*Epidemiology and Psychiatric Sciences* (2016), **25**, 317–341. © Cambridge University Press 2016
doi:10.1017/S2045796016000135

SPECIAL ARTICLE

# Prevalence and risk of violence and the mental, physical and sexual health problems associated with human trafficking: an updated systematic review

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**Background.** To update and expand on a 2012 systematic review of the prevalence and risk of violence and the prevalence and risk of physical, mental and sexual health problems among trafficked people.

**Method.** Systematic review and meta-analysis. Searches of 15 electronic databases of peer-reviewed articles and doctoral theses were supplemented by reference screening, citation tracking of included articles and expert recommendations. Studies were included if they reported on the prevalence or risk of violence while trafficked, or the prevalence or risk of physical, mental or sexual health outcomes among people who have been trafficked. Two reviewers independently screened papers for eligibility and appraised the quality of included studies.

**Results.** Thirty-seven papers reporting on 31 studies were identified. The majority of studies were conducted in low and middle-income countries with women and girls trafficked into the sex industry. There is limited but emerging evidence on the health of trafficked men and the health consequences of trafficking into different forms of exploitation. Studies indicate that trafficked women, men and children experience high levels of violence and report significant levels of physical health symptoms, including headaches, stomach pain and back pain. Most commonly reported mental health problems include depression, anxiety and post-traumatic stress disorder. Although serological data on sexually transmitted infections are limited, women and girls trafficked for sexual exploitation self-report symptoms suggestive of a high prevalence of infections. Limitations of the review include methodological weaknesses of primary studies and some differences in definition and operationalisation of trafficking, which hinder comparability and generalisability of the results.

**Conclusions.** There is increasing evidence human trafficking is associated with high prevalence and increased risk of violence and a range of physical and mental health problems. Although more studies have emerged in recent years reporting on the health of trafficked men and people trafficked for forms of exploitation other than in the sex industry, further research is needed in this area. Appropriate interventions and support services to address the multiple and serious medical needs, especially mental health, of trafficked people are urgently needed.

*Received 17 November 2015; Accepted 28 February 2016; First published online 12 April 2016*

**Key words:** Mental health, minority issues and cross cultural psychiatry, systematic reviews, violence, women.

## Introduction

Human trafficking is a serious crime and human rights violation that often involves extreme forms of abuse and deprivation. Defined as the recruitment and movement of individuals – most often by force, coercion or deception – for the purposes of exploitation (United Nations, 2000), it is estimated to affect the lives of over 20 million people worldwide (International Labour Organisation, 2012). Individuals are trafficked for sexual exploitation but also for domestic servitude and forced labour in a range of industries, including factory work, agriculture, construction, commercial fishing and street begging. The violence, abusive living conditions and restrictions on movement commonly associated with trafficking pose serious risks to trafficked people's health, especially mental health. Although evidence on the psychological sequelae of trafficking is limited, studies suggest a high prevalence of depression, anxiety and post-traumatic stress disorder (PTSD) among men and women in contact with post-trafficking support organisations (Turner-Moss *et al.* 2014; Kiss *et al.* 2015).

A systematic review conducted in 2012 identified 19 studies reporting on the health risks and problems experienced by women and girls trafficked for sexual

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exploitation and found a high prevalence of physical and sexual abuse; depression; PTSD; physical symptoms such as headache, back pain and memory loss; and sexually transmitted infection (STI) (Oram *et al.* 2012*b*). The review also highlighted the near-complete absence of evidence at that time on the health of trafficked men and of individuals trafficked for labour exploitation. However, 17 of the 19 included studies were published within the 5 years prior to the review, suggesting that this is a new and quickly developing research area. Recognising this rapid emergence in studies on health and trafficking, this review was conducted to provide a fuller and up-to-date synthesis of the evidence. Specifically, the systematic review aimed to establish:

(a) The prevalence of violence and other health risks experienced by trafficked people;
(b) The prevalence and types of physical, mental and sexual health problems among trafficked people;
(c) Risk factors associated with physical, mental and sexual health problems among trafficked people.

## Methods

The review followed PRISMA guidelines (Moher *et al.* 2009), and is registered with PROSPERO (registration CRD42015023564 (http://www.crd.york.ac.uk/prospero)). The PRISMA statement and protocol for this review are available as Supplementary information.

### *Study selection criteria*

Studies were eligible for inclusion if they: (a) included male or female adults or children who self-identified or were believed by the research team to have been trafficked; (b) measured the prevalence and/or the risk of physical, psychological or sexual violence whilst trafficked, and/or reported on the prevalence or risk of physical, mental, or sexual and reproductive health or disorder; and (c) presented the results of published peer-reviewed or doctoral research based on the following study designs: cross-sectional survey; case–control study; cohort study; case series analysis; experimental study with baseline measures for the outcomes of interest; or secondary analysis of organisational records. If studies included trafficked people as a subset of a broader sample, data on trafficked people must have been reported separately. No restrictions were placed on language, country setting or the method of measuring health risks and outcomes. Qualitative studies, editorials, opinion pieces and reviews were excluded. If the same data were reported by multiple papers, the paper with the largest N relevant to the review objectives was included.

### *Search strategy*

We undertook electronic searches of ten databases indexing peer-reviewed academic literature and five databases and websites indexing theses and dissertations (including MEDLINE, EMBASE and PsycINFO – see Supplementary information for full list). All search terms from Oram *et al.*'s systematic review were included, plus additional terms for trafficking and specific mental disorders (see Supplementary information). The date limits for searches were 1 January 2011 (the upper limit of the original review) until 17 April 2015. Electronic searches were supplemented by reference list screening and citation tracking using Web of Science and Google Scholar. Twenty-eight experts were asked to nominate additional papers that may have been eligible for inclusion; responses were received from eleven.

### *Data extraction and quality appraisal*

Two reviewers (LO and SH) independently screened titles and abstracts; disagreements were resolved by consensus or by reference to a third reviewer (SO). If it was unclear whether a reference met the inclusion criteria it was retained for full text screening. Two reviewers (LO and SH) independently assessed the full text of potentially eligible studies; disagreements were again resolved by consensus or with the assistance of a third reviewer (SO). If studies collected data on prevalence or risk of violence or health outcomes among trafficked people but did not report it, information was requested from the study authors.

One reviewer (LO) extracted data on study design, sample characteristics, the definition and method of assessing human trafficking, outcome measures and outcomes of interest into standardised electronic forms. Where possible, outcome measures were extracted separately by gender, age and type of exploitation. Data were extracted by a second reviewer (SH) from a random sample of 10% of papers: there were no discrepancies between reviewers and therefore no further dual extraction was undertaken.

The quality of included studies was independently appraised by two reviewers (LO and SH) using criteria adapted from the Critical Appraisal Skills Programme (CASP, 2014). The quality appraisal checklist included 15 items assessing study quality, including risk of selection and measurement bias (see Supplementary material). Each item is rated with a grade between 0 and 2, giving a maximum total score of 30 and maximum subscores for risk of selection and measurement bias of 6

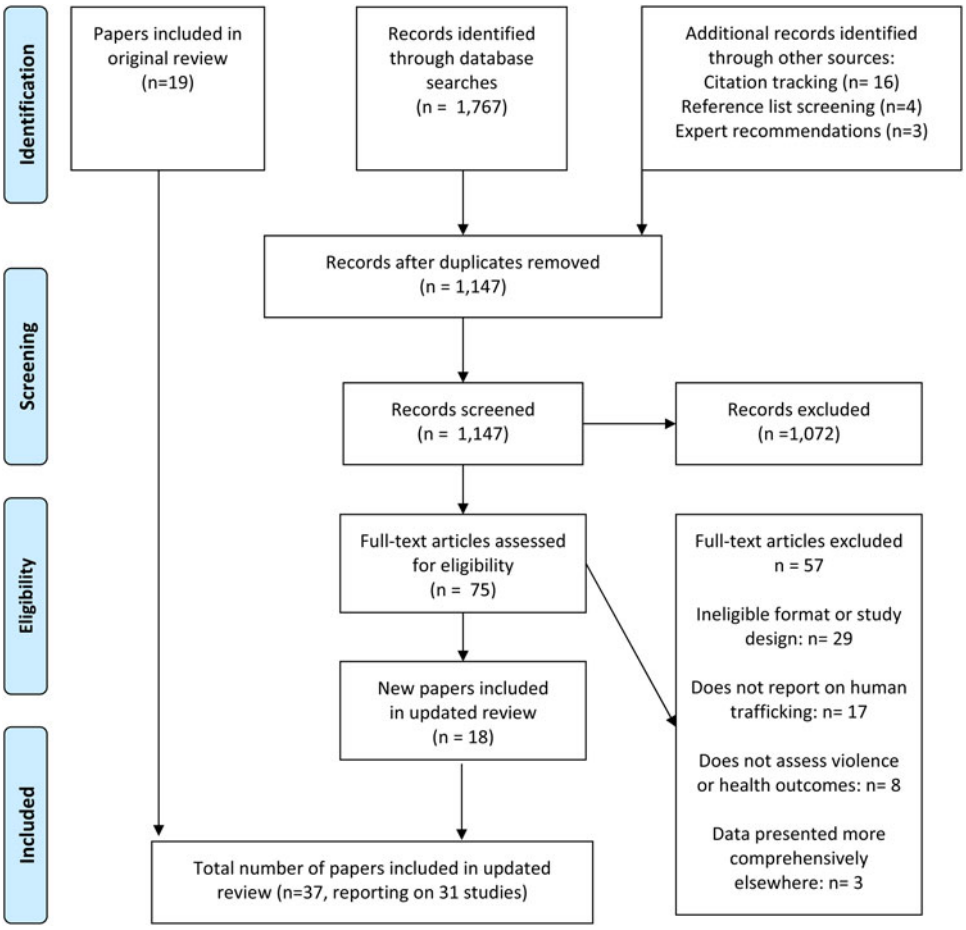


**Fig. 1.** PRISMA Flow Diagram for systematic literature review update (January 2011 to >17 April 2015).

and 6, respectively. Reviewers compared scores and any discrepancies in component ratings were discussed and resolved. Studies scoring lower than 50% on questions relating to selection bias or measurement bias were judged to have a relevant risk of bias.

