



# Health of men, women, and children in post-trafficking services in Cambodia, Thailand, and Vietnam: an observational cross-sectional study

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## Summary

**Background** Trafficking is a crime of global proportions involving extreme forms of exploitation and abuse. Yet little research has been done of the health risks and morbidity patterns for men, women, and children trafficked for various forms of forced labour.

**Methods** We carried out face-to-face interviews with a consecutive sample of individuals entering 15 post-trafficking services in Cambodia, Thailand, and Vietnam. We asked participants about living and working conditions, experience of violence, and health outcomes. We measured symptoms of anxiety and depression with the Hopkins Symptoms Checklist and post-traumatic stress disorder with the Harvard Trauma Questionnaire, and used adjusted logistic regression models to estimate the effect of trafficking on these mental health outcomes, controlling for age, sector of exploitation, and time in trafficking.

**Findings** We interviewed 1102 people, of whom 1015 reached work destinations. Participants worked in various sectors including sex work (329 [32%]), fishing (275 [27%]), and factories (136 [13%]). 481 (48%) of 1015 experienced physical violence, sexual violence, or both, with 198 (35%) of 566 women and girls reporting sexual violence. 478 (47%) of 1015 participants were threatened and 198 (20%) were locked in a room. 685 (70%) of 985 who had data available worked 7 days per week and 296 (30%) of 989 worked at least 11 hours per day. 222 (22%) of 983 had a serious injury at work. 61.2% (95% CI 58.2–64.2) of participants reported symptom of depression, 42.8% (39.8–45.9) reported symptoms of anxiety, and 38.9% (36.0–42.0) reported symptoms of post-traumatic stress disorder. 5.2% (4.0–6.8) had attempted suicide in the past month. Participants who experienced extremely excessive overtime at work, restricted freedom, bad living conditions, threats, or severe violence were more likely to report symptoms of depression, anxiety, and post-traumatic stress disorder.

**Interpretation** This is the first health study of a large and diverse sample of men, women, and child survivors of trafficking for various forms of exploitation. Violence and unsafe working conditions were common and psychological morbidity was associated with severity of abuse. Survivors of trafficking need access to health care, especially mental health care.

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## Introduction

Trafficking of human beings is a gross violation of human rights that often involves extreme forms of abuse and exploitation. Recent estimates suggest that more than 18 million people are in forced labour as a result of trafficking, although estimates are often questioned because of the hidden nature of trafficking and difficulties in defining it.<sup>1</sup>

The most commonly used definition of human trafficking comes from the UN Convention Against Transnational Organized Crime and its Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children:<sup>2</sup> “The recruitment, transportation, transfer, harbouring or receipt of persons by means of threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power, or of a position of

vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at minimum, the exploitation of prostitution of others or other forms of sexual exploitation, forced labour or services, slavery or practices similar to slavery, servitude or the removal of organs.”

Experts generally agree that the crime of human trafficking centres on acts of exploitation and coercion.<sup>3</sup> Other more specific elements that are commonly present in definitions of trafficking and used in treaties, policy documents, and operational indicators of trafficking include restricted freedom of movement, abusive living and working conditions, confiscation of documents, debt bondage, withholding of wages for prolonged periods, intimidation, and excessive overtime.<sup>4–6</sup>

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People who are subjected to these extreme levels of exploitation are exposed to many health risks, including physical, sexual, and psychological violence, deprivation, and severe occupational hazards, which often result in acute and long-term physical and psychological morbidity—sometimes death.<sup>7</sup> For those who survive a trafficking experience, many—if not most—will need medical care for their physical and psychological health needs.<sup>8</sup> Worldwide, post-trafficking services have arisen to care for survivors of these dangerously exploitative circumstances, which are variously labelled as, among other terms, trafficking, forced labour, and slavery.

Very little survey research has been published about human trafficking and health, with most evidence coming from studies of women trafficked for sexual exploitation, primarily in Europe and south Asia.<sup>7</sup> Almost no research has been done of the health of trafficked men and boys,<sup>9</sup> or people trafficked into sectors other than sex work, such as agriculture, commercial fishing, domestic servitude, factory work, and street begging. Although violence and intimidation are commonly associated with human trafficking, little recognition has been given to the additional occupational and other health risks of trafficking-related labour conditions.<sup>10</sup>

For example, migrant workers report more accidents and injuries than do non-migrant workers,<sup>11</sup> suggesting that for trafficked workers (often deemed a subgroup of the larger migrant worker population), common occupational hazards may be worse, exacerbated by violence and abusive working and living conditions. Trafficked people are likely to toil in physically arduous jobs and work extensive hours with few breaks—conditions associated with high injury rates.<sup>12</sup> Exploited labourers are unlikely to be offered adequate training (in a language they understand) or personal protective equipment to, for example, use heavy equipment, work at heights or with harsh chemicals, or to do repetitive tasks (eg, bending, lifting).<sup>13</sup> Trafficked workers are also likely to work in sectors with few health and safety inspections.<sup>14</sup> Despite the evident health risks and probable harm associated with human trafficking, most information about trafficking comes from media coverage or reporting of individual cases, whereas survey data—especially for health—are scarce.<sup>15</sup>

