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## WHAT IS THE IMPACT OF HUMAN TRAFFICKING ON THE BIOPSYCHOSOCIAL HEALTH OF VICTIMS: A SYSTEMATIC REVIEW

--Manuscript Draft--

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<b>Abstract:</b>	<p>The health consequences of human trafficking have been poorly researched compared to other aspects of this crime. A systematic review was carried out to study health from a broader perspective, beyond psychophysical symptoms, to understand the global impact of human trafficking on sexual, social, physical, and psychological health. The search identified many studies focused on the violence of sex trafficking in female samples. This work leads us to conclude that social health is a determinant of the well-being of trafficking victims. More studies are needed on aspects of social health, especially regarding research gaps related to spirituality and nutrition, thus continuing preventing and combating human trafficking. Many gender biases were discovered: unlike studies of trafficking in women, those with men did not study parenting, sexual health, marital status, or sex trafficking.</p>		
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Dear Editor-in-Chief,

We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal. All authors have approved the manuscript and agree with its submission to your **Journal of Immigrant and Minority Health**. I am sending you our manuscript entitled "The impact on the biopsychosocial health of victims of trafficking: a systematic review" by García-Vázquez and Meneses-Falcón. The first author is a Spanish PhD and junior teacher-researcher whereas the second author is the thesis director and senior professor-investigator. The thesis is unusual because is made by "compendium of 3 publications/articles" and will be defended at the end of 2023. In the current moment two of the articles are already published, and this correspond to the third article of the thesis.

To our knowledge, this is the first report which highlights the need for studies that integrate various aspects of health in Human Trafficking victims. Social and environmental health is very important for victims' recovery. We linked 2030 Agenda and the sustainable development goals to the different dimensions of health. What is more, this work leads us to conclude that more studies are needed on aspects of social health, especially regarding research gaps related to spirituality and nutrition, thus continuing preventing and combating human trafficking. Many gender biases were discovered: unlike studies of trafficking in women, those with men did not study parenting, sexual health, marital status, or sex trafficking.

Please let me know of your decision at your earliest convenience.

Yours faithfully,

Olaya García-Vázquez

# WHAT IS THE IMPACT OF HUMAN TRAFFICKING ON THE BIOPSYCHOSOCIAL HEALTH OF VICTIMS: A SYSTEMATIC REVIEW

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The health consequences of human trafficking have been poorly researched compared to other aspects of this crime. A systematic review was carried out to study health from a broader perspective, beyond psychophysical symptoms, to understand the global impact of human trafficking on sexual, social, physical, and psychological health. The search identified many studies focused on the violence of sex trafficking in female samples. This work leads us to conclude that social health is a determinant of the well-being of trafficking victims. More studies are needed on aspects of social health, especially regarding research gaps related to spirituality and nutrition, thus continuing preventing and combating human trafficking. Many gender biases were discovered: unlike studies of trafficking in women, those with men did not study parenting, sexual health, marital status, or sex trafficking.

**Keywords:** Human trafficking, Global health, Sustainable Development Goals, Social health, Violence.

## Authors' contributions

OG highlighted the need for studies that integrate various aspects of health, overcoming the dichotomy of medical-social studies, and related each dimension to Sustainable

Development Goals. CM assisted in data analysis, interpretation and preparation of the manuscript. All authors read and approved the final manuscript.

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The health consequences of human trafficking have been poorly researched compared to other aspects of this crime. A systematic review was carried out to study health from a broader perspective, beyond psychophysical symptoms, to understand the global impact of human trafficking on sexual, social, physical, and psychological health. The search identified many studies focused on the violence of sex trafficking in female samples. This work leads us to conclude that social health is a determinant of the well-being of trafficking victims. More studies are needed on aspects of social health, especially regarding research gaps related to spirituality and nutrition, thus continuing preventing and combating human trafficking. Many gender biases were discovered: unlike studies of trafficking in women, those with men did not study parenting, sexual health, marital status, or sex trafficking.

**Keywords:** Human trafficking, Global health, Sustainable Development Goals, Social health, Violence.

### *Background*

Human trafficking (HT) is one of the most worrying crimes against humanity and has significant health consequences. The Palermo Protocol (2000) pointed out different trafficking purposes: sexual exploitation (especially prostitution and pornography), labour (frequently in domestic service, textile industry, agriculture, or fishing), forced marriages, commission of crimes, organ extraction, and forced begging.

According to the International Labour Organization [1], 40.3 million people suffer some contemporary form of slavery; among these, 21 million people are trafficking victims. According to the United Nations Office on Drugs and Crime report [2], millions of victims remain unidentified, leaving them in a situation of insecurity. The report also indicated that 49% of HT victims are women, 23% are girls, 21% are men, and 7% are boys. According to the European Report [3], sexual purpose is the most frequent (56%) and the most studied purpose, with little research on other trafficking purposes, such as labour trafficking (26%).

Many political statements claim the need to study HT from a global and coordinated perspective. As a research framework, we have used the Sustainable Development Goals [4]. Because of the size of this problem, trafficking is presented as a multi-causal problem. In this agenda, Target 5.2 encourages the *elimination of violence against women*, which includes *trafficking and sexual and other types of exploitation*. Target 8.7 relates not only to *achieving decent work* but also *take immediate measures to eradicate human trafficking*. In addition, Target 16.2 calls for *peace, justice, and strong institutions* to prevent *end abuse, exploitation, trafficking and all forms of violence against children*. Furthermore, the Sustainable Development Goal 3 does not explicitly mention trafficking, but it will be used to talk about the main consequence of the trafficking situation: the *deprivation of health and well-being*.

A literature review on HT during the last ten years was carried out. The first study was a systematic review that identified 19 articles that specifically focused on mental distress and violence suffered by trafficking victims. The review also claimed the need for more evidence examining these health impacts and more coordinated support from recovery institutions [5].

Other bibliometric analyses using the Scopus database also denounced that only one-third of studies in trafficking were about the health of victims, in comparison to those related to social science or humanities [6]. The importance of research collaboration between the countries of origin and destination was also mentioned. A study carried out in 2010 also mentioned the lack of review on the impact on health, especially on the consequences of trafficking situations for mental health, such as PTSD, anxiety, and depression [7]. This study also pointed out the importance of the mental health community to help victims recover.