### *Data analysis*

Prevalence estimates and odds ratios (ORs) were calculated, disaggregated by gender and type of exploitation where possible. Where multiple papers reported results from the same study, only the most definitive results were included for each outcome of interest. Pooled prevalence estimates and ORs (with corresponding 95% confidence intervals) were calculated when comparable data were available from validated instruments for three or more studies. All pooled estimates used random effects meta-analysis. Heterogeneity was estimated using the $I^2$ statistic, which describes the percentage of variation across studies that is due to heterogeneity rather than chance (Higgins & Thompson, 2002).

## Results

The study selection process is described in Fig. 1. Thirty-seven papers were ultimately included in the review, reporting on 31 studies and 15 085 participants. Two of the included papers were published in languages other than English.

### *Key features of included studies*

Key characteristics of included studies are summarised in Table 1. Eighteen of the 31 included studies were conducted in South and Southeast Asia, nine in Europe, three in Latin America and one in North America. Twenty-five studies were conducted with women and girls, predominantly in situations of sexual exploitation (22 of 25). Six studies reported on the experiences of trafficked men and children. Half of the studies (16/31) were conducted with participants recruited from post-trafficking support services; 14 were carried out in alternative settings with women in the sex industry; 11 also included sex workers not identified by any official or non-governmental agency

**Table 1.** *Characteristics of included studies* (*31 studies, reported by 37 papers*)

| Author and year | Study design | Sample | Outcomes of interest | Method of assessing outcomes | Definition of trafficking | Country | Quality score* |
|---|---|---|---|---|---|---|---|
| Abas *et al.* (2013) | Cross-sectional survey conducted 2–12 months post entry | *N* = 120 sexually and labour exploited females who accessed NGO post-trafficking support services | Mental health | Mental health assessed at baseline by a psychiatrist using ICD-10 criteria and at follow-up by a psychiatrist using the Structured Clinical Interview (SCID) for DSM-IV Axis I Disorders | Defined solely as female post-trafficking service users | Moldova | Total: 23/30 Selection quality: 4/6 Measurement quality: 4/6 |
| Oram *et al.* (2012*a*) | Cross-sectional survey | *N* = 120 sexually and labour exploited females who accessed NGO post-trafficking support services | Physical health | Physical health assessed using adapted version of the Miller Abuse Physical Symptoms and Injury Survey | Female post-trafficking service users screened using standardised questionnaires, in accordance with UN Protocol | Moldova | Total: 23/30 Selection quality: 4/6 Measurement quality: 4/6 |
| Ostrovschi *et al.* (2011) | Cohort study; mental health assessed 1–5 days after registering with support service and re-assessed 2–12 months later | *N* = 120 sexually and labour exploited females who accessed NGO post-trafficking support services | Mental health | Mental health assessed at baseline by a psychiatrist using ICD-10 criteria and at follow-up by a psychiatrist using the Structured Clinical Interview (SCID) for DSM-IV Axis I Disorders | Defined solely as female post-trafficking service users | Moldova | Total: 21/30 Selection quality: 4/6 Measurement quality: 3/6 |
| Churakova (2014) | Case–control study | *N* = 78 sexually exploited females who accessed NGO post-trafficking support services | Mental health | Mental health assessed using the Beck Depression Inventory (depression) and the Clinician-Administered PTSD Scale (PTSD) | Defined solely as female post-trafficking service users | Russia | Total: 11/30 Selection quality: 1/6 Measurement quality: 2/6 |
| Crawford & Kaufman (2008) | Case-file review (20 of 80 eligible records randomly selected for review) | *N* = 20 sexually exploited adolescent females receiving post-trafficking NGO support | Physical health; Sexual health | Physical and sexual health problems assessed by caseworkers who had 'only basic training' and 'not based on standard diagnostic criteria' | Defined solely as female child and adolescent post-trafficking service users | Nepal | Total: 14/30 Selection quality: 2/6 Measurement quality: 0/6 |

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|---|---|---|---|---|---|---|---|
| Cwikel *et al.* (2004) | Case–control study | $N = 102$ sexually exploited females (47 awaiting deportation and 55 working in brothels). 92 women are defined as trafficked: 47 from deportation sample and 45 from brothel sample | Violence; Physical health; Mental health; Sexual health | Violence assessed using standardised (non-validated) questions. Physical health assessed using standardised (non-validated) questions. Sexual health (STI) assessed using standardised (non-validated) questions. Mental health assessed using the Centre for Epidemiologic Studies Depression Scale (depression) and the PSTD Checklist-Civilian Version (PTSD) | Illegally working in Israel in the sex industry | Israel | Total: 15/30 Selection quality: 0/6 Measurement quality: 2/6 |
| Dal Conte & Di Perri (2011) | Case-file review | $N = 1400$ females brought to sexual health clinic by NGO post-trafficking support services | Violence; Sexual health | Sexual health (HIV, syphilis, Hepatitis B, gonorrhoea, chlamydia and trichomonas) based on reported results from serological tests | Defined solely as female patients brought in by trafficking support services | Italy | Total: 13/30 Selection quality: 2/6 Measurement quality: 3/6 |
| Decker *et al.* (2011) | Cross-sectional survey | $N = 815$ female sex workers working in a variety of sex work venues. 85 women are defined as trafficked: 13 reported being forced or deceived into sex work | Violence; Sexual health | Workplace violence/ mistreatment in the past week assessed using standardised (non-validated) questions. Sexual health assessed using syndromic STI assessment | Entry into sex work under the age of 18 and/or due to being forced or deceived | Thailand | Total: 21/30 Selection quality: 4/6 Measurement quality: 2/6 |
| Decker *et al.* (2009) | Cross-sectional survey | $N = 92$ female sex workers accessing healthcare from an NGO. 64 women are defined as trafficked; 38 reported being forced or deceived into sex work | Violence | No details provided for the instrument/questions used to assess violence from clients in the past month | Entry into sex work under the age of 18 and/or due to being forced or deceived | Nicaragua | Total: 12/30 Selection quality: 0/6 Measurement quality: 2/6 |
| Di Tommaso *et al.* (2009) | Case-file review | $N = 4.559$ sexually exploited females who accessed NGO post-trafficking support services | Violence | No details provided for the instrument/questions used to assess violence | Defined solely as female post-trafficking service users | Multi-country | Total: 16/30 Selection quality: 2/6 Measurement quality: 2/6 |

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**Table 1.** *Continued*

| Author and year | Study design | Sample | Outcomes of interest | Method of assessing outcomes | Definition of trafficking | Country | Quality score* |
|---|---|---|---|---|---|---|---|
| Falb *et al.* (2011) | Case-file review | *N* = 188 sexually exploited females who accessed NGO post-trafficking support services | HIV/AIDS | HIV/AIDS assessment based on the results of serological tests as reported in case files | Entry into sex work under the age of 18 and/or due to being forced, coerced or deceived or abducted | India | Total: 6/30<br>Selection quality: 0/6<br>Measurement quality: 2/6 |
| George & Sabarwal (2013) | Cross-sectional survey | *N* = 1137 female sex workers associated with local NGO.<br>574 were defined as trafficked.<br>173 were coerced or forced into sex work | Violence; Sexual health | Violence assessed using standardised, non-validated questions.<br>Sexual health assessed based on self-reported symptoms | Entry into sex work under the age of 18 and/or due to being forced or coerced | India | Total: 24/30<br>Selection quality: 4/6<br>Measurement quality: 5/6 |
| Goldenberg *et al.* (2013) | Cross-sectional survey | *N* = 214 female sex workers working in a variety of sex work venues.<br>31 defined as trafficked | Violence; Sexual health | Violence assessed using standardised (non-validated) questions.<br>Sexual health (HIV, gonorrhoea, syphilis and chlamydia) assessment based on reported results from serological tests | Involuntary sex work due to being sold, traded or forced to exchange sex at the orders of another person | Mexico | Total: 19/30<br>Selection quality: 4/6<br>Measurement quality: 3/6 |
| Gray *et al.* (2012) | Cross-sectional survey | *N* = approximately 24 sexually and labour exploited females who accessed NGO post-trafficking support services | Mental health | Mental health assessed using the Hopkins Symptoms Checklist-25 (depression, anxiety) | Defined solely as female post-trafficking service users | Cambodia | Total: 13/30<br>Selection quality: 0/6<br>Measurement quality: 3/6 |
| Gupta *et al.* (2011) | Cross-sectional survey | *N* = 812 female sex workers participating in a community-based HIV study.<br>157 women are defined as trafficked; 60 reported being forced or deceived into sex work | Violence | Violence assessed using questions modified from the Conflict Tactics Scale | Entry into sex work under the age of 18 and/or due to being lured, cheated or forced | India | Total: 23/30<br>Selection quality: 3/6<br>Measurement quality: 3/6 |