An estimated 56% of forced labourers worldwide live in the Asia and Pacific region,<sup>1</sup> especially in the Greater Mekong subregion,<sup>16</sup> which has more than 13 million migrant workers.<sup>1</sup> A small study of Vietnamese migrants estimated that 13% are trafficked.<sup>17</sup> Likewise, 17% of 596 Thai fisherman reported that they were working against their will or under threat of penalties.<sup>18</sup> Given that international and internal economic migration are common in the region, these proportions suggest that migrants have a substantial risk of ending up in dangerously exploitative circumstances.

We report the first large quantitative study of the health of women, men, and children in post-trafficking services who were exploited and abused in various forms of

labour in southeast Asia. We describe the health risks and morbidity patterns, including the effects of various forms of violence, occupational risk exposures, and living conditions, on survivors' mental health to inform provision of services and policy.

## Methods

### Study design and participants

We carried out this observational cross-sectional study in Cambodia, Thailand, and Vietnam. We used a two-stage strategy to identify a sample of men, women, and young people (age 10–17 years) who used post-trafficking services. First, we selected services in each country (six in Cambodia, four in Thailand, and five in Vietnam on the basis of diversity of clientele (eg, age, sex, sector of exploitation, country of origin), relationship with country teams of the International Organization for Migration, and agreements with government agencies (eg, support, referral, and service arrangements). Several organisations had specific age and sex eligibility criteria (eg, only women and children, only men). Second, we invited a consecutive sample of individuals within the first 2 weeks of admission to these services to participate in face-to-face interviews. Individuals were excluded if trained caseworkers deemed individuals too unwell to participate or that participation would cause harm.

Clients were referred to these services by various sources, including police and immigration services, non-governmental and international organisations, and government agencies (eg, Cambodia's Department of Anti-Trafficking and Juvenile Protection, Thailand's Department of Social Development and Welfare, Vietnam's Department of Social Evils Prevention).

The study was approved by the ethics committee of the London School of Hygiene & Tropical Medicine. Local ethics approval was granted by the National Ethics Committee for Health Research in Cambodia, by the Hanoi School of Public Health in Vietnam, and by the Ministry of Social Development and Human Security in Thailand.

### Procedures

The questionnaire was based on an instrument from a European study of women in post-trafficking services<sup>19</sup> and adapted to local contexts and a wider range of labour sectors by the study team. It included questions about socioeconomic background, pre-trafficking exposures, living and working conditions during trafficking, violence, health outcomes, and future plans and concerns.

The instrument was translated into Khmer, Thai, Vietnamese, Burmese, and Lao, and refined through group discussions with International Organization for Migration counter-trafficking teams, further revised through pilot-testing, and reviewed after back-translation into English. Interviews were carried out by social workers or caseworkers, following intensive 1-week training by LK in collaboration with the International

Organization for Migration partners in each country. Data collection and entry were coordinated by the local International Organization for Migration offices, with oversight by the London School of Hygiene & Tropical Medicine between October, 2011, and May, 2013.

The research teams in each country followed a strict ethics protocol based on the WHO Ethical Recommendations for Interviewing Trafficked Women.<sup>20</sup> Core ethical guidance included measures to ensure that participation was voluntary and confidential, assurance that declining participation would not affect provision of services, avoidance and management of distress, and offer of options for supported referral for health or other reported problems. We measured symptoms of anxiety and depression with the Hopkins Symptoms Checklist and post-traumatic stress disorder with the Harvard Trauma Questionnaire.<sup>21–23</sup> We used a cutoff of 1.75 for anxiety, on the basis of studies of users of post-trafficking service and studies of Cambodian, Laotian, and Vietnamese refugees.<sup>24,25</sup> We excluded item 12 (sexual interest) from the depression scale because of sensitivity in cases of sexual abuse and because participants were often residing in shelter situations. Therefore, we used 1.625 as the cutoff for symptoms indicative of depression, departing from the 1.75 cutoff established by Mollica and colleagues<sup>25</sup> and assuming that each item made a similar contribution to the overall score. We used a cutoff of 2.0 for post-traumatic stress disorder, on the basis of a previous study of users of post-trafficking services.<sup>26</sup>

Items on physical and sexual violence were based on a WHO international study of domestic violence.<sup>27</sup> The items were supplemented with acts commonly reported by trafficking victims to local service providers. On the basis of a categorisation often used in violence studies,<sup>28</sup> we classed the following experiences as severe violence: being kicked, dragged, beaten up, tied or chained, choked, or burned; having a dog released to bite or scratch; being threatened with a weapon, cut with a knife, shot; and forced to have sex. Slaps, pushes, and hits were classed as less severe violence. We also asked participants about threats against themselves or family members and people they cared about.

