman et al. 2006	India	Quantitative study	175 sex-trafficked women and girls	Case records and HIV test results		<ul style="list-style-type: none"> • prevalence & predictors of HIV
Silverman et al. 2007	Nepal	Medical and case records review	287 repatriated girls and women reporting being trafficked at an NGO	Secondary data analysis		<ul style="list-style-type: none"> • Prevalence of HIV infection • Trafficking-related predictors of HIV

Silverman et al. 2011	Not stated	India	Quantitative study	211 FSW	Questionnaire survey	<ul style="list-style-type: none"> • Prevalence of trafficking among HIV-infected FSWs • Association with sexual violence , sexual risk, and alcohol use
Tsutsumi et al. 2008	2005	Nepal	Cross-sectional quantitative study	162 trafficking survivors	Questionnaire survey	<ul style="list-style-type: none"> • mental health status including anxiety, depression, PTSD
Wirth et al. 2012	Not stated	India	Quantitative study	1814	Case and Medical records review	<ul style="list-style-type: none"> • Association between sex trafficking and HIV
Zimmerman et al. 2008	2004-2005	Belgium, Bulgaria, Czech Republic, Italy, Moldova, Ukraine & UK	Quantitative study	Consecutive sampling of 192 eligible women and girls who access post trafficking assistance provided by I/NGOs	Semi-structured questionnaire survey	<ul style="list-style-type: none"> • Health of trafficked women

Results of the Review

The evidence from the studies is presented under three broad categories: (a) human trafficking profile; (b) physical health outcomes; and (c) mental health outcomes

a. Human trafficking profile

Ten studies included in this review provided a profile of human trafficking^{4,10-19}. The ages of the trafficked victims ranged from 11 to 44 years^{4,10,11,13-19}. The duration of trafficking ranged from 9.6 to 54.3 months^{10,14,19}. Five studies reported on awareness education, whereby most of the trafficked victims were not aware about trafficking and the prevalence of HIV and most had low education levels^{4,12,13,16,19}. One study stated that many sexually abused trafficked women did not seek help due to their lack of awareness of what constitutes sexual violence, ignorance of trafficking crimes and self-blame and stigma¹². Three studies reported on traffickers, the most traffickers were strangers closely followed by friends, intimate partners, family members and acquaintances^{4,9,10,15}. In one study the perpetrators of trafficked women were reported to be educated and 'enlightened' people¹⁴. The factors that contributed to trafficking were reported as poverty^{4,17}, lack of parental guidance, parental discrimination against a girl child, cultural practices and attitudes, lack of knowledge of human trafficking, family disintegration, marital disharmony, domestic violence, school dropout, lack of government's monitoring of trade and working environments⁴. Five studies reported the tactics used to lure women into trafficking as economic opportunities, promise of good accommodation, visiting a relative or religious event, drugging and kidnapping, marriage proposals and brute force^{4,10,11,17,18}.

b. Physical health outcomes

Thirteen studies in our review reported on physical health outcomes^{4,9-12,14-17,19-22}. Six out of the thirteen studies reported on HIV prevalence among sex trafficking victims^{10,11,17,18,22,23}. The prevalence of HIV was found relatively high for sex trafficking victims^{11,17,18,22}. Being trafficked at an early age^{10,17,23}, having spent longer in brothels²², sexual violence²³ and forced prostitution were linked with a higher risk of HIV infection. Further factors resulting in higher risk of HIV infection were a lack of autonomy that lead to use of rape as coercing initiation into sex work, inability to refuse sex, inability to negotiate condom use, substance abuse as a coping strategy and inadequate access to healthcare¹⁰⁻¹¹. One study reported that tuberculosis was common among sex trafficked victims, and 88% of those infected with tuberculosis were HIV co-infected²⁰. Five studies mentioned sexual and physical violence among victims including constant rapes and repetitive stress and physical injuries^{4,12,17,18,23}. Other physical health outcomes reported were headaches, fatigue due inadequate rest, dizziness, back pain memory problem, stomach pain, pelvic pain, gynaecological infections, weight loss, lesions or warts, pregnancy and abortion and the most common of all were STIs^{4,11-13,16}. Sex trafficking victims reported substance abuse as a coping mechanism or a way to lose inhibitions, the drugs were commonly paid for by the clients^{11,15,17}.

c. Mental health outcomes

Four studies reported on mental health outcomes^{4,12,14,19}. The studies discussing the mental health outcomes of the victims of trafficking reported that depression, anxiety and PTSD were the most commonly occurring conditions^{4,12,14,19}. Almost all (83.6%) of victims reported that they suffered from depression at some point^{4,14,19}. Other behavioural problems encountered were hostility, aggression, social withdrawal, altered behaviour in front of men and no any motivation to see them^{4,12,14,19}.