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| Gupta *et al.* (2009) | Case-file review | *N* = 61 sexually exploited females who accessed NGO post-trafficking support services | HIV/AIDS | HIV/AIDS assessment based on the results of serological tests (ELISA or Western Blot) as reported in case files | Defined solely as female post-trafficking service users | India | Total: 15/30<br>Selection quality: 3/6<br>Measurement quality: 2/6 |
| Joarder & Miller (2014) | Cross-sectional survey | *N* = 476 illegal migrants. 386 considered trafficked | Violence | Violence assessed using standardised (non-validated) questions to individual or head of household | Experience of fraud, coercion, deceit, violation of contract, sexual assault or exploitation whilst working abroad | Bangladesh | Total: 14/30<br>Selection quality: 3/6<br>Measurement quality: 3/6 |
| Kiss *et al.* (2015) | Cross-sectional survey | *N* = 1015 men, women and children trafficked into a range of sectors | Physical health; Mental health; Violence | Violence assessed using standardised, non-validated questions.<br>Physical health assessed using adapted version of the Miller Abuse Physical Symptoms and Injury Survey<br>Mental health assessed using the Hopkins Symptoms Checklist-25 (depression, anxiety) and the Harvard Trauma Questionnaire (PTSD) | Defined solely as post-trafficking service users | Cambodia, Thailand, Vietnam | Total: 27/30<br>Selection quality: 5/6<br>Measurement quality: 5/6 |
| Kissane *et al.* (2014) | Cross-sectional survey | *N* = 29 asylum seekers accessing support of NGO.<br>Eight defined as trafficked | Mental health | Complex posttraumatic stress disorder assessed using Structured Interview for Disorders of Extreme Stress | Defined as victims of human trafficking based on United Nations and Home Office definitions | UK | Total: 20/30<br>Selection quality: 2/6<br>Measurement quality: 4/6 |
| Le (2014) | Cross-sectional survey | *N* = 73 females who accessed NGO post-trafficking support services | Mental health; Violence | Violence assessed using standardised, non-validated questions.<br>Mental health assessed using the Self Reporting Questionnaire-20 | Defined solely as post-trafficking service users | Vietnam | Total: 26/30<br>Selection quality: 3/6<br>Measurement quality: 6/6 |

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**Table 1.** *Continued*

| Author and year | Study design | Sample | Outcomes of interest | Method of assessing outcomes | Definition of trafficking | Country | Quality score* |
|---|---|---|---|---|---|---|---|
| McCauley *et al.* (2010) | Case-file review | *N* = 136 sexually exploited females who accessed NGO post-trafficking support services. | Violence; Sexual health | No details provided for the instrument/questions used to assess violence. No details provided for the instrument/questions used to assess self-reported STI | Entry into sex work under the age of 18 and/or due to being tricked or forced | Cambodia | Total: 12/30 Selection quality: 2/6 Measurement quality: 0/6 |
| Oram *et al.* (2015) | Cross-sectional survey | *N* = 133 men, women and children trafficked into a range of sectors | Mental health | Mental health assessed and ICD-10 diagnosis assigned by clinicians | Defined as patients whose clinical notes indicated they had been trafficked | UK | Total: 22/30 Selection quality: 3/6 Measurement quality: 4/6 |
| Sarkar *et al.* (2008) | Cross-sectional survey | *N* = 580 female sex workers working in sex work venues. 185/580 (31.5%) sample are defined as trafficked | Violence; HIV/AIDS | Violence assessed using standardised (non-validated) questions. HIV/AIDS assessed using serological tests (ELISA and tri-dot) | Entry into sex work due to being cheated, forced or sold by their families | India | Total: 20/30 Selection quality: 2/6 Measurement quality: 4/6 |
| Servin *et al.* (2015) | Cross-sectional survey | *N* = 20 female sex workers working in a variety of sex work venues | Sexual health | HIV and other STI assessment based on the results of serological tests | Entry into sex work under the age of 18 | Mexico | Total: 17/30 Selection quality: 1/6 Measurement quality: 3/6 |
| Silverman *et al.* (2007) | Case-file review | *N* = 287 sexually exploited females who accessed NGO post-trafficking support services | HIV/AIDS | HIV/AIDS assessment based on the results of serological tests (ELISA, Western blot, or rapid testing for HIV-I and HIV-II) as reported in case files | Entry into sex work due to force or coercion | Nepal | Total: 20/30 Selection quality: 4/6 Measurement quality: 4/6 |

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|---|---|---|---|---|---|---|---|
| Silverman *et al.* (2008) | Case-file review | *N* = 246 sexually exploited females who accessed NGO post-trafficking support services | HIV/AIDS<br>Sexual health (other) | HIV/AIDS assessment based on the results of serological tests (ELISA, Western blot, or rapid testing for HIV-I and HIV-II) as reported in case files.<br>Sexual health (syphilis and hepatitis B) assessment based on reported results from serological tests (Venereal Disease Research Laboratory test, detection of hepatitis B surface antigen) | Entry into sex work due to force or coercion | Nepal | Total: 20/30<br>Selection quality: 4/6<br>Measurement quality: 4/6 |
| Dharmadhikari *et al.* (2009) | Case-file review | *N* = 287 sexually exploited females who accessed NGO post-trafficking support services | HIV/AIDS<br>Physical health | HIV/AIDS assessment based on the results of serological tests (ELISA, Western blot or rapid testing for HIV-I and HIV-II) as reported in case files.<br>TB assessment based on reported results from sputum smears for acid-fast bacilli, radiographs or histories | Entry into sex work due to force or coercion | Nepal | Total: 15/30<br>Selection quality: 2/6<br>Measurement quality: 1/6 |
| Silverman *et al.* (2011) | Cross-sectional survey | *N* = 211 HIV-infected female sex workers accessing support from a sex-worker led community organisation.<br>88/211 (41.7%) sample are defined as trafficked | Violence | Violence in the first month of sex work assessed using non-validated standardised questions | Entry into sex work due to force or coercion | India | Total: 19/30<br>Selection quality: 1/6<br>Measurement quality: 5/6 |
| Silverman *et al.* (2014) | Cross-sectional survey | *N* = 211 HIV-infected female sex workers accessing support from a sex-worker led community organisation.<br>*N* = 88 (41.7%) reported being forced or deceived into sex work | Sexual health; Violence | Sexual health (STI) assessed using standardised (non-validated) questions.<br>Violence in the last 12 months assessed using non-validated standardised questions | Entry into sex work due to force or coercion or under the age of 18 | India | Total: 23/30<br>Selection quality: 4/6<br>Measurement quality: 5/6 |

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**Table 1.** *Continued*

| Author and year | Study design | Sample | Outcomes of interest | Method of assessing outcomes | Definition of trafficking | Country | Quality score* |
|---|---|---|---|---|---|---|---|
| Silverman *et al.* (2006) | Case-file review | *N* = 175 sexually exploited females who accessed NGO post-trafficking support services | HIV/AIDS | HIV/AIDS assessment based on the results of serological tests (ELISA or rapid testing for HIV-I and HIV-II) as reported in case files | Entry into sex work due to force or coercion | India | Total: 17/30<br>Selection quality: 3/6<br>Measurement quality: 3/6 |
| Tsutsumi *et al.* (2008) | Cross-sectional survey | *N* = 164 sexually and labour exploited females who accessed NGO post-trafficking support services | Mental health; HIV/AIDS | Mental health assessed using the Hopkins Symptoms Checklist-25 (depression, anxiety) and the PTSD Checklist Civilian Version (PTSD).<br>HIV/AIDS assessment based on self-report | Defined solely as female post-trafficking service users | Nepal | Total: 19/30<br>Selection quality: 3/6<br>Measurement quality: 3/6 |
| Turner-Moss *et al.* (2014) | Case-file review | *N* = 35 men and women trafficked for labour exploitation | Physical health; Mental health; Violence | Physical health assessed using adapted version of the Miller Abuse Physical Symptoms and Injury Survey.<br>Mental health assessed using the Brief Symptom Inventory (depression, anxiety) and the Harvard Trauma Questionnaire (PTSD).<br>Violence assessed using standardised, non-validated questions | Defined as post-trafficking service users | UK | Total: 16/30<br>Selection quality: 2/6<br>Measurement quality: 3/6 |
| Urada *et al.* (2014) | Cross-sectional survey | *N* = 770 female sex workers working in a variety of sex work venues.<br>56 defined as trafficked | Sexual health | Sexual health (STI) assessed using standardised (non-validated) questions | Entry into sex work under the age of 18 | Philippines | Total: 21/30<br>Selection quality: 4/6<br>Measurement quality: 3/6 |