To date, no systematic review has comprehensively examined social health, not as a social determining factor but as an important dimension of health. This work follows the theoretical health model proposed by George Engel in 1977, which studies the state of health from three central perspectives: biological, psychological, and social. This model is a critique of reductionist and hegemonic biomedical models [8]. For this reason, we adhere to World Health Organization's (WHO) definition of health as "*a state of complete physical, mental and social well-being*". Hence, the main objective of our systematic review is to study health from a broader perspective, beyond psychophysical symptoms, to understand the global impact of human trafficking on sexual, social, physical, and psychological health. This review opens the door to generate greater awareness of the relevant health conditions, thereby making it easier for professionals to identify and assist victims. It also aims to highlight the research gaps and the need for further investigation in the field of health. Due to the intention to contribute to this international challenge, the main objective of this review is to help prevent and combat human trafficking (Target 5.2, Target 8.7, and Target 16.2) with biopsychosocial health research (SD3) that has identified gender discrimination (SDG5) or gaps in the existing literature.

**Methods**

**Search strategy**

The criteria for the search were original papers published in English or Spanish in peer-reviewed journals indexed in Journal Citation Reports (JCR). We used multiple search terms and several word combinations (Table 1) to find academic articles published between January 2001 (after the signing of the Palermo Protocol) and March 2020 (before the pandemic started). The selected studies presented the impact of HT on the physical, sexual, psychological, and social health of the victims. Grey literature and non-academic sources were not explored.

**Table 1:** Search Terms and Selection Criteria

Search Terms	
*trafficking*, *trafficked*, *human trafficking*, *sex trafficking*, *sex trafficked*, *labor trafficking*, *child trafficking*, *trafficked children*, *woman trafficking*, *women trafficked*, *male trafficked*, *post trafficking*, *post-trafficking*	
Inclusion Criteria	Exclusion Criteria
a) Studies with a large sample of HT victims	a) Manuals without health numbers

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|---|---|
| b) Studies with complete texts accessible from the five databases   | b) Victim stories without interpretation  |
| c) Regional, national, and supranational studies  | c) Non-academic studies   |
| d) Studies that have all purposes of Human Trafficking: sexual and labor exploitation, force marriage or begging... | d) Studies not in English or Spanish  |
| e) Qualitative, quantitative, and mixed studies with analysis   | e) Studies prior to Palermo Protocol (2000)                                       |
| f) Scientific publications (universities, research centers, etc.)   | f) Studies with not very representative samples or with data only on prostitution |
| g) Articles or book chapters  | g) Studies of victims' health before being captured                               |
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In this study, a “systematic review” approach was chosen because it helps gather all the knowledge on a topic [9]. We followed the analytical framework called SALSA (Search, Appraisal, Synthesis, and Analysis), which includes i) exhaustive and comprehensive search of existing research; ii) quality assessment determined with inclusion and exclusion criteria; iii) narrative synthesis accompanied by tables; iv) analysis of what is known, research gaps, recommendations, and limitations. The review adheres to PRISMA (Preferred Reporting Items for Systemic Reviews and Meta-Analyses) reporting guidelines. The electronic search was carried out in the following databases: Google Scholar, EBSCO, Dialnet, Web of Science, and Scopus. Manual searches were also conducted based on research institutions using a snowball search and recommendations from field experts. The bibliography was managed through RefWorks ProQuest and Google Scholar. Most of the included articles were published in peer-reviewed journals (referred or academic), indexed in Journal Citation Reports (JCR) and accessible from the five selected databases.

### **Data extraction and synthesis**

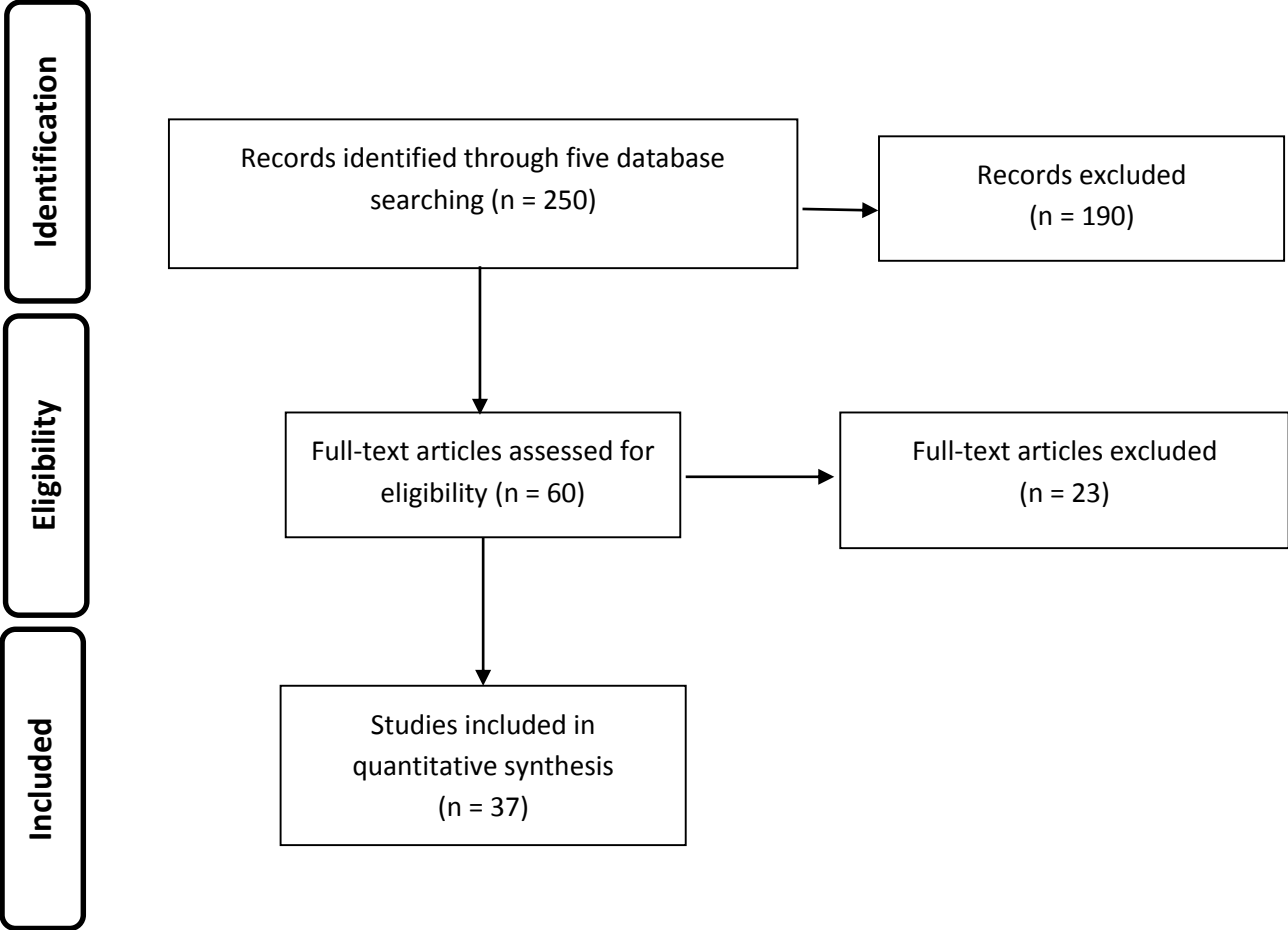
For each included trial, the authors extracted data using a form designed specifically for this review, where the different characteristics of the study and the results obtained were noted. Information extracted from each eligible study included author(s), year of publication, title, study location, research institution(s), study design, health status, sample gender, age range of included participants, ethnicity, and other socioeconomic characteristics of each sample. Furthermore, a narrative review of each included trial is provided. Following Zimmerman's classification of the health impact of human trafficking [10], the information in this study was analysed across 5 categories: violence, social environmental health, psychological health, physical health, and sexual reproductive health. More than 250 articles on health and HT victims were found in the first round. In the next reading of the texts, we selected 60 articles that apparently met the abovementioned inclusion criteria. Finally, rigorous selection reduced the number to 37 studies (Table 1) that met all the criteria. Most of the studies were rejected in the second phase since they corresponded to samples of people mainly in a situation of prostitution (not HT).