Items measuring working and living conditions included excessive working time, restricted freedoms, being cheated of wages, and precarious living conditions. Excessive working time was based on the International Labour Organization's International Standards on Working Time,<sup>29</sup> and combined two variables: hours worked per day and hours worked per week. We defined non-abusive working time as 8 h or less of work per day or 40 h per week. We classed working time of 8–10 h per day or 40–48 h per week as excessive. Extremely excessive working time included more than 10 h per day or more than 48 h per week, or no fixed hours.

We classed restricted freedom as positive when participants reported having been locked in a room or never being free to do what they wanted or go where they

wanted. We measured participants' living conditions as living and sleeping in overcrowded rooms, sleeping in dangerous conditions, nowhere to sleep or sleeping on the floor, poor basic hygiene, inadequate drinking water,

	Men (n=383)	Women (n=288)	Children (n=344)	Total (n=1015)
<b>Age (years)</b>				
10–14	..	..	69 (20.1%)	69 (6.8%)
15–17	..	..	275 (79.9%)	275 (27.1%)
18–24	168 (43.9%)	191 (66.3%)	..	359 (35.4%)
25–34	151 (39.4%)	52 (18.1%)	..	203 (20.0%)
≥35	64 (16.7%)	45 (15.6%)	..	109 (10.7%)
<b>Education</b>				
Primary or less	177 (46.2%)	92 (31.9%)	144 (41.9%)	413 (40.7%)
Secondary	111 (29.0%)	97 (33.7%)	151 (43.9%)	359 (35.4%)
Higher	23 (6.0%)	33 (11.5%)	13 (3.8%)	69 (6.8%)
No formal education	70 (18.3%)	54 (18.8%)	28 (8.1%)	152 (15.0%)
Data missing	2 (0.5%)	12 (4.2%)	8 (2.3%)	22 (2.2%)
<b>Country of origin</b>				
Cambodia	228 (59.5%)	38 (13.2%)	40 (11.6%)	306 (30.1%)
Laos	2 (0.5%)	35 (12.2%)	74 (21.5%)	111 (10.9%)
Burma	54 (14.1%)	14 (4.9%)	45 (13.1%)	113 (11.1%)
Thailand	2 (0.5%)	5 (1.7%)	133 (38.7%)	140 (13.8%)
Vietnam	97 (25.3%)	196 (68.1%)	51 (14.8%)	344 (33.9%)
Other	0 (0%)	0 (0%)	1 (0.3%)	1 (0.1%)
<b>Country of destination</b>				
Cambodia	0 (0%)	6 (2.1%)	1 (0.3%)	7 (0.7%)
China	99 (25.8%)	182 (63.2%)	49 (14.2%)	330 (32.5%)
Malaysia	30 (7.8%)	22 (7.6%)	0	52 (5.1%)
Thailand	92 (24.0%)	70 (24.3%)	286 (83.1%)	448 (44.1%)
Vietnam	0 (0%)	2 (0.7%)	1 (0.3%)	3 (0.3%)
Indonesia	124 (32.4%)	0 (0%)	5 (1.5%)	129 (12.7%)
Mauritius	32 (8.4%)	0 (0%)	1 (0.3%)	33 (3.3%)
South Africa	6 (1.6%)	0 (0%)	0 (0%)	6 (0.6%)
Russia	0 (0%)	6 (2.1%)	0 (0%)	6 (0.6%)
Don't know	0 (0%)	0 (0%)	1 (0.3%)	1 (0.1%)
<b>Sector of exploitation</b>				
Sex work	1 (0.3%)	127 (44.1%)	201 (58.4%)	329 (32.4%)
Entertainment or karaoke	0 (0%)	6 (2.1%)	23 (6.7%)	29 (2.9%)
Animal farming or meat packing	1 (0.3%)	1 (0.3%)	3 (0.9%)	5 (0.5%)
Agriculture, farming, or plantation	19 (5.0%)	36 (12.5%)	3 (0.9%)	58 (5.7%)
Begging	3 (0.8%)	0 (0%)	22 (6.4%)	25 (2.5%)
Car care	2 (0.5%)	0 (0%)	3 (0.9%)	5 (0.5%)
Domestic worker or cleaner	2 (0.5%)	26 (9.0%)	10 (2.9%)	38 (3.7%)
Construction	8 (2.1%)	3 (1.0%)	8 (2.3%)	19 (1.9%)
Factory	76 (19.8%)	40 (13.9%)	20 (5.8%)	136 (13.4%)
Fishing	262 (68.4%)	0 (0%)	13 (3.8%)	275 (27.1%)
Home business	4 (1.0%)	1 (0.4%)	1 (0.3%)	6 (0.6%)
Restaurant or hospitality	0 (0%)	0 (0%)	7 (2.0%)	7 (0.7%)
Street seller or shop	0 (0%)	4 (1.4%)	14 (4.1%)	18 (1.8%)
Wife	0 (0%)	38 (13.2%)	15 (4.4%)	53 (5.2%)
Other	5 (1.3%)	6 (2.1%)	1 (0.3%)	12 (1.2%)