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|---|---|---|---|---|---|---|---|
| Varma *et al.* (2015) | Case-file review | *N* = 84 children presenting in ED or child protection clinic. 27 defined as trafficked | Mental health; Sexual health; Violence | Physical, mental and sexual health assessed using standardised (non-validated) questions. Violence assessed using standardised, non-validated questions | Defined as victims of child sex trafficking based on Institute of Medicine and National Research Council definition | USA | Total: 19/30 Selection quality: 3/6 Measurement quality: 4/6 |
| Wirth *et al.* (2013) | Cross-sectional survey | *N* = 1184 female sex workers working in a variety of sex work venues. 372 defined as sex trafficked. 107 reported being forcibly prostituted | HIV/AIDS Violence | HIV/AIDS assessment based on the results of serological tests (ELISA). Violence assessed using standardised, non-validated question | Entry into sex work due to force or coercion or under the age of 18 | India | Total: 21/30 Selection quality: 4/6 Measurement quality: 5/6 |
| Zimmerman *et al.* (2008) | Cross-sectional survey conducted at 0–14, 28–56 and 90+ days after entry into support | *N* = 192 sexually exploited females who accessed NGO post-trafficking support services | Violence; Physical health; Mental health; Sexual health | Violence assessed using standardised, non-validated questions. Physical health assessed using adapted version of the Miller Abuse Physical Symptoms and Injury Survey. Mental health assessed using the Brief Symptom Inventory (depression, anxiety) and the Harvard Trauma Questionnaire (PTSD). Sexual health assessed based on self-reported symptoms | Defined solely as female post-trafficking service users | Belgium, Bulgaria, Czech Republic, Italy, Moldova, Ukraine, UK | Total: 20/30 Selection quality: 4/6 Measurement quality: 1/6 |
| Hossain *et al.* (2010) | Cross-sectional survey conducted at 0–14, 28–56 and 90+ days after entry into support | *N* = 204 sexually exploited females who accessed post-trafficking support services | Violence; Mental health | Violence assessed using standardised, non-validated questions. Mental health assessed using the Brief Symptom Inventory (depression, anxiety) and the Harvard Trauma Questionnaire (PTSD) | Defined solely as female post-trafficking service users | Belgium, Bulgaria, Czech Republic, Italy, Moldova, Ukraine, UK | Total: 24/30 Selection quality: 5/6 Measurement quality: 3/6 |

*The quality appraisal instrument (see Appendix 3) has 15 questions. Papers received a score of between 0 and 2 for each question, giving a maximum total score of 30. Scores for two sub-domains – the quality of studies' sampling strategies and the quality of measurements – are presented alongside the total quality score. Scores for other sub-domains are not shown.

as trafficked ('non-trafficked'). Four studies were conducted in clinical settings, and one study reported findings from a community sample. Quality appraisal indicated that over half of the included studies had a relevant risk of bias: 18 of the 31 scored lower than 50% on criteria relating to selection bias and 12 on criteria relating to measurement bias.

### *Violence*

Eighteen studies reported on trafficked people's experiences of violence (Table 2). Eight studies compared experiences of violence for women trafficked for sexual exploitation to non-trafficked women working in the sex industry. Seven studies found significantly higher odds of violence among trafficked *v.* non-trafficked sex workers (Sarkar *et al.* 2008; Decker *et al.* 2011; Gupta *et al.* 2011; Silverman *et al.* 2011; George & Sabarwal, 2013; Wirth *et al.* 2013; Silverman *et al.* 2014). According to three studies, violence at entry or in the first months after commencing sex work was higher among trafficked sex workers than non-trafficked sex workers; findings were less consistent with regards to violence at other time points. Findings were also inconsistent with regards to whether trafficked women who commenced sex work as minors were at higher risk of experiencing violence (Decker *et al.* 2009; Gupta *et al.* 2011; Silverman *et al.* 2011; Wirth *et al.* 2013).

Six studies reported on violence experienced by trafficked people in contact with post-trafficking support services (Zimmerman *et al.* 2003; Di Tommasso *et al.* 2009; McCauley *et al.* 2010; Turner-Moss *et al.* 2014; Kiss *et al.* 2015; Le, 2014). Women and girls who had been trafficked for sexual exploitation described high levels of physical and sexual violence, which ranged from 33% in a Cambodian case-file review (McCauley *et al.* 2010) to 90% in a multi-country European survey (Zimmerman *et al.* 2008). Two studies published since the last systematic review provide data on the experiences of violence by trafficked men and children and people who had been trafficked for labour exploitation. A large multi-country survey conducted in post-trafficking services in the Greater Mekong Subregion of Southeast Asia reported that the prevalence of physical violence experienced by men, women and children was 49, 41 and 24%, respectively (Kiss *et al.* 2015) and sexual violence 1, 44 and 22%, respectively. In the UK analyses of organisational records reported that approximately half of the seven women and almost one-third of the 23 men trafficked for labour exploitation reported physical violence while trafficked (Turner-Moss *et al.* 2014).

Similarly, a high prevalence of violence was reported by studies that sampled trafficked people in contact with clinical services, including sexual and mental health services and emergency departments (Dal Conte & Di Perri, 2011; Oram *et al.* 2015; Varma *et al.* 2015). Sexual violence was reported by one-fifth of women in contact with sexual health services in Italy and documented for 73% women and 51% of children in contact with mental health services (Dal Conte & Di Perri, 2011; Oram *et al.* 2015). Physical violence was documented for 40% of children accessing emergency departments, and 57, 72 and 60% of women, men and children in contact with mental health services (Dal Conte & Di Perri, 2011; Oram *et al.* 2015). However, these figures may capture violence that took place before, during or after the trafficking situation.

### *Mental health*

Fifteen studies reported on the mental health of trafficked people: nine on diagnosed or probable depression, anxiety, or PTSD; one on complex PTSD, and three on clinically significant symptoms of psychological distress (Table 3).

#### *Trafficked women*

Two studies used diagnostic instruments to assess mental disorders (Abas *et al.* 2013; Kissane *et al.* 2014) and two reported on clinical diagnoses that were assigned by mental health professionals (Oram *et al.* 2015; Varma *et al.* 2015). Abas *et al.* (2013), using the Structured Clinical Interview for DSM Disorders (SCID) to diagnose mental disorder among women in contact with post-trafficking services in Moldova, reported that 55% of the sample met diagnostic criteria for mental disorder at an average of 6 months after return, including PTSD (36%), depression (13%) and anxiety disorder (6%). Oram *et al.* (2015), reporting on a sample of 78 trafficked women in contact with secondary mental health services in England, reported that the most prevalent diagnoses were depression (32%), PTSD and severe stress and adjustment disorders (28%), and schizophrenia and related disorders (9%).

The remaining eight papers used screening instruments to assess probable disorder and varied considerably in their estimates (see Table 6). The pooled prevalence estimates were 50% for symptoms of anxiety (95% CI 21.9–78.2%), 52% for depression (95% CI 33.9–70.8%) and 32% for PTSD (95% CI 8.3–54.9%), but these estimates were associated with high heterogeneity ($I^2 = 97.0–98.5\%$) (Fig. 2).

#### *Trafficked men*

Three studies reported on the mental health of trafficked men. Two used screening instruments and

**Table 2.** *Prevalence and risk of violence whilst trafficked* (*n* = *18*)

| Author and year | Type of violence | Frequency of violence (trafficked people) | Frequency of violence (controls) | Odds ratio and 95% CI |
|---|---|---|---|---|
| Sex industry samples | | | | |
| Cwikel *et al.* (2004) | Physical assault at work | 30/93 (32.3%) | 2/10 (20.0%) | 1.9 (0.35–19.4) |
| | Sexual assault at work | 20/93 (31.2%) | 1/10 (10.0%) | 2.5 (0.31–113.4) |
| Decker *et al.* (2011) | Physical, sexual or psychological violence or mistreatment at work in the past week | 44/85 (51.8%) | 254/730 (34.8%) | 2.0 (1.25–3.24) |
| | Sexual violence at initiation into sex work | 10/85 (11.8%) | 26/730 (3.6%) | 3.6 (1.49–8.09) |
| Decker *et al.* (2009) | Physical or sexual violence from a client in the past month | | | |
| | (a) Entry age <18 or forced or deceived into sex work | 31/62 (50.0%) | 10/28 (35.7%) | 1.8 (0.66–5.08) |
| | (b) Entry <18 years | 20/38 (52.6%) | 10/28 (35.7%) | 2.0 (0.66–6.18) |
| | (c) Forced or deceived into sex work | 17/37 (45.9%) | 10/28 (35.7%) | 1.53 (0.50–4.76) |
| George & Sabarwal (2013) | Physical violence (past 6 months) | 280/574 (48.8%) | 322/563 (57.2%) | 0.90 (0.067–1.22) |
| | Sexual violence (past 6 months) | 477/574 (83.1%) | 394/563 (70.0%) | 2.09 (1.42–3.06) |
| | Physical or Sexual Violence (past 6 months) | 501/574 (87.3%) | 460/563 (81.7%) | 1.93 (1.24–3.01) |
| Gupta *et al.* (2011) | Any violence in the past 6 months | | | |
| | (a) Entry age <18 or forced or deceived into sex work | 84/157 (53.5%) | 256/655 (39.1%) | 1.79 (1.26–2.54) |
| | (b) Entry <18 years, not forced or deceived into sex work | 50/96 (52.1%) | 256/655 (39.1%) | 1.69 (1.08–2.67) |
| | (c) Entry age <18 years and forced or deceived into sex work | 16/26 (61.5%) | 256/655 (39.1%) | 2.49 (1.04–6.24) |
| | (d) Entry >18 years and forced or deceived into sex work | 18/34 (52.9%) | 256/655 (39.1%) | 1.75 (0.83–3.74) |
| Sarkar *et al.* (2008) | Physical, sexual or psychological violence in the first few months after entry into sex work | 105/183 (57.3%) | 61/397 (15.3%) | 7.4 (4.8–11.3) |
| Silverman *et al.* (2011) | Sexual violence in the first month after entry into sex work | | | |
| | Physical or sexual abuse in past year | 66/88 (75.0%) | 66/123 (53.7%) | 2.6 (1.4–4.7) |
| | (a) Forced or deceived into sex work, regardless of age at entry | 14/88 (15.9%) | 19/123 (15.5%) | 1.04 (0.49–2.20) |
| | (b) Entry age <18 years regardless of reasons for entry into sex work | 21/106 (19.6%) | 12/105 (11.4%) | 1.92 (0.89–4.13) |
| Wirth *et al.* (2013) | Sexual violence in past year among women forced into prostitution, regardless of age of entry | 23/107 (21.1%) | 218/1707 (12.8%) | 1.9 (1.1–3.0) |
| Post-trafficking support service samples | | | | |
| Di Tommaso *et al.* (2009) | Any violence or material neglect while trafficked | 1350/1644 (82.1%) | – | – |
| Kiss *et al.* (2015) | Women: Physical violence while trafficked | 118/288 (41.3%) | – | – |
| | Sexual violence while trafficked | 125/288 (43.9%) | – | – |
| | Men: Physical violence while trafficked | 188/383 (49.1%) | – | – |
| | Sexual violence while trafficked | 5/383 (1.3%) | | |