### **Data analysis**

The lead author has generated the first in-depth approach to the research review. OG performed the initial identification (title, abstract and conclusion) corresponding to the first

stage, whereas OG and CM were both fully re-examined to confirm eligibility (second stage). The second author (CM) carried out a comprehensive review work. Duplicates or non-academic papers were removed. The last stage was to confirm and make the final decision considering the quality, relevance, and inclusion/exclusion criteria (Figure 1). On this occasion, a third review was not necessary, and disagreements were resolved by discussion and consensus. For the current paper, both authors have signed the *ICMJE Form for Disclosure of Potential Conflicts of Interest*.

**Figure 1:** Flowchart of systematic review



**Results**

In this section, the results of the bibliographic review are described. First, the theoretical frameworks and geographical contexts in which the research was carried out are explained. Second, the methodology and analysis of the selected articles are illustrated. Third, the sociodemographic characteristics of the victims are described. Finally, the last section explains the contents of selected articles in accordance with four health categories (including violence in social health).

**Theoretical framework and geographic context of the included papers**

In general, the selected articles began with a description of the impact of HT on the health of the victims. Some of them included prevention and intervention models. Relatively few

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4 investigations explicitly included a theoretical framework, although a definition of  
5 trafficking was alluded to in the introduction of the studies. These studies also mentioned  
6 gender perspectives and migration issues.  
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9 The countries with the highest number of investigations were India, Nepal, the United States,  
10 the United Kingdom, and Moldova (Annex). Among the 37 selected articles, 19 were  
11 national, 15 were supranational, and 3 were regional. Most were carried out in Asia (n=12)  
12 and Europe (n=10), and a few were carried out in America (n=8) and Africa (n=2). Consistent  
13 with other reviews [6], at least one-third of the research on health and trafficking was  
14 conducted at the *London School of Hygiene and Tropical Medicine*, and the most active  
15 author was *Cathy Zimmerman*.  
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### 18 **Methodology of the included papers**

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20 Most of the studies mentioned inclusion and/or exclusion criteria (n=24). The most  
21 commonly used design was the quantitative design (n=21), followed by a mixed  
22 methodology approach (n=11). Only a few cases used exclusively qualitative methodology  
23 (n=5). In the 14 studies using a quantitative design, some type of regression model,  
24 particularly bivariable or multivariable logistic models, was used.  
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27 Most of the investigations were cross-sectional, and they examined the health conditions of  
28 trafficking victims with few experimental models and longitudinal studies. In addition,  
29 several investigations used standardized tools, such as i) Structured Clinical Interview for  
30 DSM-IV (SCID); ii) post-traumatic stress disorder (PTSD) checklist (PCL); iii) Brief  
31 Symptom Inventory (BSI); iv) Harvard Trauma Questionnaire (HTQ); v) Miller Abuse  
32 Physical Symptoms and Injury Survey (MAPSAIS); and vi) Hopkins symptoms checklist.  
33 Interviews and questionnaires were the most widely used research techniques, followed by  
34 case studies and medical records. Most of the selected papers used convenience or  
35 consecutive sampling.  
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39 The sample size of the studies ranged from 35 to 4559 victims. Some samples included key  
40 informants, and all of them used non-probability sampling. Most of the samples were  
41 obtained through access to services that cared for victims [7, 10–38]; the remaining samples  
42 were arranged through direct contact with prostitution premises or victims [39–44], and one  
43 study was a clinical sample [45]. This means that the studies collected indirect information,  
44 especially from organizations that serve victims, such as non-governmental organizations,  
45 international organizations for migration and social services in each country.  
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### 48 **Analysis and ethics of the included papers**

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50 The most widely used quantitative data management programs were SPSS, SAS or STATA.  
51 Only eight of the studies mentioned a descriptive strategy or mentioned no strategy. Of the  
52 15 papers that mentioned confidence intervals (CIs), 2 papers used CIs that were not 95%.  
53 The most widely used qualitative management programs were NVivo or Atlas/ti.  
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56 From among all the studies, only 16 of the selected studies explicitly mentioned having no  
57 conflict of interest. Most studies mentioned their compliance with the ethical requirements  
58 of research. They also reported their adherence to the protocols of the United Nations, WHO,  
59 or the ethical committees of the respective organizations and universities. However, in six of  
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4 the papers, there was an absence of reference to the ethical requirements considered [12, 13,  
5 17, 25, 26, 40]. Many of the investigations (n=31) also included information relevant to the  
6 limitations of the data analysis.  
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### 8 **Characteristics of the samples of the included papers**