Table 2: Key Findings of the Review

Author & year	Key Findings
Abas et al., 2013	<ul style="list-style-type: none"> • Mean age of trafficking was 25.4 years with average duration of trafficking 9.6 months (SD 5.6, range 2–31 months] • 68.3% of women were unemployed prior to trafficking and faced difficulties with daily activities (51.7%), accommodation (42.5%), employment (40.0%), finance (39.2%) • 79.2% reported abuse in childhood; 30.8% sexual, 65.8% physical & 71.7% emotional abuse. 54.2% of women had mental disorder • 35.8% of women had PTSD (alone or co-morbid), 12.5% had depression without PTSD and 5.8% had another anxiety disorder • Risk of mental disorder at 6 months post-return increased by childhood emotional abuse (AOR 3.30; 95% CI 1.36-7.99), physical abuse (AOR 3.82; 95% CI 1.63-8.97), and sexual abuse (AOR 3.66; 95% CI 1.45-9.20) even after adjusting pre-trafficking socio-economic position • Risk mental disorder at 6 months post-return increased by more unmet needs (AOR 2.21; 95% CI 1.71-2.84 • Significant risk factors for mental disorder at 6 months post-return: childhood sexual abuse (AOR 4.68, 95% CI 1.04-20.92); social support (AOR 0.64; 95% CI 0.52-0.79); unmet needs (AOR 1.80; 95% CI 1.28-2.52). • Duration of trafficking had borderline association with mental disorder
Abdulraheem & Oladipo 2010	<ul style="list-style-type: none"> • Mean age of trafficked women 18.6 years & 14.2 among children • 46.7% trafficked for commercial sex & 4.3% for sale to brothel <p>Influencing factors for trafficking:</p> <ul style="list-style-type: none"> • Poverty (58.7%), lack of parental education (60.4%), parental discrimination favouring boys over girls (51.4 %), cultural practices / traditional attitudes (35.6%), lack of knowledge of trafficking (33.6%), family disintegration (21.5%), family disharmony (32.6%), family in debt (7.3%), marital disharmony (15.8%) and domestic violence (14.2%) <p>Social & health problems are lack of access to birth control (90.6%), constant rape (80.8%), forced abortions & contraceptive use (79.5%), STIs (68.9%), repetitive stress injuries (75.4%), inadequate rest (66.4%), psychological abuse (90.5%), depression (83.6%), emotional trauma (72.4%) & sexual abuse in children (70%)</p>
Decker et al., 2011	<ul style="list-style-type: none"> • Trafficked FSWs more likely to report anal sex in month prior to survey (8.2% vs. 2.6%, $p=0.006$); adjusted analyses indicated a non-significant trend towards elevated risk (ARR 2.26, 95% CI 0.96, 5.31).