*Continued*

**Table 2.** *Continued*

| Author and year | Type of violence | Frequency of violence (trafficked people) | Frequency of violence (controls) | Odds ratio and 95% CI |
|---|---|---|---|---|
| | Children: Physical violence while trafficked | 82/344 (23.8%) | | |
| | Sexual violence while trafficked | 74/344 (21.5%) | | |
| Le (2014) | Physical violence while trafficked | 31/73 (43%) | – | – |
| | Sexual abuse while trafficked | 44/73 (60%) | – | – |
| | Emotional abuse while trafficked | 29/73 (40%) | – | – |
| McCauley *et al.* (2010) | Physical violence while trafficked | 13/136 (9.6%) | – | – |
| | Sexually abused while trafficked | 45/136 (33.1%) | – | – |
| Turner-Moss *et al.* (2014) | Women: Physical violence while trafficked | 4/7 (57.1%) | | |
| | Men: Physical violence while trafficked | 7/23 (30.4%) | | |
| Zimmerman *et al.* (2008) | Physical or sexual violence while trafficked | 182/192 (94.8%) | – | – |
| | Physical violence while trafficked | 145/192 (75.5%) | – | – |
| | Sexual violence while trafficked | 172/192 (89.6%) | – | – |
| Community and clinical samples | | | | |
| Dal Conte & Di Perri (2011) | Sexual violence | 294/1400 (21%) | | |
| Joarder & Miller (2014) | Sexual harassment whilst trafficked | Total sample 149/386 (38.6%) Males 0/231 (0%) Females 149/155 (96.0%) | | |
| Oram *et al.* (2015) | Adult sample: experiences of adulthood abuse* | | | |
| | Physical or sexual | 58/96 (60.4%) | | |
| | Physical | 40/96 (41.7%) | | |
| | Sexual | 43/96 (44.8%) | | |
| | Child sample: experiences of childhood abuse* | | | |
| | Physical or sexual | 28/37 (75.7%) | | |
| | Physical | 22/37 (59.5%) | | |
| | Sexual | 19/37 (51.4%) | | |
| Varma *et al.* (2015) | History of fractures, loss of consciousness, wounds* | 2/5 (40.0%) | 7/12 (58.3%)† | 0.48 (0.06–3.99) |
| | History of violence with sex1 | 4/13 (30.8%) | 2/53 (3.8%) | 11.33 (1.80–71.32) |

*Not clear from existing data whether this was in the context of trafficking or prior to trafficking experience.
†Control group are children who experienced sexual abuse/sexual assault (CSA).

reported high levels of symptoms of anxiety (21.7–48.3%), depression (20.8–60.6%) and PTSD (15.8–46.2%) (Turner-Moss *et al.* 2014; Kiss *et al.* 2015). Oram *et al.* (2015), reporting on a sample of 19 trafficked men in contact with secondary mental health services, indicated the most prevalent diagnoses were depression (21%), PTSD and severe stress and adjustment disorders (26%) and schizophrenia and related psychoses (37%).

*Trafficked children*

High levels of mental health problems were similarly reported for trafficked children. A study of trafficked children accessing emergency medical services in the USA identified 38.5% had a history of mental disorder, although it is unclear what proportion of this preceded *v.* followed the trafficking experience (Varma *et al.*

**Table 3.** *Prevalence and risk of mental distress among people who have been trafficked* (*n* = 15)

| Author and year | Instrument and threshold used to assess mental distress | Frequency of mental distress (trafficked people) | Frequency of mental distress (controls) | Odds ratio and 95% CI |
|---|---|---|---|---|
| Anxiety | | | | |
| Abas *et al.* (2013) | Diagnostic assessment using Structured Clinical Interview for DSM-IV disorders | Women: 7/120 (5.8%) | – | – |
| Hossain *et al.* (2010) | Brief Symptom Inventory mean score ≥1.87 | Women: 98/204 (48.0%) | – | – |
| Kiss *et al.* (2015) | Hopkins Symptoms Checklist 25 score ≥1.75 | Women: 138/287 (48.1%)<br>Men: 185/383 (48.3%)<br>Children: 111/344 (32.3%) | | |
| Tsutsumi *et al.* (2008) | Hopkins Symptoms Checklist 25 score ≥1.75 | Women: 148/164 (90.2%)<br>Sexual exploitation: 43/44 (97.7%)<br>Labour exploitation: 105/120 (87.5%) | – | – |
| Turner-Moss *et al.* (2014) | Brief Symptom Inventory mean score ≥1.87 | Women: 1/10 (10%)<br>Men: 5/23 (21.7%) | | |
| Depression | | | | |
| Abas *et al.* (2013) | Diagnostic assessment using Structured Clinical Interview for DSM-IV disorders | Women: 15/120 (12.5%) | – | – |
| Churakova (2014) | Beck Depression Inventory | Women: 17/78 (21.8%) | – | – |
| Cwikel *et al.* (2004) | Centre for Epidemiologic Studies Depression Scale mean score | Women: 48/84 (57.1%) | 2/7 (28.6%) | 3.33 (0.50–36.41) |
| Hossain *et al.* (2010) | Brief Symptom Inventory mean score ≥1.87 | Women: 112/204 (54.9%) | – | – |
| Kiss *et al.* (2015) | Hopkins Symptoms Checklist 25 score ≥1.75 | Women: 191/288 (66.3%)<br>Men: 232/383 (60.6%)<br>Children: 197/344 (57.3%) | – | – |
| Oram *et al.* (2015) | Clinically-assigned ICD-10 diagnosis (psychiatric sample) | Women: 25/78 (32.1%)<br>Men: 4/18 (22.2%)<br>Children: 10/37 (27%) | | |
| Tsutsumi *et al.* (2008) | Hopkins Symptoms Checklist 25 score ≥1.75 | Women: 141/164 (86.0%)<br>Sexual exploitation 44/44 (100.0%)<br>Labour exploitation 97/120 (81.8%) | – | – |
| Turner-Moss *et al.* (2014) | Brief Symptom Inventory mean score ≥1.87 | Women: 2/10 (20.0%)<br>Men: 5/24 (20.8%) | – | – |
| Post-traumatic stress disorder (PTSD) | | | | |
| Abas *et al.* (2013) | Diagnostic assessment using Structured Clinical Interview for DSM-IV disorders | Women: 43/120 (15.0%) | | |
| Churakova (2014) | Clinician-Administered PTSD Scale | Women: 12/78 (15.4%) | – | – |

*Continued*

**Table 3.** *Continued*

| Author and year | Instrument and threshold used to assess mental distress | Frequency of mental distress (trafficked people) | Frequency of mental distress (controls) | Odds ratio and 95% CI |
|---|---|---|---|---|
| Cwikel *et al.* (2004) | PTSD Checklist Civilian Version score ≥50 | Women: 17/87 (19.5%) | 1/7 (14.3%) | 1.46 (0.16–70.90) |
| Hossain *et al.* (2010) | Harvard Trauma Questionnaire, mean score ≥2.00 | Women: 157/204 (77.0%) | – | – |
| Kiss *et al.* (2015) | Harvard Trauma Questionnaire, mean score ≥2.00 | Women: 126/288 (43.9%)<br>Men: 177/383 (46.2%)<br>Children: 91/344 (26.5%) | | |
| Oram *et al.* (2015) | Clinically-assigned ICD-10 diagnosis (psychiatric sample) | Women: 22/78 (28.2%)<br>Men: 5/18 (27.8%)<br>Children: 10/37 (27%) | | |
| Tsutsumi *et al.* (2008) | PTSD Checklist Civilian Version score ≥50 | Women: 22/164 (13.4%)<br>Sexual exploitation 13/44 (29.5%)<br>Labour exploitation 9/120 (7.5%) | – | – |
| Turner-Moss *et al.* (2014) | Harvard Trauma Questionnaire, mean score ≥2.00 | Women: 1/6 (16.7%)<br>Men: 3/19 (15.8%) | | |
| Complex PTSD | | | | |
| Kissane *et al.* (2014) | Clinical interview using Structured Interview for Disorders of Extreme Stress | 3/15* (20.0%) | | |
| Psychological distress | | | | |
| Gray *et al.* (2012) | Hopkins Symptoms Checklist 25 score (≥1.75 indicative of anxiety or depressive disorder) | Women: 15/24 (62.5%) | – | – |
| Le (2014) | Self-Reporting Questionnaire-20, mean score >7 | Women: 47/73 (64.4%)<br>Sexual exploitation 12/19 (63%)<br>Marriage 10/13 (77%)<br>Domestic Servitude 10/11 (91%)<br>Other/Undeclared 15/30 (50%) | | |
| Varma *et al.* (2015) | Mental disorder diagnosed by clinician on medical check-up in emergency department | Children: 10/26 (38.5%) | 25/55 (45.5%)† | $p = 0.553$ |
| Substance misuse | | | | |
| Goldenberg *et al.* (2013) | Heroin use<br>Methamphetamine use<br>Ever injected drugs | Women: 18/31 (58.1%)<br>Women: 14/31 (48.3%)<br>Women: 22/31 (71%) | | |
| Oram *et al.* (2015) | Substance misuse problems (ever) (psychiatric sample) | Women: 16/78 (20.5%)<br>Men: 7/18 (38.9%) | | |