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10 All studies specified the proportion of men and women in the sample. The samples mostly  
11 comprised women (see Annex), who were engaged primarily in sex trafficking (29/37)  
12 followed by labour trafficking (12/37; especially in domestic service). There were a few male  
13 studies (8/37), especially in labour trafficking (6/37). No exclusive study on sex trafficking  
14 in men has been conducted. However, there was a study on sex trafficking in women that had  
15 a significant sample of men [13] and three studies with a nonsignificant sample of males [15,  
16 35, 36], which implies a gender bias in the research conducted to date.  
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19 Moreover, 100% of the studies mentioned aspects of the victims' age. The age range varied  
20 from 7 to 60 years; however, most of the studies presented a mean age between 15 and 30  
21 years, with a higher range in male samples (25–35 years). A total of 16/37 studies focused  
22 on minors (see Annex). One of the studies [13] indicated that 75% of HT victims had been  
23 homeless at some point in their life. In a study with homeless youth victims [18], 42.6%  
24 suffered abuse prior to exploitation, which was the main reason that led them to leave their  
25 homes; 22.5% reported having had sex in exchange for food, clothing, money, or housing  
26 (70% were minors at the time).  
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28  
29 The studies also frequently mentioned the nationality [7, 10, 13–21, 23–25, 28–30, 35–39,  
30 41–43] or ethnicity [18, 25–27, 40, 44] of the victims interviewed. The birth or origin  
31 countries most often cited were Vietnam, Cambodia, Myanmar, Moldova, Russia, Ukraine,  
32 India, Nepal, Thailand, Laos, and Nigeria. According to a bibliographic review [6], regions  
33 of the world with a higher prevalence of HT had a lower contribution in research.  
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35  
36 Approximately 80% of the studies were carried out in a “post-trafficking” situation where  
37 the victims had already been rescued. However, the remaining studies [13, 39–44] were  
38 carried out when the victims were in trafficking or prostitution situations. Furthermore, 13  
39 studies included information on child abuse or abuse prior to recruitment [7, 10, 11, 13, 16,  
40 19–21, 25, 26, 36–39]. The results of these studies showed that 20%–59% of victims had  
41 suffered physical violence and 28%–63% had suffered sexual violence.  
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43  
44 Furthermore, 19 studies mentioned the marital status of the victims [7, 11, 12, 20–22, 27, 29–  
45 31, 33, 36–41, 44, 45]. We found that approximately 20% said they were married and 60%  
46 were single/unmarried/never married. Moreover, 11/37 studies offered data on the children  
47 of the people interviewed [10–12, 18, 20, 21, 33, 36–38, 41]; this highlighted the finding that  
48 between 25%–53% were mothers. It is noteworthy that in the studies of exclusively male  
49 samples, descriptions of marital status or parenthood were not included, which implies a  
50 gender bias in the research conducted to date.  
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52  
53 We found that 21 of the articles [11, 12, 15, 18, 19, 21–27, 30, 32, 33, 36, 39–41, 44, 45]  
54 mentioned the educational level of the victims in the sample: 40.7%–53.3% had completed  
55 primary education (grades 1–5), 22.9%–43.7% had completed secondary education (grades  
56 6–8), and 5.9%–51.7% were educated beyond 10th grade.  
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Only four investigations studied the religious dimension [27, 30, 44, 45]. Depending on the region of the study and the nationality of the people interviewed, the major religions included Islam, Hinduism, Buddhism, and Christianity (Protestant and Orthodox). Only one of the studies [27] measured religiosity at three levels (very, fairly, and somewhat). These types of questions should be asked and studied further because spirituality and religiosity could impact both positive (faith, hope and resilience) and negative (guilt, coercion and shame) aspects of their experience.

**Content and results of the included papers**

Regarding the content, 27 articles studied violence, 26 psychological problems, 19 sexual reproductive problems, 16 physical problems, and 16 social conditioners (other than violence). Regarding HT purposes, 33 articles studied sex trafficking, 19 labour trafficking, five forced begging, and four forced marriages (see Annex). A few studies had pointed out combined trafficking purposes [34], making it difficult to identify the categories of victims.

The reviewed studies mainly dealt with social health, which addresses living and working conditions, violence, and access to resources. These social factors affect physical health, as they may result in fractures or pain; sexual health, as they increase infections related to the reproductive system; and mental health, as they increase depression, anxiety, PTSD, and suicide attempts. The sub-sections below explain each of these dimensions of health:

Social health

The term "social health" is used for this paper since the social and economic dimensions of trafficking are fundamental and impact health. As the WHO mentions, “*social determinants affect physical, psychological and sexual health*”. Social health includes many categories of what Zimmerman [10] called social well-being (isolation, social restrictions, and manipulation); economic-related well-being (debts and available money); legal security (having identification or access to resources); and occupational and environmental health (living or working conditions).

Regarding sex trafficking, studies reported that the range of people who "always use" condoms varied between 5.6% and 55.2% [10, 12, 25, 30, 36, 40, 43, 45]. This depends on several factors, including denial of freedom to choose clients (96.3%), choose services 88% [12], and use condoms (68%) [12, 17] and an inability to stop doing something against their will (17.5%–16%) [18, 42]. Moreover, social health was also related to the hours worked daily—the minimum reported duration was 11.8 hours, and the maximum was 21 [10, 12, 15, 16, 23, 24, 27, 36].

