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Post-traumatic Stress Disorder, Depression and Substance Abuse among Female Street-based Sex Workers in Addis Ababa

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Abstract

The objective of this study was to assess the prevalence of mental health conditions among female street-based sex workers in Addis Ababa. Quantitative research approach was employed and data were collected using a sampling technique that helped select 200 participants from the sample frame. Around one-third of the sample was diagnosed as PTSD positive. Over 72% of the participants reported mild to severe level of depression while 43.5% of the participants scored high/severe depressive symptoms. More than 60 % of the sample met the criteria for substance abuse. The analysis of the data showed significant relationships among childhood sexual abuse and current PTSD, depression, and substance abuse symptoms. In conclusion, there was a high prevalence of PTSD, depression and substance abuse among the female/women participants. The targeted samples involved in continuous sex work, despite experiencing work-related violence. Therefore, more targeted interventions and integrated work among different stakeholders should be employed to help these women make positive life changes.

Keywords*: Street-based sex worker, childhood sexual abuse, violence, PTSD, depression, substance abuse*

Introduction

Lindeland (2010) suggested that women involved in sex work face a unique set of circumstances that influence their decision to enter and stay in the industry. These women have higher rates of childhood physical and sexual abuse, neglect and other forms of maltreatment. As a result, sex workers, live within a violent culture that is also rife with physical and sexual trauma. Because of the increased rates of violence these women face, they are at greater risk of post-traumatic stress disorder, dissociative disorders, substance abuse and are suffering from depression.

Depression has a strong relationship with trauma, as it is the most commonly diagnosed pathology following a traumatic event. Traumatic events often cause individuals to question their own pre-existing beliefs and the views of others, and the world they live in. This dissonance between an individual's beliefs and his/her experience not only diminishes trust in others but may also impair one's ability to trust oneself, leading to a constant feeling of being unsafe. Such discords may cause an individual to feel hopeless, depressed, and in some cases to commit suicide (Lindeland, 2010). In female sex worker populations, substance use could reasonably be considered the norm rather than deviant behavior (Jung, et al., 2007). Not only do these women have a higher likelihood of a trau-

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matic history, but they are also constantly in risky situations. For example, sex workers often do not know whether their customer will be peaceful or violent. Drugs and alcohols serve not only as tools by which individuals can avoid or block out painful memories of traumatic pasts, but they also help these individuals numb their fears so that they can perform their services effectively (Kramer, 2003).

Although very limited study has been done on the prevalence of mental health disorders among street sex workers in Ethiopia, there is a long history of women engaging in the sex industry, both in developed and developing countries. There are large bodies of literature on the risks that these group of women face in the course of their works, causing mental health problems (Vanwesenbeeck, 2001). A look at the specific manifestations of the mental health impact of the ordeal could be presented as follows.

Post-traumatic Stress Disorder

Bennett (2006) summarized the DSM-IV-TR criteria for a diagnosis of PTSD as the individual having experienced or witnessed an event that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others, and that his/her immediate responses involved intense fear, helplessness, or horror. Consequently, the survivor must have experienced three clusters of symptoms which last for one month or more. These include intrusive memories, avoidance of stimuli connected to the trauma, and hyper arousal or hyper vigilance.

There are numerous models that describe the etiology of PTSD. One of these is a biological model that states the brain systems in PTSD are thought to be those involved in processing emotions and memory, in particular, the amygdala and hippocampus (Bennett, 2006). The hippocampus is responsible for storing and retrieving memories. It is linked to the amygdala, the area of the brain particularly associated with the formation of conditioned fear responses. Both the hippocampus and the amygdala are activated either in establishing memories of an event and its associated emotions, or in recalling them (Bennett, 2006). Also, stress hormones such as norepinephrine and cortisol play a role in establishing traumatic memories (Lindauer et al, 2005).

Another model that helps to describe etiology of PTSD is the conditioning model. According to Rauch and Foa (2006), PTSD can be considered as a classically conditioned emotional response in which associations are stored in neural networks, linking emotions, cognitions, and perceptual memories to one another. More specifically, re-exposure to similar situations or stimuli may evoke memories of the original trauma and hence it elicits a conditioned fear response. It is also suggested that memories of trauma are maintained within a neural network which is permanently activated, thus causing the person to function in 'survival mode' with resulting symptoms of hyper arousal (Chemtob et al.,2010).

Still another model describing PTSD is the psychosocial model. According to Bennett (2006), this model explores a wider set of factors that influence the development and course of PTSD, such as event stimuli, event cognitions, appraisals/reappraisals, coping mechanisms, personality, and social support. As it has been stated, traumatic events lead to cognitions that give rise to extreme emotional arousal, which then interferes with effective processing of these cognitions. The individual's attributions about a traumatic event, either at the time or subsequently, will also influence the development of PTSD. For example, the feeling that one potentially had control over an event but may fail exerting influence on emotions such as self-blame and guilt (e.g., thinking "I could have done

something, but I didn't").