*Continued*

**Table 3.** *Continued*

| Author and year | Instrument and threshold used to assess mental distress | Frequency of mental distress (trafficked people) | Frequency of mental distress (controls) | Odds ratio and 95% CI |
|---|---|---|---|---|
| Servin *et al.* (2015) | Heavy alcohol use Illicit drugs in past 6 months (heroin, crack and methamphetamine) | Women: 5/20 (25.0%)<br>Women: 7/20 (33%) | | |
| Varma *et al.* (2015) | History of drug & alcohol use<br>History of multiple drug use | Children: 16/23 (69.6%)<br>Children: 10/20 (50%) | 10/52 (19.2%)†<br>3/52 (5.8%) | $p < 0.001$<br>$p < 0.001$ |

*Mixed sample, 86.7% female.
†Control group are children who experienced sexual abuse/sexual assault (CSA).

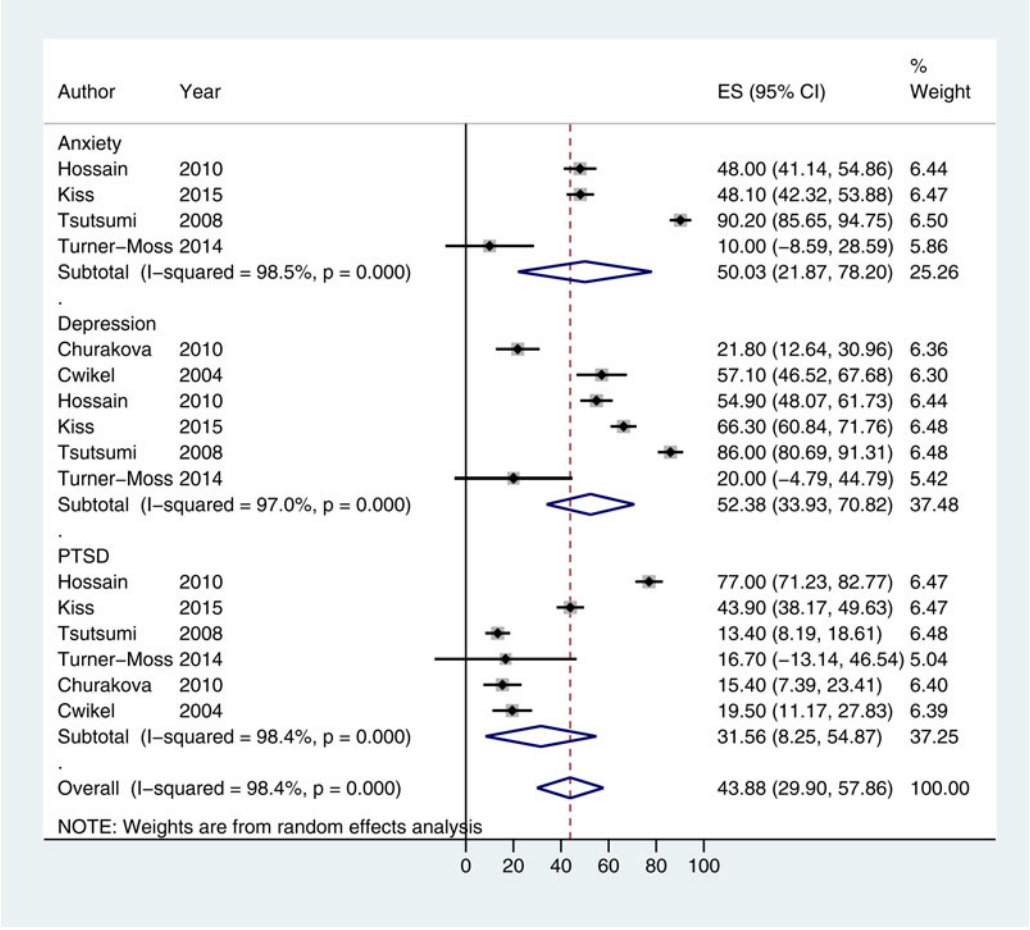


**Fig. 2.** Forest plot displaying DerSimonian and Laird weighted random-effect pooled prevalence estimates for prevalence of self-reported symptoms of anxiety, depression and PTSD among trafficked women.

2015). A survey conducted in South East Asia using screening instruments found 32% had probable anxiety, 57% probable depression and 26% probable PTSD. Among 35 trafficked children in contact with secondary mental health services in England, the most common diagnoses were PTSD, severe stress and adjustment

**Table 4.** *Risk factors for mental disorder among people who have been trafficked** (*n* = 4)

| Author and year | Pre-trafficking sexual abuse | Duration of trafficking | Sexual violence | Threats | Serious violence/ injury | Social support | Number of unmet needs | Time elapsed since escaping trafficking situation |
|---|---|---|---|---|---|---|---|---|
| Abas *et al.* (2013) | + | + | | | | – | + | |
| Hossain *et al.* (2010) | 0 | + | + | + | + | | | – |
| Kiss *et al.* (2015) | | Nb. controlled for as confounder but association not reported | + Included in definition of severe violence | + | + | | | |
| Le (2014)† | | | + | + | + | | | |

*A plus sign indicates a risk factor; a minus sign indicates that the factor had a protective effect; zero indicates it had no effect of either type; blank cells indicate the factor was not studied. The risk factors shown were examined for depression, anxiety, PTSD and psychological distress.

†This study reported a Total Abuse Score, which combined sexual, physical, emotional, labour abuse and forced alcohol use, to be predictive of psychological distress.

disorders (27%) and affective disorders (27%). Other diagnoses included anxiety, conduct disorder and schizophrenia (Oram *et al.* 2015).

### *Risk factors for mental health problems*

Table 4 describes risk factors for poor mental health among trafficked people that included factors occurring prior to, during, and after trafficking: childhood sexual abuse; sexual and physical violence while trafficked, poor living and working conditions, restrictions on movement and longer duration of exploitation; and unmet social needs after escaping exploitation (Hossain *et al.* 2010; Abas *et al.* 2013; Kiss *et al.* 2015). Le (2014) reported that the total severity of violence, as indicated by a composite score of physical, sexual, emotional and labour abuse and forced alcohol use, was predictive of the level of psychological distress among women in contact with post-trafficking services in Vietnam. Higher levels of post-trafficking support were suggested to be associated with a reduced risk of mental disorder (AOR = 0.64, 95% CI 0.52–0.79; Abas *et al.* 2013).

### *Substance abuse*

Four studies collected data on substance misuse and indicated a high prevalence of drug and alcohol use among men, women and children that had been trafficked (Table 6). It is unclear whether participants were coerced to use drugs or alcohol, whilst trafficked (Le, 2014) or whether they were using substances as a coping strategy during or after escaping the trafficking situation.

## *Physical health*

Data on the physical health of people who have been trafficked were drawn from six studies that collected data on the self-reported symptoms of survivors in contact with post-trafficking services (Table 5). Five were conducted with samples of women and girls trafficked for sexual exploitation; the most commonly reported physical health symptoms were headaches (60–83%), back pain (51–69%), stomach pain (53–61%), dental pain (58%), fatigue (81%) and dizziness (55–70%). Two studies reported on the physical health of trafficked men and children: a large multi-country survey in South East Asia and a small case series conducted in the UK (Turner-Moss *et al.* 2014; Kiss *et al.* 2015). The prevalence of physical health symptoms was lower than has been reported for women trafficked for sexual exploitation, but the symptoms most frequently endorsed were similar, including headache, back pain, dental pain, fatigue and memory problems.