**Table 2:** Social Impact on Victims of Human Trafficking

	Minimum %	Maximum %	Studies that mentioned it
Insufficient food	13.7%	44%	10, 12, 15, 16, 18, 19, 24, 32, 34, 36
Inadequate water for drinking	8.1%	52.7%	10, 15, 16, 18, 19, 24, 32, 34, 36

Poor basic hygiene	12.8%	65.1%	10, 15, 16, 19, 24, 32, 34, 36
No protective equipment	13.5%	46.4%	23, 24, 32, 34, 36
Cheated of wages	27.5%	70.9%	10, 18, 23, 24, 26
Denied access to their passport or identity documents	11.7%	83.1%	18, 23, 24, 32, 36
Working everyday	56.7%	97.5%	10, 12, 15, 16, 19, 23, 24, 36
Living and sleeping in overcrowded rooms	21.5%	88.4%	10, 15, 16, 19, 24, 32, 36
No freedom to go as per wish	41.8%	77%	7, 10, 12, 15, 18, 19, 23, 24, 26, 32, 35–38, 40
Threats to self or family	6.5%	91%	7, 10, 12, 13, 14, 15, 17–19, 23, 25, 26, 32, 34, 36–38, 40, 45
Physical violence	12.9%	80%	7, 10, 12–20, 23, 25, 26, 32, 34, 36–38, 40, 42, 43, 45
Sexual violence	15.7%	92.6%	7, 10, 12–20, 25, 30, 32, 36–38, 40, 42, 45

Research to date has characterized the insufficient food and water conditions suffered by the victims when they were captured (Table 2). However, a gap was discovered in social health research on survivors of trafficking: the quality of nutrition, the ability to cook for themselves, or the right to buy and choose food based on their customs, culture, and intolerances. At this point, it is worth mentioning that the cultural differences that many victims face in relation to food could translate into various physical or mental problems.

In this sense, the Sustainable Development Goals (SDGs) have set a target to “achieve Universal Health Coverage” (SDG 3.8). According to some studies, half of the victims were deprived of medical attention [10, 12, 13, 18, 24, 34, 36]. Approximately 19%–35% had access to a doctor, health centre, or sexual health clinic during trafficking [17, 23, 26, 35, 36]; however, they were not identified or assisted as trafficking victims.

Furthermore, the SDGs also aims to “strengthen the prevention and treatment of substance abuse” (Target 3.5), such as the abuse of alcohol and drugs. Forced substance abuse was noted in some studies and ranged between 5.8% and 71% [10, 17, 24–26, 36, 37, 40]. Voluntary use and addiction problems were mentioned to be present in 3.2% to 84.3% of trafficking victims [10, 13, 17, 18, 20, 22, 24, 26, 30, 36, 37, 42].

The victims’ support network and social inclusion was also reviewed. They were asked if they had at least one person they trusted [10, 11, 22]. The results showed that between 32.5%–42.5% of victims had someone to support them. Similarly, between 51% and 70.22% claimed to need the support of peers or friends [13, 44]. Social and family support had a positive effect on mental health problems (such as anxiety), and the risk decreased with higher levels of support [11, 44].

Owing to its diverse manifestations, the study of violence is complex (Table 2). Psychological violence was studied by only three studies [12, 25, 26], where between 8.5% and 85% of the victims said they had suffered such violence. Studies investigating

perpetrators [12, 14, 17, 23, 25, 40] show that between 12.9%–80% suffered violence from employers, colleagues, or traffickers. If we compare by gender, the statistics on sexual violence present a great gender discrepancy (97.1% women vs 2.9% men); these acts of sexual violence were mostly committed by clients or pimps [36]. If we compare by age, minors who were victims were more likely to experience violence (76%) than adults (60%) [20].

Psychological health

There was great heterogeneity in methodological procedures used to collect information about psychological disorders, which caused difficulty in drawing conclusions. Some studies assessed the presence of the disease in a dichotomous manner; others used scales to assess disease severity [44]. Another variable that was considered is the time when the interview was carried out, as the level of psychological disorders decreased as time passed after the trafficking situation [7].

The majority of victims (98.1%) manifested at least one psychological problem [17]. It has been said that psychological problems last longer than physical problems [7], they remain longer in trafficking victims than in the general population [37], and they are more frequent [25]. Sexual violence in trafficked people has been associated with higher levels of PTSD, but this disorder does not diminish over time as do other psychological problems [7]. However, some symptoms were shown to be reduced to 6% with proper professional treatment [7].

The Sustainable Development Goals call for urgent investment in the prevention, treatment and promotion of mental health, especially reductions in the suicide mortality rate (Target 3.4). Levels of depression in victims of sex trafficking were higher (100%) than in other victims (80.8%) [33]. Regarding trafficked children, sexual violence was associated with depression and suicide; physical violence was associated with depression, anxiety, and suicide [16].

**Table 3:** Psychological Impact on Victims of Human Trafficking

	Minimum %	Maximum %	Studies that mentioned it
PTSD	17%	77%	11, 13–17, 19, 21, 22, 24, 27, 32–34, 36–38, 41, 44
Depression	12.5%	88.7%	13–19, 24–27, 33, 36, 37, 41, 44
Suicidal thoughts/attempts	5.2%	42%	10, 13, 15–18, 21, 24–26, 32, 35–38
Anxiety disorder	32.6%	97.7%	10, 13–16, 19, 24, 27, 33, 36, 37, 44

The risk factors responsible for PTSD, anxiety, and depression (Table 3) were unmet needs after the trafficking situation, a lack of social support after the situation, and abuse during childhood [11]. Anxiety was related to the hours worked, the duration of the trafficking situation, and the HIV status of victims who underwent sexual exploitation [27]. It was shown that at least 12 months of psychological treatment was necessary for victims to recover after rescue [22].

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4 Physical health  
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7 The most frequent physical health problems were headaches, fatigue, and memory problems  
8 (Table 4), and despite the passage of time, half of the women continued to suffer from them  
9 [35]. Musculoskeletal injuries were severe, especially in trafficked people for the fishing and  
10 construction sectors [36]. Victims of sex trafficking had greater headaches, gynaecological  
11 problems, and weight loss, while labour trafficking victims suffered more back and vision  
12 problems [21]. Furthermore, there was a correlation of the duration of trafficking situations  
13 with headache and memory problems [21].  
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16 **Table 4:** Physical Impact on Victims of Human Trafficking  
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	<b>Minimum %</b>	<b>Maximum %</b>	<b>Studies that mentioned it</b>
Musculoskeletal symptoms	17.7%	68.75%	10, 13, 15, 21, 26, 32, 34, 36–38, 40
Headaches	19.6%	82.29%	10, 13, 15, 17, 21, 25, 32, 34–38
Memory problems	13.3%	82.1%	15, 17, 21, 25, 32, 34–38
Breathing difficulties	17.7%	82%	15, 17, 21, 25, 34–38
Skin problems and injuries	3.1%	70%	7, 10, 15, 17, 19, 21, 23, 25-26, 34–38
Loss of appetite or weight	13%	64%	10, 15, 17, 21, 25, 32, 34, 36–38
Dental problems	8.4%	58%	10, 15, 17, 21, 25, 26, 32, 34, 36–38