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- Trafficking was associated with recent condom failure (22.4% vs. 12.4%, ARR 1.80, 95% CI 1.15, 2.80) & condom non-use (8.2% vs. 3.1%, ARR 3.35, 95% CI 1.49, 7.52).
 - Lifetime experience of client condom refusal was prevalent (71.5%)
 - Compared to non-trafficked counterparts, sex trafficked FSWs were more than twice as likely to have experienced sexual violence at initiation to sex work (ARR 2.29, 95% CI 1.11, 4.72).
 - 36.6% experienced recent workplace mistreatment, those entering via sex trafficking were almost twice as likely (ARR 1.38, 95% CI 1.13, 1.67).
 - Having worked in multiple locations was more common among trafficked FSWs (69.4% vs. 41.2%, ARR 1.44, 95% CI 1.24, 1.68).
 - Trafficked FSWs were slightly more likely to report low levels of HIV knowledge than non-trafficked counterparts (38.8% vs. 27.4%); adjusted analyses indicated a non-significant trend towards elevated risk for limited HIV knowledge (ARR 1.13, 95% CI 0.92, 1.37).
 - 67.3% ever been tested for STI and 83% for HIV; no variation based on sex trafficking.
 - Trafficked FSWs three times more likely to have become pregnant since entering sex work (ARR 3.09, 95% CI 1.93, 4.95)
 - FSWs more likely to report abortion during sex work; 11.8% of trafficked FSWs vs 4.7% of non-trafficked women (ARR 2.83, 95% CI 1.48, 5.39).
 - STI symptoms in 4 months prior to survey reported by 65.5%.
 - A trend toward elevated risk for lesions or warts among trafficking victims was detected (17.9% vs. 11.8%, ARR 1.57, 95% CI 1.00, 2.45).
- Dharmadhikari et al., 2009**
- 17 TB cases were found out of 287 screened (5.9%), with 70% developing after release from forced sexual servitude.
 - 88% (15/17) of TB cases were HIV co-infected.
- George et al., 2013**
- Overall, 35.3% women were younger than 18 at entry into sex work, of remaining 64.7% over 18, 23.5% forced or lured into sex work
 - trafficked FSWs tended to be younger, involved in sex work for longer, unmarried; have a partner, no children, fewer dependants; savings, had sex work contract in past 6 months, listed sex work as only source of work
 - 61% FSWs were at risk of HIV, having confirmed at least 1 of 4 indicators
 - Women who were trafficked had a higher HIV risk compared with non-trafficked FSWs
 - They were more likely to have sex with more than 10 person and engage in sex work 4 days and above per week
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- 53% FSWs reported physical violence and 76.6% sexual violence in past six months.
 - Trafficked FSWs were more likely than other FSWs to have an increased risk of sexual, physical, sexual violence
 - 49% FSWs reported 1 or more symptoms of sexual ill health in past 6 months.
- Gupta et al.,
2009**
- Mean age at trafficking was 17 years and 57.4% were trafficked under false economic pretence
 - None were told they were going for sex work and rape was a tool for initiation into sex work
 - Chronic sexual violence, substance use and inability to refuse sex
 - Inability to access healthcare
 - 78.7% tested for HIV among these 45.8% were found to be HIV positive
- Gupta et al.,
2011**
- Women entering via sex trafficking almost twice as likely as other FSWs to report any form of violence (53.5% versus 39.1%; adjusted odds ratio [AOR], 1.93; 95% [CI], 1.32–2.81); physical or sexual violence (53.5% versus 38.4%; AOR, 1.99; 95% CI, 1.36–2.90); and threats of severe violence (11.5% versus 6.1%; AOR; 1.85; 95% CI, 0.99–3.50).
 - FSWs who had entered via trafficking were more likely than other FSWs to report having sex with 10 and above (41.0% versus 27.0%; AOR, 1.63; 95% CI, 1.11–2.41), engaging in sex work for 4 or more days (71.2% versus 53.3%; AOR, 1.76; 95% CI, 1.18–2.63), less likely to use FSW-targeted services in last 6 months (44.6% versus 59.1%; AOR, 0.60; 95% CI, 0.42–0.86).
 - Higher consistent condom use was observed among trafficked FSWs, (50.0% versus 37.9%), but not significant (AOR, 1.20; 95% CI, 0.88–1.92) observed and no significant differences in HIV knowledge were observed.
- Oram et al.,
2012**
- Mean age of women was 25.4 years and 67.5% were exploited for longer than six months, with 27.5% trafficked for longer than a year
 - 88.2% of the victims had completed at least compulsory lower secondary education, 68% had been unemployed prior to being trafficked.
 - 54.2% reported having experienced either sexual abuse or severe physical abuse as children.
 - Only 3.3% of women reported being free of symptoms in past 2 weeks.
 - 65% of women suffered from between 1 and 5 symptoms concurrently