(Table 1 continues on next page)

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	Men (n=383)	Women (n=288)	Children (n=344)	Total (n=1015)
<b>Time in trafficking situation (months)</b>				
<1	25 (6.5%)	62 (21.5%)	73 (21.2%)	160 (15.8%)
1–6	138 (36.0%)	130 (45.1%)	198 (57.6%)	466 (45.9%)
7–12	51 (13.3%)	32 (11.1%)	38 (11.1%)	121 (11.9%)
13–23	47 (12.3%)	21 (7.3%)	7 (2.0%)	75 (7.4%)
≥24	106 (27.7%)	23 (8.0%)	12 (3.5%)	141 (13.9%)
Data missing	16 (4.2%)	20 (6.9%)	16 (4.7%)	52 (5.1%)

Data are n (%).

**Table 1: Participant characteristics**

	Men (n=383)	Women (n=288)	Children (n=344)	Total (n=1015)
Physical violence*	188 (49.1%)	118 (41.3%)	82 (23.8%)	388 (38.3%)
Sexual violence†	5 (1.3%)	125 (43.9%)	74 (21.5%)	204 (20.2%)
Physical or sexual violence, or both‡	188 (49.3%)	171 (60.0%)	122 (35.5%)	481 (47.6%)
Threats	225 (58.7%)	151 (52.4%)	102 (29.7%)	478 (47.1%)
Never free to do what wanted§	280 (73.1%)	197 (68.6%)	119 (34.6%)	596 (58.8%)
Locked in a room	67 (17.5%)	75 (26.0%)	56 (16.3%)	198 (19.5%)

Data are n (%). \*Two missing data. †Six missing data. ‡Five missing data. §One missing datum.

**Table 2: Reports of violence and movement restrictions**

See Online for appendix insufficient food (often hungry), no clean clothing, and overexposure to sun or rain.

We developed the physical health variables on the basis of an adapted version of the Miller Abuse scale<sup>30</sup> and medical review of systems (eg, neurological, musculoskeletal) used in clinical settings. Participants were asked about health problems experienced in the past 4 weeks and variables were coded as positive for people who reported severe levels (“extremely” and “quite a lot”). We classed participants as having had been cheated of wages if they did not receive any cash payments.

### Statistical analysis

The analysis includes only individuals who reached the work destination (which might have entailed same-country [internal] or cross-border migration). Although people often experience violence before reaching a destination, we focused on health exposures and abusive circumstances in the destination location.

We calculated proportions for all variables and included 95% CI for prevalence estimates for mental health outcomes. We used Cronbach’s  $\alpha$  to assess the reliability of the summary scores for the anxiety, depression, and post-traumatic stress disorder scales.

We used adjusted logistic regression models to estimate the effect of trafficking on mental health outcomes, controlling for confounders (age, sector of exploitation,

and time in trafficking). We selected independent variables related to exploitation, deception, and abuse.<sup>4,7,31</sup> The epidemiological hypotheses we tested in the regression models (associations between exploitation, violence, and abuse and mental health symptoms) were defined a priori. We did the statistical analysis with Stata (version 13).

### Role of the funding source

The funders were invited as observers in the planning and interpretation meetings, but had no role in data collection, data analysis, and 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.

### Results

Our sample consisted of 1102 participants from 15 post-trafficking services, of whom 1015 reached work destinations (appendix). The response rate in all three countries was more than 98%. Participants reported diverse socioeconomic and demographic characteristics, origin and destination countries, sectors of exploitation, and conditions experienced during trafficking (tables 1, 2). Most of the children we interviewed were girls (281 of 344 [82%]). Most participants (146 of 1015 [86%]) were trafficked across borders. Individuals trafficked internally were mainly from Thailand (138 of 144 [95%]).

Men were mainly exploited in the fishing sector and factories. The main destination countries for these men were Indonesia and China. More than half of men were in trafficking situations for 7 months or more (table 1). Women were often exploited in sex work or factories, or were trafficked as brides. Their main destinations were China and Thailand. Almost half of women were trafficked for 1–7 months (table 1).