## *Sexual health*

### *HIV*

The prevalence of HIV infection was reported by eight studies: three with trafficked and non-trafficked sex workers and four with women accessing post-trafficking support (Table 6). Data from serological tests with trafficked and non-trafficked sex workers indicate an HIV prevalence in the trafficked women ranging from 6.5% from a study in Mexico (Goldenberg *et al.* 2013) to 34.3% for a study in India (Wirth *et al.* 2013), with a pooled prevalence estimate of 18.1% and high heterogeneity (95% CI 0.5–35.7%, $I^2 = 99.2\%$). Pooled estimates also suggested

**Table 5.** *Physical symptoms reported by people who have been trafficked* ($n = 6$)

| Author and year | Headache (%) | Back pain | Stomach pain | Dental pain | Fatigue | Memory problems | Weight loss | Dizziness |
|---|---|---|---|---|---|---|---|---|
| Crawford & Kaufman (2008) $n = 20$ | 35 | | 25% | | 10% | | | |
| Cwikel *et al.* (2004) $n = 84$ | 60 | 40% | 53% | 57% | | | | 55% |
| Kiss *et al.* (2015) $n = 1015$ | 21 | 19% | | 10% | 18% | 16% | 14% | 20% |
| Oram *et al.* (2012*a*, *b*) $n = 120$ | 62 | 51% | 61% | 35% | | 44% | 26% | |
| Turner-Moss *et al.* (2014) $n = 35$ | 43 | 36% | 10% | 23% | 30% | 13% | 13% | 10% |
| Zimmerman *et al.* (2008) $n = 192$ | 83 | 69% | 61% | 58% | 81% | 62% | 47% | 70% |

increased odds of HIV infection among trafficked *v.* non-trafficked sex workers (OR 1.96, 95% CI 1.11–3.47, $I^2 = 54.5\%$ Fig. 3). Wirth *et al.* (2013) reported that odds of HIV infection among trafficked women with forced entry into prostitution was strongly associated with recent experiences of sexual violence (OR = 11.13, 95% CI 2.41–51.40). No association was found between age at entry into prostitution and HIV, and this was not modified by sexual violence (OR = 0.94, 95% CI 0.28–3.13).

The review did not identify any further studies reporting on serological test results for HIV among women accessing post-trafficking support published since Oram *et al.*'s review. Estimates of the HIV prevalence range from 22.7 to 45.8% (Silverman *et al.* 2006, 2007; Gupta *et al.* 2009; Falb *et al.* 2011), with a pooled prevalence estimate of 31.9% (95% CI 21.3–42.2%) (Fig. 4). Two studies suggested that longer duration of exploitation may be associated with increased odds of infection (Silverman *et al.* 2006, 2007), and a potential association between odds of infection and the HIV prevalence in the geographical areas to or from which women had been trafficked. Inconsistent findings were reported with respect to age when trafficked. Only one study reported HIV prevalence among women trafficked for labour exploitation (Tsutsumi *et al.* 2008). Their estimate of 0% was obtained by self-report and should be treated with caution, as 80% did not know their HIV status.

### *Sexually transmitted infections*

Four studies reported on the results of serological tests for individual STIs, with substantial variation in prevalence (Table 7). A further nine studies reported the prevalence of self-reported symptoms of STI, which ranged from 6% in a study of sexually exploited women in Israel to 66% in a cross-sectional survey of trafficked sex workers in Thailand. Five of these nine reported the odds of self-reported STI symptoms among trafficked *v.* non-trafficked sex workers; none reported a significant difference (Cwikel *et al.* 2004; Decker *et al.* 2011; George & Sabarwal, 2013; Goldenberg *et al.* 2013, Silverman *et al.* 2014).

## Discussion

### *Key findings*

This review highlights the high prevalence of mental, physical and sexual health problems among trafficked people who were exploited in various settings and industries. The review also draws attention to the high levels of physical and sexual violence experienced by trafficked people, including by trafficked children. This review re-emphasises that trafficked men and trafficked children and people trafficked for labour exploitation are underrepresented in research on health and human trafficking. However, emerging evidence indicates a high burden of mental and physical health problems among these groups.

Recent studies have begun to investigate risk factors for poor mental and sexual health outcomes for trafficked people. Risk of mental disorder appears to be increased by multiple factors, including violence prior to and during trafficking, restricted freedom and poor living and working conditions while trafficked, and social support and unmet social needs following escape. These findings are consistent with the broader literature on trauma and risk of adverse reactions, particularly PTSD, which suggests the cumulative risk of multiple traumatic events and the importance of post-trauma social support (Brewin *et al.* 2000; Ozer *et al.* 2003). It is also noteworthy that the physical pain or discomfort most frequently

**Table 6.** *Prevalence and risk of HIV infection among trafficked women (n = 8)*

| Author and year | Method used to assess HIV | Frequency of HIV infection (trafficked people) | Frequency of HIV infection (controls) | Crude odds ratio and 95% CI | Adjusted odds ratio and 95% CI |
|---|---|---|---|---|---|
| Sex industry samples | | | | | |
| Sarkar *et al.* (2008) | Serological tests (ELISA and tri-dot) | 24/183 (13.1%) | 40/397 (10.1%) | 1.35 (0.75–2.4) | |
| Goldenberg *et al.* (2013) | Serological tests (rapid antibody testing using an HIV-1 enzyme immunoassay and immunofluorescence assay) | 2/31 (6.5%) | 7/183 (3.8%) | 1.73 (0.34–8.76) | |
| Wirth *et al.* (2013) | Serological tests (ELISA) | 37/107 (34.3%*) | 273/1707 (16.0%) | 2.74 (1.41–5.1) | 2.30† (1.08–4.90) |
| Post-trafficking support service samples | | | | | |
| Falb *et al.* (2011) | Test results as recorded in case files | 10/44 (22.7%) | – | – | |
| Gupta *et al.* (2009) | Serological test results as recorded in case files (ELISA or Western blot) | 22/48 (45.8%) | – | – | |
| Silverman *et al.* (2006) | Serological test results as recorded in case files (ELISA or rapid testing for HIV-I and HIV-II) | 40/175 (22.9%) | – | – | |
| Silverman *et al.* (2007) | Serological test results as recorded in case files (ELISA, Western blot or rapid testing for HIV-I and HIV-II) | 109/287 (38.0%) | – | – | |
| Tsutsumi *et al.* (2008) | Self-report | Sexual exploitation 13/44 (29.6%)<br>Labour exploitation 0/120 (0.0%) | – | – | |

*Weighted percentage accounting for the probability of selection into the sample using the survey weights provided by the Integrated Behavioural and Biological Assessment.
†Estimated from a weighted marginal structural logistic regression model with district-specific weights constructed to simultaneously adjust for the unequal probability of selection induced by the survey's complex sampling strategy and the following confounders: literacy, whether the participant was widowed and/or deserted at the time of entry into the sex trade, use of sex work to support drug use and age at entry.

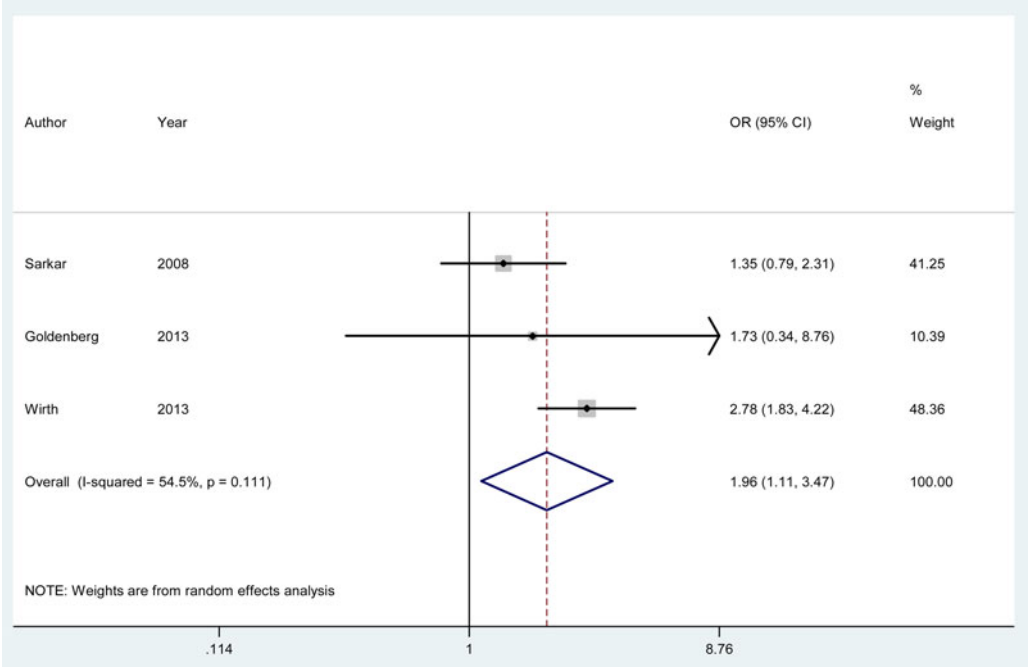


**Fig. 3.** Forest plot displaying DerSimonian and Laird weighted random-effect pooled odds estimates for prevalence of HIV infection among trafficked women currently working in the sex industry in India and Mexico.