 - 29% reported suffering from 6 or more symptoms concurrently
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- Women reported headaches (61.7%), stomach pain (60.9%), memory problems (44.2%), back pain (42.5%), loss of appetite (35%), tooth ache (35%).
 - Duration of exploitation, was strongly associated with prevalence of headache (OR 1.18, 95% CI 1.08-1.30, $p < 0.001$) memory problems (OR 1.09, 95% CI 1.02-1.17, $p = 0.012$).
 - Borderline results in respect of stomach pain (OR 1.06, 95% CI 0.99-1.30, $p = 0.122$), back pain (OR 1.05, 95% CI 0.98-1.12, $p = 0.165$).
 - Sex-trafficked women reported higher prevalence of headache (65.0% vs. 47.8%, $p = 0.133$) than labour-trafficked women.
 - Labour-trafficked women had more back pain (38.1% vs. 60.9%, $p = 0.052$).
 - Sex-trafficked women reported higher prevalence of gynaecological problems (16.5% vs. 0%), weight loss (28.9% vs. 13.0%) than labour-trafficked women, latter reported higher prevalence of vision problems (21.7% vs. 10.3%).
- Sarkar et al.,
2008**
- Mean age was 29.8 years and duration of sex work was 8.6 years.
 - 46% of the participants started sex work between age 16-20; 25% by age of 21-25; 10% initiated sex work at 15 years or below
 - 58% entertained 1-2 client(s) daily, followed by 3-4 clients (34%). Only 1% entertained seven or more clients, whereas the remaining 7% entertained 5-6 clients daily
 - 68% ($n=397$) sex workers joined profession voluntarily & primarily due to poverty
 - About 24% were cheated and forced to become sex worker against their will where as 8% were forced to join directly or indirectly by family
 - Trafficked FSWs faced more violence
 - 63% sex workers who faced violence ($n=166$) in early sex work were victims of trafficking; 15% faced physical, 55% sexual violence, 30% both.
 - About 29% sex workers faced violence early on in their career
 - HIV was 23% ($n=32$) among sex workers who faced sexual violence initially compared to 8% ($n=36$) among those who did not.
 - Most (55%) consumed alcohol; of those 73% consumed it in varying quantity, frequency before entertaining clients.
 - HIV associated with age ≤ 20 (OR=2.6; CI 1.2-5.6), trafficking (OR=1.9; CI 1.1-3.3), violence faced during early phase (OR=2.6), sexual violence (OR=3.2; CI 1.8-5.7), and forced sex (OR=3.0; CI 1.6-5.5)
- Silverman et al.,
2006**
- Mean age of women at trafficking was 16.8 years, mean time served in brothels at rescue was 15.8 months, with 69.3% serving in brothels for 1 year or less and 40.9% reporting brothel confinement
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- for 6 months. Young age at trafficking was associated with longer brothel duration.
- 65.9% of rescued women were trafficked to brothels at age 18
 - 22.9% rescued sex-trafficked women and girls tested positive for HIV
 - Mean age at trafficking was younger for HIV-positive (15.9 years) as compared to HIV-negative women and girls (17.2 years; $P = 0.06$).
 - Those HIV positive in brothels longer; mean brothel stay for those tested positive was 27.6 months & 11.6 months tested negative ($P = 0.001$).
 - Brothel duration predictor HIV status in models adjusted for age at trafficking (OR= 1.04, 95% CI: 1.01-1.06), among Indian trafficking victims, age at trafficking/Indian state of origin (OR= 1.03, 95% CI: 1.00-1.07) 3-4% increased risk of HIV for each extra month in brothel.
 - Girls trafficked ≤ 18 years had significantly longer periods in brothel (mean 18.5 months) than those trafficked 18+ (mean = 9.6 months; $P = 0.007$).
- Silverman et al., 2007**
- Mean age of trafficked women was 15.9 years and mean time served in brothel was 25.8 months
 - Tactics used by traffickers; inviting women to accompanying them for benign purposes (23.6%), drugging & kidnapping (16.4%) and false promises of marriage (7.1%)
 - 46.2% trafficked by strangers, 29.3% friends, 12% partners, 8.9% by relatives
 - 43% trafficked victims under 15 years were prostituted in multiple brothels
 - 13.2% trafficked victims at age 18+ prostituted in multiple brothels
 - Girls ≤ 14 more likely to be detained in more than one brothel (OR, 2.67; 95% CI, 1.12-6.33)
 - Increased risk HIV in those trafficked ≤ 14 vs >18 years (OR, 3.42; 95% CI, 1.51-7.75)
 - Marginal increase in risk of HIV with duration of brothel servitude (OR, 1.02; 95% CI, 1.01-1.04), for every additional month
 - Multiple brothels vs single one increased HIV risk (OR, 2.02; 95% CI, 1.00-4.09), but wide CI
 - Increased risk of HIV in Mumbai vs other destinations (OR, 6.27; 95% CI, 3.04-12.90).