Depression

Depressive disorders, characterized by feelings of sadness, disinterest in formerly enjoyable activities, disturbed sleep and appetite, feelings of worthlessness, and perhaps even thoughts of death and dying, are among the most common adult psychiatric disorders. Despite being one of the most common psychological conditions, depression is also a normal part of life given the usual losses and disappointments typically encountered throughout the life cycle. However, most people may become only mildly sad or depressed in response to certain life events, and only a few react with clinically-diagnosable depression (Gotlib & Hammen, 2010). According to Lemma (1997), the central features of all depressive conditions include emotional disturbance, motivational, cognitive, physical, and psychomotor manifestations.

Substance Abuse

A formal definition of substance abuse disorder is provided by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (APA, 2000), which describes it as a maladaptive pattern of drug use manifested by one or more of four symptoms recurring within a 12-month period. The result is clinically significant impairment or distress such as failure to fulfill major role obligations, repeated absences or neglect of duties in major areas of life, and use of drugs in ways that are physically hazardous (driving or operating other machinery, for example). Additional indicators of substance abuse may be exhibited through recurring legal, social, or interpersonal problems that are amplified by the use of drugs.

Child Sexual Abuse among Sex Workers

As sex workers, these women survive in a violent culture with the likelihood of continued physical and sexual trauma. Given the increased rates of violence in their daily lives, they are at a greater risk of post-traumatic stress disorder, dissociative disorders, substance abuse, and depression ((Lindeland, 2010).

According to Wondie, Zemene, Reschke and Schroeder (2011), although a huge magnitude of literature revealed that child sexual abuse in a global context continues to be a pressing factor. Only few reports indicated the alarming rate at which the problem is increasing in sub-Saharan Africa. Based on comparative study of sexually abused and non-abused controls, they indicated that survivors of childhood sexual abuse were significantly more symptomatic than the control group. Several studies have examined the rates of child sexual abuse in sex working populations. The findings of these studies had mixed results, with rates ranging from 46% (Vaddiparti, et al., 2006) to 75% (Roxburg, et al., 2006) of the target samples reporting one or more instances of childhood sexual abuse. Farley et al. (2003) also examined the rates of childhood sexual assault in populations of female prostitutes in nine different countries. On average, 63% of those women sampled reported being sexually abused as a child, with an average of four perpetrators.

Similarly, Farley and Barkan (1998) investigated rates of sexual assault in a sample of 130 street-based sex workers in California; 57% of the respondents reported having one or more experiences of sexual abuse as children with an average of 3 perpetrators per individual. In a study by Roxburg, Degenhardt, and Copeland (2006), rates of childhood sexual assault in a group of Australian street-based sex workers were examined; 75% of

the women in this sample reported having one or more experiences of sexual abuse before the age of 16. What is more, a study in Sydney by Roxburgh et al. (2006) showed that 99% of the sex workers experienced at least one traumatic event in their lifetime, with a large proportion of them reporting multiple traumas. Three quarters of the sample reported experiencing some form of sexual abuse before the age of 16 years, while approximately one quarter reported that the first incident occurred before the age of 6 years, and the mean age of first occurrence was seven years.

Mental Health Problems among Street-Based Sex Workers

PTSD and sex work. Exposure to traumatic events during the course of occupational duties is associated with psychological problems, one of which is PTSD. A comparative study conducted in New Zealand by Romans, Potter, Martin, and Herbison (2000) as cited in Roxburgh, Degenhardt and Copeland (2006) revealed that sex workers were significantly more likely to report adult sexual assault (55%) than non-sex workers (13%). Likewise, in a study by Surratt et al. (2004) 50% of the female street-sex workers reported child sexual abuse and 40% of them had experienced work-related violence twelve months prior to the study by these researchers.

The overwhelming majority of women interviewed in a study on street-based sex workers in Sydney reported having experienced multiple traumas of the types associated with risk of developing PTSD. Over half of the women reported leaving home before the age of 16 (Roxburgh, Degenhardt & Copeland, 2006), and the number reporting current PTSD symptoms was almost ten times higher than those in the general population of Australia. Another study that examined the prevalence of PTSD in samples of female sex workers identified rates ranging from 17% to 63% (Chudakov, Ilan, Belmaker, &Cwiken, (2002), and Farley, (2005). Despite the variation in numbers, all the rates reviewed are considerably higher than the 3.5% PTSD prevalence rate for Americans whose ages are18 and older (National Institute of Mental Health, 2010).

Depression and sex work: An examination of traumatic symptomatology in a particular population would not be complete without also exploring the rates of depression, due to the high rates of co-morbidity. As depression frequently arises independent of other disorders, it can be overlooked as a potential consequence of trauma even though it is the most commonly diagnosed pathology following a traumatic event. Ling, Wong, Holroyd, and Gray (2007) examined the rates of depression and suicide ideation in a group of 89 female street sex workers in Hong Kong. Over half of the respondents endorsed the statement "I do not enjoy my life at all." and 48.3% of them denied finding their lives meaningful. Approximately one quarter of the target group admitted to considering and/or attempting suicide.