More than half of children were trafficked for sex work, with 201 of 281 (72%) of girls forced into sex work. Boys were mainly trafficked for begging (20 of 63 [32%]), fishing (13 of 63 [21%]), factory work (nine of 63 [14%]), and construction work (eight of 63 [13%]). The main destination for children was Thailand. Almost all children were in trafficking situations for less than 12 months.

Almost half of participants experienced physical violence, sexual violence, or both, including the majority of adults (eg, slapped, shoved, or had something thrown that could hurt; pushed or shoved; hit with a fist or with something else that could hurt; kicked, dragged, or beaten up; see table 2). Almost half of men reported physical violence and some reported sexual abuse. Among women, sexual abuse was much more common and physical violence was slightly less common than in men. More than a third of children reported physical violence, sexual violence, or both; just over a fifth reported sexual violence and almost a quarter reported physical violence.

55 (20%) of 281 girls reported physical violence and 73 (26%) of 281 reported sexual violence, whereas 27 (43%) of 63 boys reported physical violence and one (2%) of

63 reported sexual violence. Overall, 198 (35%) of 566 women and girls experienced sexual violence. Threats were reported by almost half of all participants (table 2).

Extreme restriction of movement—never being free—was reported by roughly three-quarters of men, two-thirds of women, and a third of children. 87 (31%) of 284 girls and 32 (51%) of 63 boys reported never being free. A high proportion of individuals who were exploited in domestic work (33 of 38 [87%]), fishing (221 of 275 [80%]), and as wives (38 of 53 [72%]) reported never being free to do what they wanted or go where they wanted. A fifth of participants reported having been locked in a room (table 2).

70% of participants reported working 7 days per week, with almost half of men working 10 h or more (table 3). The mean number of hours worked per day of people working every day ( $n=449$ ) was 13.8 (SD 6.6). Those reporting the longest working hours worked in fishing (mean 18.8, SD 5.9) and domestic work (mean 15.2, SD 6.6). Being cheated of wages was reported by three-quarters of men, four-fifths of women, and a third of children (table 3).

Overall, 690 (68%) of 1015 participants reported at least one bad living condition. A high proportion of men reported poor living conditions compared with women and children (table 3). Poor living conditions were especially high among fishermen—eg, 243 (88%) of 275 reported living and sleeping in overcrowded rooms and 145 (53%) of 275 reported having inadequate drinking water.

222 (22%) of 1015 participants reported sustaining a serious injury at work. Of those reporting a serious injury, 73 (33%) reported being seriously injured a few times and 49 (22%) said they were injured many times. The most commonly reported injuries were deep or long cuts, skin damage, and back or neck injury (table 3). Some participants reported losing a body part (table 3). Deep cuts were most commonly reported by fishermen (87/128 [68%]). Skin damage was frequently reported by factory workers (13/19 [68%]) and street sellers (2/3 [67%]). Back and neck injuries were often reported by construction workers (2/5 [40%]) and fishermen (46/128 [36%]). Only 62 (28%) of 222 participants who were seriously injured reported receiving medical care for the injury. The most prevalent health problems that participants reported experiencing quite a lot or extremely were headaches, dizzy spells, back pain, feeling completely exhausted, and memory problems (table 3). A high proportion of men reported weight loss and memory problems (table 3).

The scales' reliabilities were high, with an  $\alpha$  of 0.86 for anxiety, 0.89 for depression, and 0.89 for post-traumatic stress disorder. The mean score for anxiety was 1.74 (SD 0.60), with three quarters of the sample scoring 2.1 or more. The overall prevalence of anxiety was 42.8% (95% CI 39.8–45.9; table 4). The mean score for depression was 1.89 (SD 0.64), with more than half of the participants scoring 1.86 or more. Symptoms of depression were reported by 61.2% (95% CI 58.2–64.2) of participants (table 4). The mean score for post-traumatic stress disorder was 1.82 (SD 0.60) and 38.9% (95% CI 36.0–42.0) of