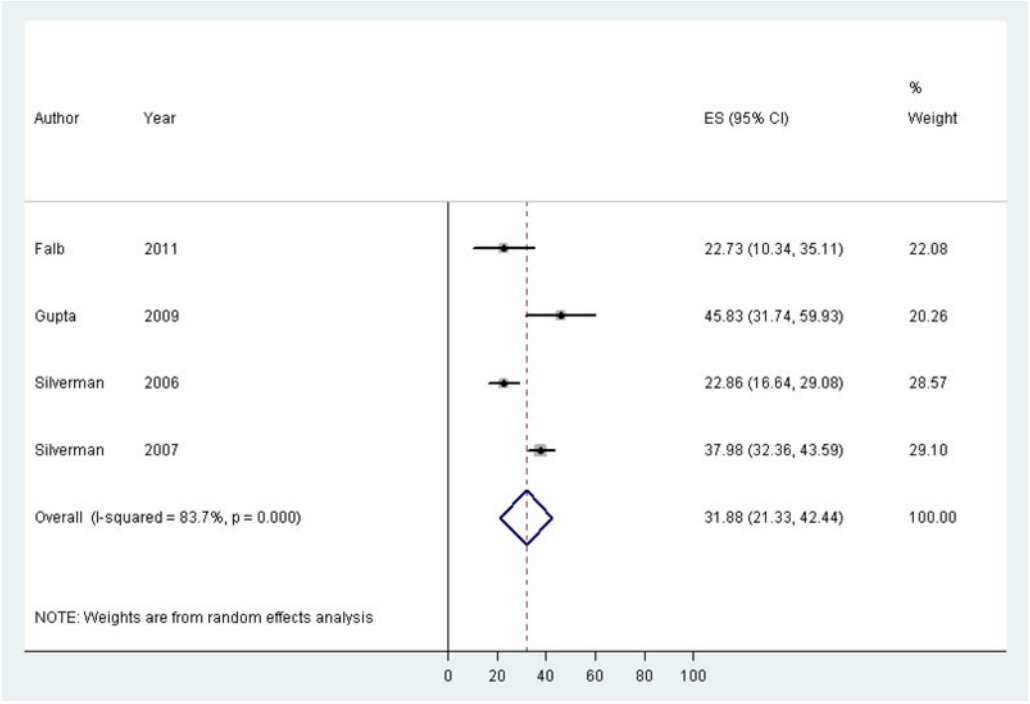


**Fig. 4.** Forest plot displaying DerSimonian and Laird weighted random-effect pooled prevalence estimates for prevalence of HIV infection among sex trafficked women currently in contact with post-trafficking services in India and Nepal.

endorsed by trafficked people, including headache, stomach pain and memory problems, are non-specific and could be related to either physical or psychological problems. Mental health problems appear to be enduring, with studies reporting a high prevalence of diagnosed disorder several months post-trafficking (Abas *et al*. 2013) and a slower decline in symptoms than for physical health problems (Zimmerman *et al.*

**Table 7.** *Sexually transmitted infections amongst women trafficked for sexual exploitation (n = 13)*

| Author and year | STI diagnosis or self-reported symptoms (%) |
|---|---|
| Crawford & Kaufman (2008) *n* = 20 | 35 |
| Cwikel *et al.* (2004) *n* = 84 | 5.7 |
| Dal Conte & Di Perri (2011) *n* = 1400 | 58 |
| Decker *et al.* (2011) *n* = 85 | 65.9 |
| George & Sabarwal (2013) *n* = 574 | 49.3 |
| Goldenberg *et al.* (2013) *n* = 31 | 23 |
| McCauley *et al.* (2010) *n* = 73 | 65.8 |
| Servin *et al.* (2015) *n* = 20 | 30 |
| Silverman *et al.* (2008) *n* = 246 | Syphilis 20.4<br>Hepatitis B 3.8 |
| Silverman *et al.* (2014) *n* = 211 | 39 |
| Urada *et al.* (2014) *n* = 56 | 32* |
| Varma *et al.* (2015) *n* = 27 | 52.6 |
| Zimmerman *et al.* (2008) *n* = 192 | 58 |

*Last 6 months.

2006). Further research should explore the pathways through which trafficking impacts mental health to inform interventions to promote recovery. Similarly, research is urgently needed to identify and test the effectiveness of psychological interventions to support the mental health of trafficked populations.

Violence may also increase risk of HIV infection (Stockman *et al.* 2013; Wirth *et al.* 2013). Studies suggest that women and girls trafficked for sexual exploitation are at increased risk of physical and particularly sexual violence as compared to non-trafficked sex workers at initial entry into sex work (Sarkar *et al.* 2008; Decker *et al.* 2011; Gupta *et al.* 2011; Silverman *et al.* 2011, 2014; George & Sabarwal, 2013; Wirth *et al.* 2013). These studies begin to address calls made in the previous review for research to compare health risks among trafficked and non-trafficked sex workers. However, this review highlights the scarcity of current evidence on the health of what is now recognised as a very large global population of abused and exploited persons. To strengthen post-trafficking support, robust findings are still needed on differences in mental and physical health outcomes and other types of health risks between men, women and children and to compare the risks and health outcomes of people identified as trafficked and those working in the same industries who were not identified as trafficked, especially individuals working in sectors known for extreme forms of exploitation.

### *Strengths and limitations of the review*

The review used a comprehensive search strategy, independent screening and quality appraisal of studies, and adhered to PRISMA reporting guidelines. Doctoral theses were included, as were studies published in languages other than English. However, methodological problems at the level of the primary studies also limit the conclusions that can be drawn from this review. Most studies used non-probability sampling and did not provide information on the representativeness of their samples, limiting generalisability. Half of the included studies were conducted with people recruited from post-trafficking support services, and it is unlikely their experiences represent those of all trafficked people, many of whom probably do not in contact with support services. It is unclear whether those accessing support represent more severe cases of abuse and have more extreme health needs, or conversely, if they represent a sample that is healthier and has greater access to resources, and is therefore able to contact services. Similarly, it is unclear how trafficking identification criteria might have differed by location and/or over time. Likewise, studies with sex industry samples may under-represent those experiencing the highest levels of abuse and restrictions of movement, which would likely limit their ability to participate in the study. The four studies with clinical populations likely overestimate the population-level prevalence of violence and physical, sexual and mental health problems. None of the studies were able to capture accurately people's psychological history prior to trafficking and the possible influence on current symptoms. In the context of a limited number of studies, however, it is not possible to estimate the direction or scale of these potential selection biases with certainty. Estimates of pooled prevalence and risk of HIV amongst women trafficked for sexual exploitation are drawn from a very small number of studies from South and Southeast Asia and Mexico, and were associated with high levels of heterogeneity. It is uncertain to what extent these findings can be generalised to other populations as they likely to be related to local prevalence rates and dynamics of HIV infection.

The comparability of studies and reliability of findings was further limited by diversity of methods and

tools used to assess experiences of violence and various health outcomes. Only two studies used diagnostic interviews to assess mental disorder and none used unmodified validated instruments to assess violence and physical health outcomes amongst trafficked people. There is a critical need to develop validated instruments for use with trafficked populations to ensure future studies can produce more rigorous, valid and comparable data.

Definitional differences in trafficking exposure were also apparent in the primary studies. Ten studies categorised women as having been trafficked if they reported being younger than 18 years upon entering the sex industry, regardless of the means of their recruitment. Other studies explicitly operationalised trafficking if the study authors determined that force or coercion was present. Studies that analysed the experiences of violence and health outcomes separately for women who entered the sex industry aged younger than 18 and for women who had been forced or coerced into sex work found differing prevalence of violence and health problems associated with each, suggesting that these definitional differences may result in significant variation in outcomes of interest (Gupta *et al.* 2011; Wirth *et al.* 2013; Silverman *et al.* 2014). Fifteen of the 37 studies reported on trafficked people in contact with post-trafficking support services in their countries of origin. However, these services varied greatly, from small grassroots non-governmental organisations to official service providers such as those provided by the International Organization for Migration. Support eligibility criteria varied both by type of exploitation, with some services only supporting survivors of sex trafficking, some only for women or children or men, some servings for a broader range of survivors, and yet others setting different thresholds for service access services and operationalising legal definitions of trafficking in their own terms. These differences limit the comparability of findings from within the post-trafficking support service samples.

## Conclusion

Research on the health consequences of trafficking is an emerging area of study that is fundamental to developing well-informed mechanisms of identifying, referring and caring for this population These findings, even with their limitations, clearly indicate that human trafficking is a severe form of abuse that occurs in many corners of the globe and which has serious and often long-lasting health problems, including enduring mental distress. The next critical step to respond to the most pressing health needs of trafficked people is to investigate potentially effective psychological interventions to help this highly vulnerable group move beyond their real-life nightmares.

## Acknowledgements

We thank the experts in this area who recommended studies for potential inclusion in the review. We are also grateful to Glori Gray, Michele Decker, Lawrence Szymanski and Julie Cwikel for providing supplementary data. We would like to thank Sanghoon Lee and Vasily Chernov for their assistance in translating articles published in Korean and Russian.

## Financial Support

SH, LMH, CZ and SO are supported by the Department of Health Policy Research Programme (115/0006). Louise Howard is also supported by an NIHR Research Professorship (NIHR-RP-R3-12-011) and by the NIHR South London and Maudsley NHS Foundation Trust Biomedical Research Centre-Mental Health. This report is independent research commissioned and funded by the Department of Health Policy Research Programme (Optimising Identification, Referral and Care of Trafficked People within the NHS 115/0006). The views expressed in this publication are those of the author(s) and not necessarily those of the Department of Health. The funder had no role in the design or conduct of the study, collection, management, analysis, and interpretation of the data or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

## Conflicts of Interest

SO is the lead author on two of the papers included in this review and co-author on further two. CZ is the lead author on one paper included in this review and co-author on a further three. LMH, LO and SH declare no conflicts of interest.

## Ethical Standards

Ethical approval was not required for this work.

## Supplementary Materials

The supplementary materials referred to in this article can be found at http://dx.doi.org/10.1017/S2045796016000135

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