- Silverman et al., 2011**
- Median age of trafficked women was 30 year and violence and sexual risk exposures highly prevalent during first month in sex work
 - Volume of male clients first month was high; 35.9% had sex with 17 clients per day
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- 41.7% HIV-infected FSWs reported being forced or coerced (i.e. trafficked) into sex work
 - Common perpetrators were co-workers (25.0%), acquaintances (25.0%), strangers (18.2%), family (9.1%). 50.2% entered sex work before age 18
 - 62% of HIV-infected FSWs reported sexual violence from male clients during the initial month after entry
 - 50.7% HIV-infected FSWs reported no use of condoms in their first month in sex work
 - 54% reported frequent alcohol use in month after entry; 59.2% used alcohol at first sex work episode
 - Those trafficked into sex work had significantly higher odds of sexual violence in initial month (AOR 3.1; 95% CI, 1.6–6.1), high volume of male clients (AOR, 3.3; 95% CI, 1.8–6.1), no use of condoms in same period (AOR, 3.8; 95% CI, 2.1– 7.1)
 - HIV-infected FSWs who entered sex work involuntarily had significantly higher odds of frequent alcohol use during their first month of sex work (AOR, 1.9; 95% CI, 1.0–3.4) alcohol use at their first sex work episode (AOR, 2.2; 95% CI, 1.2–4.0)
- Tsutsumi et al., 2008**
- Mean age of sex workers (range 11-38 years) was significantly higher than non-sex workers group (range 15-44 years) ($p < 0.01$)
 - Mean duration of being trafficked was 29.7 months (range 2-144 mths) in sex workers & 54.3 (range 1-168 months) in non-sex workers ($p < 0.01$).
 - Sex workers perceived their social and economic status to be worse than non-sex workers did ($p < 0.01$)
 - Prevalence of HIV higher in sex workers ($p < 0.01$); (29.6%) were infected compared to none in non-sex workers.
 - FSWs trafficked at older age were at higher risk (mean 16.6 vs 11.73) ($p < 0.01$)
 - 30.0% non-sex workers group trafficked by immediate family ($p < 0.05$)
 - Sex workers were above depression cut-off point, compared to 80.8% of non-sex workers ($p < 0.01$)
 - More (29.6%) sex workers screened positively for PTSD symptoms in past month than the non-sex workers group (7.5%) ($p < 0.01$)
- Wirth et al., 2013**
- Women started sex work on average at 24; 16% started sex work before age 18; 15% were forcibly prostituted; 0.7% started young & were forced
 - Forcibly prostituted women more likely to be separated/ deserted by husbands; have worked in brothel & experienced sexual violence in past year
 - Women entering sex trade younger were more likely to be unmarried, have more clients per week but charged less per sexual encounter
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- In unadjusted analyses, forced prostitution was associated with a nearly 3-fold increase in HIV (OR=2.74, 95% (CI): 1.41, 5.31).
 - Increasing age at entry into prostitution slight decrease in odds of HIV but non-significant after adjustment (for 1-year increase in age, OR=0.97, 95% CI: 0.91, 1.02).
 - Significant heterogeneity in association between forced entry into prostitution and HIV according to recent history of sexual violence (Wald P for interaction=0.01).
 - In presence of recent sexual violence, forced prostitution increased the odds of being HIV- infected 11-fold (OR=11.13, 95% CI: 2.41, 51.40).
 - No evidence for a direct effect of forced prostitution on HIV infection in the absence of recent sexual violence (OR=1.79, 95% CI: 0.74, 4.31).
 - Recent sexual violence did not modify the relationship between age at entry into prostitution and HIV infection (Wald P for interaction=0.41).
- Zimmerman et al., 2008**
- 59% reported pre-trafficking experiences of sexual or physical violence, 12% had a forced or coerced sexual experience before age 15
 - 26% reported more than 1 perpetrator especially father or stepfather
 - 95% reported physical or sexual violence whilst being trafficked
 - 76% reported sexual abuse, 57% reported physical injuries
 - 76% were restricted in travel or being 'able' to do as they wish
 - Physical symptoms: headaches (82%), easily tired (81%), dizziness (70%), pain (back 69%; stomach 61%; pelvic 59%), memory difficulty (62%), gynaecological infections (58%).
 - 63% had 10+ concurrent physical health problems
 - Mean scores for symptoms of depression, anxiety, hostility 2.09, 1.90, and 1.21, respectively, using Brief Symptom Inventory subscales.
 - Symptoms depression 39% suicidal thoughts in past 7 days; 57% PTSD.
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DISCUSSION