	Men (n=383)	Women (n=288)	Children (n=344)	Total (n=1015)
<b>Hours worked per day*</b>				
≤8	19 (5.0%)	30 (10.8%)	140 (42.3%)	189 (19.1%)
8–10	33 (8.7%)	26 (9.4%)	43 (13.0%)	102 (10.3%)
>10	178 (46.8%)	70 (25.2%)	48 (14.5%)	296 (29.9%)
No fixed hours	150 (39.5%)	152 (54.7%)	100 (30.2%)	402 (40.7%)
No weekly rest day†	337 (88.7%)	153 (56.0%)	195 (58.7%)	685 (69.5%)
Cheated of wages‡	288 (75.2%)	231 (80.5%)	114 (33.2%)	633 (62.5%)
<b>Living conditions</b>				
Living and sleeping in overcrowded rooms	290 (75.7%)	89 (30.9%)	74 (21.5%)	453 (44.6%)
Sleeping in dangerous conditions	109 (28.5%)	12 (4.2%)	23 (6.7%)	144 (14.2%)
Nowhere to sleep or sleeping on the floor	232 (60.6%)	57 (19.8%)	80 (23.3%)	369 (36.4%)
Poor basic hygiene	211 (55.1%)	52 (18.1%)	44 (12.8%)	307 (30.3%)
Inadequate water for drinking	158 (41.3%)	30 (10.4%)	28 (8.1%)	216 (21.3%)
Insufficient food	141 (36.8%)	53 (18.4%)	47 (13.7%)	241 (23.7%)
No clean clothing	232 (60.6%)	37 (12.9%)	33 (9.6%)	302 (29.8%)
Overexposure to sun or rain	277 (72.3%)	30 (10.4%)	52 (15.1%)	359 (35.4%)
<b>Recurrent common health problems (self-reported)</b>				
Memory problems	85 (22.2%)	38 (13.2%)	35 (10.2%)	158 (15.6%)
Feeling completely exhausted	92 (24.0%)	49 (17.0%)	45 (13.1%)	186 (18.3%)
Dizzy spells	88 (23.0%)	51 (17.7%)	65 (18.9%)	204 (20.1%)
Losing consciousness	8 (2.1%)	2 (0.7%)	2 (0.6%)	12 (1.2%)
Headaches	84 (21.9%)	62 (21.5%)	69 (20.1%)	215 (21.2%)
Dental problems	55 (14.4%)	13 (4.5%)	29 (8.4%)	97 (9.6%)
Weight loss	91 (23.8%)	35 (12.2%)	13 (3.8%)	139 (13.7%)
Nausea or indigestion	61 (15.9%)	34 (11.8%)	38 (11.1%)	133 (13.1%)
Diarrhoea	33 (8.6%)	23 (8.0%)	20 (5.8%)	76 (7.5%)
Persistent coughing	47 (12.3%)	15 (5.2%)	29 (8.4%)	91 (9.0%)
Back pain	74 (19.3%)	55 (19.1%)	59 (17.2%)	188 (18.5%)
Skin problems	55 (14.4%)	17 (5.9%)	55 (16.0%)	127 (12.5%)
Serious injuries and accidents at work§	137 (37.5%)	47 (17.2%)	38 (11.1%)	222 (22.6%)
<b>Serious injuries</b>				
Deep or very long cut	89 (23.2%)	16 (5.6%)	10 (2.9%)	115 (11.3%)
Very bad burn¶	24 (6.3%)	6 (2.1%)	1 (0.3%)	31 (3.1%)
Serious head injury¶	26 (6.8%)	8 (2.8%)	3 (0.9%)	37 (3.7%)
Back or neck injury	49 (12.8%)	10 (3.5%)	8 (2.3%)	67 (6.6%)
Skin damage or injury	49 (12.8%)	20 (6.9%)	16 (4.7%)	85 (8.4%)
Broken bone	5 (1.3%)	1 (0.3%)	3 (0.9%)	9 (0.9%)
Lost a body part	6 (1.6%)	0 (0%)	1 (0.3%)	7 (0.7%)
Eye injury or damage	16 (4.2%)	1 (0.4%)	1 (0.3%)	18 (1.8%)
Ear damage	16 (4.2%)	3 (1.0%)	2 (0.6%)	21 (2.1%)

Data are n (%). \*26 missing data. †30 missing data. ‡Three missing data. §32 missing data. ¶Two missing data.

**Table 3: Exploitation during trafficking, common physical health problems, and occupational injuries**

participants reported symptoms of post-traumatic stress disorder (table 4). 53 (5%) of 1015 participants reported having attempted suicide in the month before the interview.

A similar proportion of adult males and females reported symptoms of anxiety, with fewer reports from children (table 4). 30.2% (95% CI 19.9–42.9) of boys and 32.7% (27.5–38.5) of girls reporting symptoms of anxiety. More women than men or children reported symptoms

	Men		Women		Children		Total	
	N	Prevalence (95% CI)	N	Prevalence (95% CI)	N	Prevalence (95% CI)	N	Prevalence (95% CI)
Depression	232	60.7% (5.7–65.5)	191	66.6% (60.9–71.8)	197	57.3% (52.0–62.4)	620	61.2% (58.2–64.2)
Anxiety*	185	48.4% (43.4–53.5)	138	48.1% (42.3–53.9)	111	32.3% (27.5–37.4)	434	42.8% (39.8–45.9)
PTSD†	177	46.3% (41.4–51.4)	126	43.9% (38.2–49.7)	91	26.5% (22.1–31.5)	394	38.9% (36.0–42.0)
Attempted suicide in the past month‡	16	4.2% (2.6–6.7)	18	6.3% (4.0–9.9)	19	5.5% (3.5–8.5)	53	5.2% (4.0–6.8)

\*Two missing data. †Three missing data.