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33 Sexual health  
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35 Based on previous studies, female victims often complain of problems in the reproductive  
36 system; among these problems, the most studied have been pelvic pain (25%–63%) [10, 25,  
37 37–38, 40], gynaecological or urinary infections (43.8%–61%) [17, 37, 38], pain during sex  
38 (47%) [17, 40], abnormal bleeding (23%–44%) [25, 40], or worrisome vaginal discharge  
39 (33.3%–45%) [17, 37, 38, 40]. There is a very large gender bias with regard to studies on  
40 trafficking in men, where sexual health and STIs have been systematically forgotten, In  
41 contrast to studies with female samples.  
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45 “Universal access to sexual and reproductive health” is Target 3.7 of the SDG. The reviewed  
46 studies indicated that victims had forced and unsafe abortions [10, 17, 36, 37, 39, 41, 43] as  
47 well as limited access to health services and gynaecological care [10, 26]. Only 65.9%  
48 underwent a sexually transmitted infection (STI) test, and 81.2% underwent an HIV test [43].  
49 Similarly, a detailed study [33] showed that 25% of sex-trafficked women and 80% of labour-  
50 trafficked women did not know if they were HIV positive.  
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53 “Ending of communicable disease transmission” is Target 3.3 of the SDG. Approximately  
54 28.7%–67.3% of the victims had one STI [17, 18, 26, 37, 43], and 2%–49.6% were HIV  
55 positive [27–31, 37, 42]. Being HIV positive increased the chance of contracting a second  
56 STI, especially syphilis or hepatitis B [28]. As expected, there were higher levels of HIV in  
57 sex-trafficked victims [33]. Each additional month spent in a brothel increased the possibility  
58 of contracting HIV by 3%–4%; additionally, children victims suffered a high risk of  
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4 contracting HIV [29, 31]. Similarly, HIV positivity was associated not only with ages under  
5 20 years but also with physical or sexual violence [42].  
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9 ***Discussion***

10 The review highlights the generalized violence (27 studies) and the prevalence of mental  
11 problems (27 studies) in HT victims. As has been pointed out, social health (in terms of  
12 support, violence, medical care, and living and working conditions) impacts physical, mental,  
13 and sexual health. The novelty of this review is that it highlights the need for studies that  
14 integrate various aspects of health, thereby overcoming the dichotomy of medical and social  
15 studies. In this sense, we subscribe to the Engel approach [8] and suggest that there is a need  
16 to find a new paradigm that integrates the social and medical sciences.  
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20 Despite similarities with other victims, trafficking victims suffer problems that need as much  
21 attention as 20 cases of domestic violence [46]. One of the greatest difficulties and  
22 differences with other victims is access to healthcare. It is known that victims sometimes  
23 went to medical facilities; however, they were not identified or assisted as victims of  
24 trafficking [17]. As previously mentioned [5], health impacts should be investigated further,  
25 and more coordinated support should be provided from care institutions. Therefore, it is  
26 necessary to continue with health research (SDG 3) to improve both the identification and  
27 care of victims. This review reiterates the need to study health since research on trafficking  
28 mostly focuses only on law and criminology [6]. The more we know about all the dimensions  
29 that impact health, the better professionals will be able to detect and support victims in  
30 recovery.  
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34 Previous reviews on trafficking have denounced the poor design and lack of rigorous  
35 research, methodological transparency, and explanatory techniques [47]—aspects also  
36 perceived by this study. Furthermore, there is a tendency to study mostly sex trafficking in  
37 women and girls [48]. A systematic review conducted in 2016 [49] also claimed the need to  
38 investigate effective psychological interventions with trafficking victims and the factors that  
39 increased the risks of mental and sexual problems. Even though trafficking research has  
40 increased, the research gap of health impact persists [6, 49]. Therefore, we would reiterate  
41 that the gaps in the investigation of human trafficking remain unanswered a few years later.  
42 The recommendation is to further investigate the specific needs in situations with other  
43 purposes of trafficking (forced begging, forced marriages, commission of crimes, organ  
44 trafficking) and other groups (minors, people with disabilities, men, transsexuals).  
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48 New research gaps were identified in this systematic review. Many gender biases have been  
49 discovered in studies with men and young male trafficking victims. It was found that  
50 fatherhood was not studied in male samples of human trafficking, although parenthood was  
51 fully studied in female samples. This is very worrying because we do not know if trafficked  
52 men are fathers or husbands, in which case they could have financial responsibilities to their  
53 children or families, and this could be a risk factor for coercion or vulnerability. Similarly, it  
54 was found that sexual health in situations involved trafficking in men was not studied, so we  
55 do not know if surviving men suffer from sexually transmitted infections and therefore need  
56 treatment. Finally, there was only one study that had a significant sample involving male sex  
57 trafficking [13], creating a huge research gap.  
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4 To date, religious and nutritional conditions have not been studied in depth. The religious  
5 and spiritual dimensions are an important component of identity, and examination of these  
6 beliefs should be kept in mind in future research. When professionals work with survivors of  
7 trafficking, they should be aware that this dimension of victims could have a positive or  
8 negative impact. Some beliefs make survivors more likely to feel guilty or manipulated by  
9 criminal trafficking networks, while other beliefs are a deep source of resilience or hope to  
10 keep trying to escape. Nutritional conditions is also a contributor to health: first, trafficking  
11 victims do not have food safety and cannot always afford a basic good, such as food; second,  
12 people trafficked could hardly ever have the freedom to buy, eat, choose, and cook their food,  
13 and alimentation depends on the culture; third, many victims come from homes where they  
14 could have cooked for themselves, thereby serving as a time for them, as a hobby and as a  
15 source of self-esteem.  
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20 This work is committed to the objectives and challenges of contemporary reality. For this  
21 reason, this article is in line with Sustainable Development Goal 5 "achieve gender equality".  
22 On the one hand, by avoiding gender discrimination against men, the systematic gaps in  
23 research regarding men make the situation of trafficking in men invisible. On the other hand,  
24 this review denounces gender discrimination against women and the gender bias in the  
25 literature that reproduces women's gender roles (asking about maternity, sexual health, or  
26 marital status), while men are not asked these questions.  
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29 In summary, the greatest contribution of this review is to study health from a broader  
30 perspective, beyond psychophysical symptoms, to understand the global impact of human  
31 trafficking on sexual, social, physical, and psychological health (SDG 3). Helping to fill this  
32 research gap in the existing literature helps to prevent and combat human trafficking (Target  
33 5.2, Target 8.7, and Target 16.2). However, this review has some limitations. First, the  
34 inclusion criteria were limited to studies in English and Spanish. Second, publication years  
35 before 2001 were not considered. Third, since we are considering a hidden population, the  
36 study samples were limited, and we do not have instruments to reach random samples, which  
37 could reflect other health problems. Last, it is possible that other reviews not focused on  
38 health may have collected some data on well-being but were not included in this review.  
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### 43 *Conclusions*