The devastating effect of sex trafficking on physical, mental and social wellbeing, especially on women and children, make this a key health issue as well as a human rights one²⁴⁻²⁷. Physical violence, unsafe sexual practices, brutal working and living conditions, poor access to health services result in a reduced health status of trafficked women and children. There are multiple health risks associated with trafficking, with consequences often overlapping and intertwining. Trafficked persons are abused physically, emotionally and mentally and such experiences can have long-term effects on victims' health. The most prevailing physical health issues for which trafficked women sought help for in the included studies ranged from neurological exertions, like headaches, dizzy spells, or memory loss, to gynaecological

problems like lower abdominal pain; symptoms like fatigue, loss of appetite, weight loss; persistent back pain, to specific infectious diseases like STIs, HIV and tuberculosis co-infection. The physical health risks negatively affect the mental health of the victims as well.

The review identified significantly higher proportion of sex-trafficked women and girls tested positive for HIV infection. This finding is consistent with the finding of high of HIV in Burmese Shan women and young girls trafficked to brothels in Thailand²⁸.

Sex trafficking adds to the pandemic heterosexual spread of HIV. Moreover, the studies included in this review suggested that younger girls who were trafficked at the age of 14 years or even younger were more likely to have contracted HIV infection than those trafficked at a (slightly) older age. The younger girls are vulnerable in multiple ways. Foremost, their biological vulnerability due to larger areas of cervical ectopy attributable to repeated sexual trauma to an immature genital tract during sexual intercourse may be a factor contributing to the increased risk for HIV infection and other STIs among younger girls^{22,29}. The increased vascularity of the immature cervix in younger girls is also prone to contract Human Papilloma Virus (HPV) infection which may finally lead to cervical cancer. Younger girls are preferred by male brothel clients due to the persisting myth that sex with young girls and virgins are a remedy for HIV/AIDS³⁰.

At the same time, younger girls often possess inadequate information on the infectious nature of STIs and HIV, the concept of safe sex (with condom use) or are unable to negotiate condom use due to language barriers and threats from the brothel owners, all this makes them increasingly vulnerability to HIV and other infections^{22,28,30-32}. It seems younger girls are not only more susceptible and easier victims to the traffickers generating more income but they are also a more vulnerable group in terms of health risks. Considering all these circumstances, increased efforts and programmes should be offered to prevent sex trafficking in younger girls, for the victims themselves but also for the benefit of the wider public health. In addition there is a need for more pro-active rescue operations of women from brothels of those already trafficked.

Apart from identifying life-threatening diseases among sex-trafficked population, the studies highlight violence as a measure for enforced conversion of innocent victims into sex workers and continuous violence to maintain control over victims during their confinement in brothels^{3,8,33,34}. They were also coerced to use contraceptives and endured forced abortions. There is evidence that the victims were not given proper care or taken to appropriate health care services for treatment during the forced sexual servitude, irrespective of their illness or injuries. Often they were forced to continue their work when ill. Due to lack of treatment on time, the curable symptoms of STIs such as Gonorrhoea and Chlamydia are left untreated potentially leading to PID with further complication such as chronic pelvic pain, ectopic pregnancy and infertility⁴.