Table 4: Mental health outcomes

	PTSD	Anxiety	Depression
<b>Overtime*</b>			
Standard legal working time	1 (reference)	1 (reference)	1 (reference)
Excessive	1.45 (0.55–3.83)	1.60 (0.69–3.70)	1.37 (0.62–3.02)
Extremely excessive	3.70 (2.02–6.78)	2.09 (1.24–3.52)	1.80 (1.12–2.89)
<b>Restricted freedom†</b>			
No	1 (reference)	1 (reference)	1 (reference)
Yes	2.05 (1.49–2.80)	1.86 (1.37–2.53)	1.70 (1.26–2.31)
<b>Cheated of wages‡</b>			
No	1 (reference)	1 (reference)	1 (reference)
Yes	2.01 (1.47–2.76)	1.49 (1.10–2.03)	1.22 (0.89–1.66)
<b>Living conditions</b>			
No bad situations	1 (reference)	1 (reference)	1 (reference)
At least one bad situation	3.01 (1.96–4.62)	3.08 (2.12–4.47)	2.19 (1.53–3.17)
<b>Threats</b>			
No	1 (reference)	1 (reference)	1 (reference)
Yes	2.70 (2.00–3.64)	2.50 (1.87–3.34)	2.36 (1.75–3.18)
<b>Violence</b>			
No violence	1 (reference)	1 (reference)	1 (reference)
Less severe	1.21 (0.75–1.95)	1.06 (0.66–1.71)	1.30 (0.81–2.09)
More severe	2.02 (1.45–2.82)	1.99 (1.44–2.75)	2.02 (1.45–2.81)

Data are adjusted odds ratio (95% CI). Models are adjusted by age, sector of exploitation, and time in trafficking situation. PTSD=post-traumatic stress disorder. \*Defined according to the International Labour Organization International Standards on Working Time, with 26 data missing. †One missing datum. ‡Two missing data.

Table 5: Multivariate analysis of factors associated with PTSD, anxiety, and depression

associated with depression (table 4). 36.5% (95% CI 25.3–49.3) of boys and 61.9% (56.0–67.4) of girls scored positive for depression. Symptoms of post-traumatic stress disorder were more common in men and women than in children (table 4). A higher proportion of girls (28.1%, 95% CI 23.1–33.7) than boys (19.4%, 11.2–31.5) reported symptoms of post-traumatic stress disorder.

The multivariate analysis showed strong associations between abusive and exploitative conditions during trafficking and poor mental health outcomes (table 5). Individuals who experienced extremely abusive overtime at work, restricted freedom, bad living conditions, threats, or severe violence were more likely to report symptoms of depression, anxiety, and post-traumatic stress disorder. Having been cheated of wages was significantly associated with anxiety and post-traumatic stress disorder (table 5).

## Discussion

As the largest survey to date of the health of trafficking survivors, our study confirms the high levels of various forms of abuse and serious harm associated with human trafficking (panel). Men, women, and children trafficked for various forms of forced labour and sexual exploitation were highly exposed to physical and psychological abuse, lived and work in extremely hazardous conditions, and reported serious health problems. This study builds on a small body of evidence, primarily on the health of girls and women trafficked for sex work, by adding findings about the health needs of men, women, and children trafficked into various labour sectors and offers unique data from the Mekong region.<sup>7</sup>

Our findings show that no single profile of a trafficked individual exists. Survivors differed by age, sex, home country, and exploitation experiences, suggesting that users of post-trafficking services are more diverse than only women trafficked for forced sex work. However, although this diversity suggests that practitioners must treat individuals and their experiences as unique, the results also suggest common patterns of abuse, occupational risk, and health consequences. These patterns of morbidity offer valuable evidence for planning and budgeting for the health needs of survivors of trafficking.

Our findings confirm that physical, sexual, and psychological abuses are signature features of human trafficking. Roughly half of participants were physically or sexually abused—many suffering extraordinary forms of violence (eg, knife and dog attacks, burning, and choking). Unsurprisingly, most sexual violence was reported by women and girls.

Our findings also show that restricted freedom is a core indicator of trafficking and a key risk factor for poor mental health—participants who were severely restricted were roughly twice as likely to report symptoms of post-traumatic stress disorder, anxiety, and depression as trafficked people who were not restricted.

Our results also showed the relentless days and hours that people were made to work. Occupational health studies suggest that long hours of working without breaks increases the risk of injury<sup>33</sup> and exhaustion, which can have long-term effects, such as increased illness and poor mental health,<sup>34</sup> potentially exacerbated by poor living conditions<sup>35</sup> and unpaid work.<sup>36</sup> Our findings show that

excessive working hours, poor living conditions, and being cheated of wages increased the risk of symptoms of post-traumatic stress disorder, anxiety, and depression.