44 This work leads us to conclude that social health also determines the future well-being of  
45 trafficking survivors and combats human trafficking. Therefore, social health (as influenced  
46 by violence, social support, medical care, hours worked per day, duration of trafficking  
47 situation, freedom, age, and gender) is related to physical, sexual, and psychological health.  
48 More studies are needed on the social health of human trafficking victims, especially to fill  
49 the research gaps related to nutrition and religiosity or spirituality. Many gender biases were  
50 discovered: studies of trafficking in men and young males, unlike those in women, did not  
51 study parenting, sexual health, marital status, or sex trafficking.  
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### 57 *Declarations*

### 58 **Authors' contributions**

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4 XX highlighted the need for studies that integrate various aspects of health, overcoming the  
5 dichotomy of medical-social studies, and related each dimension to Sustainable Development  
6 Goals. XX assisted in data analysis, interpretation and preparation of the manuscript. All  
7 authors read and approved the final manuscript.  
8  
9

## 10 **Acknowledgements**

11 XX  
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## 14 **Ethics approval and consent to participate**

15 Not applicable  
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## 18 **Registration and protocol**

19 Not applicable, this review was not registered.  
20  
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## 23 **Funding**

24 None.  
25  
26

## 27 **Competing interests**

28 The authors declare that they have no competing interests and attached both ICMJE Form  
29 for Disclosure of Potential Conflicts of Interest of each author.  
30  
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## 32 **Availability of data and materials**

33 Not applicable, all data generated or analysed during this study are included in this published  
34 article.  
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## 38 **Paper context**

39 The authors are in an investigation group which have been researching how to combat human  
40 trafficking. This work leads us to conclude that social health also determines the future well-  
41 being of trafficking survivors. More studies are needed on the social health of human  
42 trafficking victims, especially to fill the research gaps such as other purposes, health  
43 dimensions and vulnerable groups.  
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## Annex: Characteristics of the included papers

Author/Year	Sample	Countries	Purpose	Main results
<b>Abas et al., 2013</b>	n = 120 women	Moldova	Sex trafficking (80.8%), labor trafficking	Risk factors for mental disorders are considered: duration of trafficking, number of unmet needs after the trafficking situation, and lack of social support.
<b>Acharya, 2008</b>	n = 60 women	Mexico D.F.	Sex trafficking	Many victims suffered verbal abuse, beatings, confinement in room, burns, death threats, rapes of clients or traffickers, and group rapes.
<b>Acharya, 2015</b>	n = 60 women	Mexico, Monterrey	Sex trafficking	More than 2/3 <sup>rd</sup> of the victims of sexual trafficking have suffered an abortion, many of them not in a clinic. Victims have more than ten clients daily.
<b>Chudakov et al., 2002</b>	n = 55 women	Israel	Sex trafficking (82%), prostitution	The victims usually suffer depression, do not use protection in oral sex, and have on average twelve clients per day.
<b>Decker, 2011</b>	n = 815 women	Thailand	Sex trafficking (10.4%), prostitution	Trafficked women are likely to experience twice the sexual violence at the beginning, thrice the pregnancies, and twice the abortions as women in prostitution. Moreover, less than half of the women in prostitution are likely to use condom.
<b>Di Tommasso et al., 2009</b>	n = 4559 women	Europe	Sex trafficking	Trafficking women suffer from movement restrictions, attacks, illegal working hours, lack of labor rights, and prohibition of access to basic services.
<b>Farley et al., 2004</b>	n = 854 women, men, children	Canada, Colombia, Germany, others	Sex trafficking, prostitution	Physical, psychological, and sexual reproductive health impacts are mentioned, along with a study of violence types and threats.
<b>Gezie et al., 2018</b>	n = 1387 women, men, children	Ethiopia	Labor trafficking	Movement restriction affects anxiety, depression, and PTSD. Violence is associated with anxiety and PTSD. Social support impacts anxiety: the more the support, the less the anxiety.
<b>Gupta et al., 2011</b>	n = 157 trafficked women	India	Sex trafficking, prostitution	Sex-trafficked women suffer more physical and sexual violence, threats, clients, and working days and hours and use less comprehensive care services and condom; moreover, they have less knowledge about HIV than other women in prostitution.
<b>Hossain et al., 2010</b>	n = 204 women	Moldova, Ukraine	Sex trafficking	Sexual violence is associated with higher levels of PTSD, longer exploitation time, and more levels of depression and anxiety. The longer the time elapsed since the rescue, the lesser the depression and anxiety; however, the same does not apply to PTSD.
<b>Iglesias-Ríos et al., 2018</b>	n = 569 women	Cambodia, Vietnam, others	Sex trafficking, labor trafficking,	Violence and coercion are predictors of symptoms of anxiety, PTSD, and depression. Personal and family threats are associated with a high prevalence of PTSD, and these are more than twice prevalent than anxiety.