Trafficked women and girls also face severe psychological trauma once entrapped in the criminal world of sex trafficking^{8,12,34}. Already shattered with pre-trafficking brutal experiences, the victims' mental health further deteriorates with continuous violence and mental and physical torture in the brothels¹¹. To cope with the extreme stress, the victims adapt different coping mechanisms such as smoking and drinking which can become an addiction¹¹. The vulnerability of getting tuberculosis in sex-trafficked women and girls²⁰ can also be described by these risk-taking behaviours either in the form of forced or voluntary consumption of drugs, alcohol and tobacco. Moreover, the substance use may intensify the risk of HIV infection among the victims of sex trafficking¹¹.

Trafficked women and children may suffer from a range of mental health disorders varying from hopelessness, difficulty in sleeping, fearfulness, self-guilt and low self-esteem, lack of motivation, aggression and anger, altered behaviour in front of males, anxiety, sometimes as severe as PTSD, depression with suicidal thoughts and even suicidal attempts^{3,8,33-34}. The review has identified severe depression, anxiety and PTSD as the most prominent mental health disorders suffered by the victims of sex trafficking. One of the studies reports depression to be higher among sex-trafficked females than those trafficked for other non-sexual work¹⁹. It is worth highlighting that the psychological trauma persists among the victims even after being taken out of the threatening environment. Consequently, the rehabilitation centres should provide extensive counselling and behavioural therapies in addition to the physical rehabilitation to boost their self-esteem and regain their confidence and provide continue professional help and support to overcome the situation.

STRENGTHS & LIMITATIONS:

This review carried out a systematic search to identify all the relevant papers that explored the health risks and consequences of sex trafficking among women and children. Four large bibliographical databases, Medline, EMBASE, PSYCINFO and CINAHL were searched to identify relevant papers with additional searching of references, without geographical restrictions. This review is up-to-date until June 2016 and therefore also includes the citation search studies. This review could not perform a meta-analysis because of the heterogeneity of the data (derived from mixed-methods).

The word “prostitution” had to be deleted in the search strategy as it generated enormous number of additional irrelevant articles that addressed non-trafficked population. Consequently it is possible that some relevant articles may have been missed. Moreover, the population in most of the included studies were trafficked females and children who were rescued and at the time residing in the rehabilitation homes or shelters run by NGOs, so the health consequences and experiences reported might differ from those trafficked but not rescued. Also the use of case notes and medical records in majority of the studies might be prone to errors by the case recorders and likely to have recall bias by the trafficking survivors. Nevertheless, the implications can be taken into consideration for planning preventive activities against sex trafficking for this vulnerable group; strengthening the knowledge about migration, and increasing awareness about trafficking and its consequences in the most affected areas; and giving more emphasis on the care, reintegration and rehabilitation of victims going through the gravest consequences of sex trafficking. The search strategy did not include hand-searching of selected journals and excluded non-peer reviewed literature.

CONCLUSION

Trafficking in persons is a very complex and multi-causal phenomenon that predominantly affects women and children and is increasingly recognised as a global public health problem. The practices of women and child trafficking place the victims at extreme risk of physical danger, psychological trauma, depression, sexual abuse, STIs including HIV. Most studies in this review focussed on the physical health problems of the trafficked victims although a large mental health burden exists in the post trafficking life of the victims. Even after release from the sexual servitude, the higher level of psychological problems can be attributable to the development of lack of resilience and poor mental functioning during their time in the brothel. Subsequently, this problem may affect a quick recuperation and early reintegration of these victims into their original community. Key policy makers, government officials, public health

officials, health care providers, legal authorities and NGOs should be made aware about the health risks and consequences of trafficking. Trafficking consequences should be recognised as a public health issue and all the related sectors including regulating bodies should coordinate their efforts to fight against sex trafficking. Further research is also needed to identify the similarity and differences between health risk and problems faced by trafficked and non-trafficked women and girls in different settings.

COMPETING INTERESTS

The authors declare that they have no competing interests

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AUTHORS' CONTRIBUTIONS

PS and EvT developed the review protocol. AP and AS contributed to the searching and search strategy. All authors assisted in the interpretation of data, commented on drafts and approved the final submission.

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