Although occupational health of trafficked people has not been well-studied, our study suggests that work-related health and safety risks must be considered as sector-specific—eg, fishermen suffered deep cuts from sharp knives and dehydration from long hours in sun and at sea,<sup>37</sup> whereas agricultural, animal farm, construction, and domestic workers were repeatedly exposed to hazardous substances (eg, dust, chemicals, pathogens).<sup>38–40</sup>

Participants described various physical health complaints, but symptoms of poor mental health were most prevalent and severe. Symptoms associated with depression, anxiety disorders, and post-traumatic stress disorder seemed to be more common in our sample than in a general population of labour migrants, but similar to those of refugee populations.<sup>41</sup> The associations between the intensity of risk exposures and psychological morbidity suggest that the mental health outcomes of our study population are probably similar to those of other repetitively trauma-exposed groups. The finding that 5% of participants had attempted suicide in the previous 4 weeks is important for post-trafficking health assessments and protection.

Our study has some limitations. Our sample included only clients of post-trafficking services, rather than a general population of trafficked persons. However, the inclusion of many service settings, the comprehensive eligibility criteria, and the large sample size enabled us to collect data from people of diverse ages, both sexes, and those trafficked into different sectors. We urge caution when comparing subgroups, because some subgroups had small sample sizes.

Data were missing for up to 4% of participants in some groups. We believe that this was a result of the sensitive nature of the questions being asked or recall bias in questions asking for details of trafficking. However, the proportion of missing values was small and we believe that it had very little effect on the results.

Finally, the instruments we used to measure mental health outcomes are not diagnostic and should be interpreted only as preliminary indicators for emotional distress and disorder. They have not been validated with the study population, but have been used in general populations in some of the study countries and in post-trafficking services in Europe.<sup>19,42</sup> However, the reliability of the scales was high for all three outcomes. Additionally, the measure of post-traumatic stress disorder should be interpreted with caution. Because people were interviewed within 2 weeks of entering the post-trafficking service, in some cases we might have been capturing acute stress disorder rather than post-traumatic stress disorder.

Our findings show that people who are trafficked will emerge with a range of health needs and that medical assessment and care to restore people's physical and psychological wellbeing should be included in all

### Panel: Research in context

#### Systematic review

A systematic review of studies of prevalence or risk of violence while trafficked or any measure of physical, mental, or sexual health among trafficked people was done in 2012 by Oram and colleagues.<sup>7</sup> It identified 19 studies, all of trafficked women and girls, focusing primarily on trafficking for sexual exploitation. The findings suggested a high prevalence of violence and mental distress, but were limited by methodological weaknesses and poor comparability and generalisability. Since 2012, we identified one study of the health of trafficked men<sup>9</sup> and an analysis of risk factors for mental disorders among trafficked women in Moldova.<sup>32</sup>

#### Interpretation

Our findings suggest that women, men, and children using post-trafficking services in Cambodia, Thailand, and Vietnam have been exposed to high levels of physical and sexual abuse and serious work-related health risks. Women and children are particularly likely to experience sexual violence. Symptoms of depression, post-traumatic stress disorder, and anxiety are prevalent among trafficking survivors and highly associated with abusive working conditions and violence. These results point to the important role of the health sector—particularly mental health professionals—in responding to the urgent and long-term medical needs of users of post-trafficking services. Furthermore, the wide range of labour sectors in which people were abused shows the need for stringent health and safety standards and regular inspections of low-skilled labour sectors, especially sectors that are particularly susceptible to human trafficking.

post-trafficking service packages. Mental health support should be considered an essential component of care. Intervention research is needed to identify effective forms of psychological support that can be easily implemented in low-resource settings and in multi-lingual, multicultural populations.

In view of the wide variety of sectors in which such extreme abuses occur, greater government regulation and inspections of low-skilled labour settings—especially those known for exploitation—are needed to improve hazardous working conditions and detect cases of trafficking.

Exploitation of human beings is age-old. Although it is disheartening to see that human trafficking exists in such proportions in the 21st century, it is nonetheless encouraging that various forms of these violations are increasingly recognised for what they are: modern-day slavery. However, alongside global condemnation, there needs to be commensurate support for the physical and psychological health needs of survivors of trafficking. We urge decision makers and donors to invest in post-trafficking health and other services to support the recovery of trafficking survivors.

#### Contributors

LK was the research coordinator of the study. LK and CZ designed the study, analysed and interpreted data, and wrote the report. VN helped to design the study and manage and coordinate regional sites. NSP analysed and interpreted data and wrote the report. CZ and RB conceived the study. PD supported training for fieldwork and data interpretation. SS, DT, and BD were country coordinators and collected and interpreted data. NP, KS, and VAN collected and interpreted data and revised the report. JK was a country coordinator, helped to design the study, and interpreted data.

#### Declaration of interests

We declare no competing interests.

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