Begging				
<b>Kiss et al., 2015a</b>	n = 1015 women, men, children	Cambodia, Thailand, Vietnam	Sex trafficking, labor trafficking, begging, forced marriage	Depression, anxiety, and PTSD are linked to excessive working hours, restricted freedom, poor living conditions, threats, or severe violence
<b>Kiss et al., 2015b</b>	n = 387 minors	Cambodia, Thailand, Vietnam, others	Sex trafficking (52%), labor trafficking, forced marriage	Physical violence is related to depression, anxiety, and suicidal thoughts, while sexual violence is associated with depression and suicide
<b>Lederer et al., 2014</b>	n = 107 women	The USA	Sex trafficking	Medical staff is unable to detect trafficked women who use medical services
<b>Mostajabian et al., 2019</b>	n = 129 homeless youth	The USA, Texas	Sex trafficking, labor trafficking, exploitation	About 42.6% of homeless youth in the sample suffered abuse prior to exploitation, which is the main reason they left their homes. The Human Trafficking Screening Tool (HTST) identifies more trafficked victims.
<b>Nodzinski et al., 2019</b>	n = 517 minors	Cambodia, Vietnam, Thailand	Sex trafficking (48.9%), labor trafficking, begging	Trafficked boys suffer more physical violence than girls. Trafficked girls suffer more sexual violence and depression and have more freedom. Trafficked children suffer from anxiety and PTSD
<b>Oram et al., 2012a</b>	n = 120 women	Moldova	Sex trafficking (81%), labor trafficking	The similarities between labor and sex trafficking women are head, stomach, back, and tooth aches. Sex-trafficked women have greater headaches, gynecological problems, and weight loss. Labor-trafficked women have more back and vision problems
<b>Oram et al., 2015</b>	n = 133 women, men, children	The UK	Sex trafficking, labor trafficking	Physical or sexual abuse in childhood is higher (76%) than in adulthood (60%). Affective disorders have a greater impact in adulthood (34% vs 27% in minors).
<b>Ostrowschi et al., 2011</b>	n = 120 women	Moldova	Sex trafficking, labor trafficking	Some health problems persist after the rescue: PTSD, anxiety or mood disorders, and problems with alcohol or substance use.
<b>Pocock et al., 2016</b>	n = 446 men	Cambodia, Myanmar, Thailand	Sex trafficking, begging	Trafficked men work without protective equipment, for 12–19 hours per day, and under threats and violence. About 45.2% men who suffered injuries could not get medical attention and 47% still experienced pain.

<b>Pocock et al., 2018</b>	n = 275 men	Cambodia, Myanmar	Labor trafficking	The most common symptoms in trafficked male are dizziness, exhaustion, headaches, memory problems, depression, PTSD, and anxiety.
<b>Raymond et al., 2002</b>	n = 146 women	Indonesia, Philippines, Thailand, Venezuela, The USA	Sex trafficking	Different countries show different trends.  About 30%–80% US trafficked victims use condom (clients are willing to use protection).  Indonesian trafficked victims reported that almost all clients refused to use a condom.
<b>Raymond et al., 2001</b>	n = 35 women/n = 88 informant	The USA	Sex trafficking	Many trafficked women have suffered violence, lack of monetary freedom, control, HIV, psychological problems, and PTSD. Furthermore, pornography is used to blackmail them.
<b>Rimal et al., 2016</b>	n = 66 women	Nepal	Sex trafficking	PTSD, depression, and anxiety are associated with HIV-positive status and hours worked per day
<b>Sarkar et al., 2008</b>	n = 183 trafficked women	India, Nepal, Bangladesh	Sex trafficking, prostitution	Trafficked women face high levels of sexual violence and are associated with HIV. It is also related to victims under the age of 20 who suffer physical and sexual violence or forced sex.
<b>Silverman et al., 2006</b>	n = 175 women	India	Sex trafficking	There is a 3–4% increase in the risk of contracting HIV for each additional month spent in a brothel. The longer you are trafficked and the younger you are, the more likely you are to contract HIV.
<b>Silverman et al., 2007</b>	n = 287 women	Nepal	Sex trafficking	The longer you are trafficked and the younger you are, the more likely you are to contract HIV.
<b>Silverman et al., 2008</b>	n = 246 women	Nepal	Sex trafficking	Victims who have HIV are more likely to have other infections, such as syphilis or hepatitis B.
<b>Silverman et al., 2011</b>	n = 88 trafficked women	India	Sex trafficking, prostitution	Sex-trafficked women face high levels of sexual violence, alcohol consumption, and exposure to HIV infection
<b>Stanley et al., 2016</b>	n = 29 youth	The UK	Sex trafficking, labor trafficking, forced marriages	Young victims of trafficking generally suffer physical violence, threats, and restrictions on freedom and face deprivation, anxiety, PTSD, and suicidal thoughts.
<b>Tsutsumi et al., 2008</b>	n = 164 women	Nepal	Sex trafficking, labor trafficking	There are many HIV-positive victims of sex trafficking.  In other trafficking purposes, the 80% do not know if they have HIV.
<b>Turner-Moss et al., 2014</b>	n = 35; men and women	The UK	Labor trafficking	Trafficked victims suffer from headache, back pain, fatigue, vision problems, dental pain, physical violence, and PTSD
<b>Westwood et al., 2016</b>	n = 136; men and women	England	Sex trafficking (30%), labor trafficking	About 19% of victims have access to general medicine; many need an interpreter for this. About 80% have never been left unaccompanied during trafficking.

<b>Zimmerman et al., 2003</b>	n = 28 women/ n= 107 informants	Albania, Italy, The UK, Thailand, others	Sex trafficking, labor trafficking	Trafficked victims suffer from forced use of drugs and alcohol, restrictions and social manipulation, economic exploitation, debt bondage, and abusive conditions
<b>Zimmerman et al., 2006</b>	n = 207 women	Moldova, Ukraine, Italy, The UK, others	Sex trafficking (92%), labor trafficking	The victims suffer physical impacts (57% suffer between 12 –23 concurrent symptoms), psychological problems, reproductive impacts, and violence.
<b>Zimmerman et al., 2008</b>	n = 192 women	Belgium, Bulgaria, Italy, The UK, others	Sex trafficking	63% of trafficked victims reported 10 simultaneous symptoms in the last 2 weeks previous to the investigation.
<b>Zimmerman et al., 2014</b>	n = 1102 women, men, children	Cambodia, Thailand, Vietnam	Sex trafficking labor trafficking, begging, forced marriages	This is a detailed study on all the dimensions of health. It also shows the differences between trafficking purposes.