In the study by Roxburgh, Degenhardt and Copeland (2006), the majority of the samples (87%) reported the presence of mild to severe depressive symptoms as measured by the Beck Depression Inventory (BDI-II). Approximately three quarters of the samples reported having contemplated suicide, with just under half tried to kill themselves. Another study by Dominelli (1986) suggested that stigmatization and negative social perceptions of sex work, as considered immoral and deviant lead to depression among sex workers. Internalizing such stigmas undermine the women's sense of empowerment thereby leading to feelings of submissiveness and self-degradation.

Substance abuse and sex work: One of the prevalent psychiatric conditions among sex workers is substance abuse. In a study by Roxburgh, Degenhardt and Copeland (2006),

approximately half the samples reported injecting drugs prior to commencing sex work, and one-quarter reported commencing sex work within 3 years of their initiation of injecting drug use. Just over one-quarter of the samples had started sex work prior to injecting drug use, and approximately three-quarter of them reported an increase in drug use after they had started sex work.

It is reported that drug use could reasonably be considered the norm rather than deviant behavior in female sex working populations (Jung, Song, Chong, Seo, &Chae, 2007). These individuals have a higher likelihood of having a traumatic history and are constantly in risky situations. Needless to say, sex workers usually do not know whether their next customer will be peaceful or violent. In this regard, drugs and alcohol not only serve as tools by which individuals can avoid or block out painful memories of traumatic pasts, but they also help these individuals numb their fear so that they can perform their services more effectively (Kramer, 2003). In addition, substance use in this career does not pose as severe a threat as it may in other less stigmatized professions, as drug and alcohol use are often expected in sex workers.

Again, Kramer (2003) examined the motives for using substances in a group of 119 sex workers who were either incarcerated or working in an escort agency. In this study, 59% of the sampled prostitutes reported using drugs while 28% of them responded using alcohol. Regarding their motives, 70% of the participants reported the use of drug helps them to enhance emotional detachment from the experience and 44% of them revealed that they benefit from the use of substances to cope up with the fears associated with engaging in sex work. Furthermore, 54% of the participants stated that they were not able to engage in sexual acts with their clients unless they were high. These results not only indicated that drug and alcohol use help sex workers perform their jobs, but they also indicated that many of these women are dependent on such substances.

Statement of the problem

Female sex workers are frequently marginalized from the society due to the lack of social or moral approval for sex work. In addition to experiencing physical and sexual violence from their intimate partners, they can also experience violence from others in their personal and working lives, including clients, pimps, and the police (Beattie et al., 2010).

Literature on the rates of past and current violence in the lives of sex workers indicates that these individuals are exposed to intense and frequent traumatic incidents during their working lives. Types of violent encounters reported in the literature in the past include, but are not limited to, being raped, stabbed, forced to engage in degrading sexual acts, threatened with a weapon, kidnapped, stalked, verbally abused, tied up, tortured, beaten with objects, and run over by motor vehicles (Nixon, et al., 2002). Therefore, this research aimed at investigating the following questions:

1. What is the prevalence of posttraumatic stress disorder (PTSD), depression, and substance abuse among street-based sex workers Addis Ababa?
2. What proportion of street-based sex workers has a history of childhood sexual abuse?
3. Do PTSD, depression and substance abuse significantly correlate with the other background variables, specifically childhood history of sexual abuse, and the length of time having stayed in street-based sex work?
4. Is there a significant relationship among PTSD, depression, and substance abuse?
5. Does PTSD significantly predict experiences of depression and substance abuse?

Methods

This study employed a quantitative approach by outlining measurable findings. The researchers believed that questionnaires to be filled by respondents in the form of survey was appropriate to a delicate topic of this nature, sex workers (Palys, 1997: 148). The survey method has become one of the most popular techniques in most of social science researches (Balso & Lewis, 2005: 105). Surveys can be self-administered or interview administered, and in this study, the researchers administered the survey (Jackson, 1998: 98). Surveys can be conducted either in face-to- face or via telephone. And the quantitative data were collected by meeting these women at appropriate places (Hoyle, Harris & Judd, 2002). The survey data were properly collected, processed and timely analyzed in a fashion amenable to the objective of the study (Nahmias & Guerrero, 2006). Hence, this survey was fully designed to collect quantitative data. Specifically, Beck Depression Inventory (BDI), PTSD Checklist (PCL) and Simple Screening Instrument for Substance Abuse (SSI-SA) were used to collect the data.

Data Collection Procedure

First and foremost, survey questionnaires were prepared and thematically arranged by the researchers. Before collecting the data, however, the English version of the questionnaire and the interview guides were translated into Amharic and pilot tested with 40 street female sex workers. The participants in the pilot test indicated the existence of few errors in the questionnaire instructions and that some items were not clear; along with format problems, some typographical errors were found. Taking advantage of this, the researchers corrected the flawed questions and issues of format (Hoyle, Harris & Judd, 2002). In doing so, the pilot test helped the researchers to adjust, to reduce and to finalize the survey questions. The point of the test was to assess the study itself by running pilot session so that the full study will go as smoothly as possible. Five psychiatric nurses experienced in interviewing psychiatric patients were recruited to collect the survey data. Short-term training was given to them in order to familiarize them with the data collection tools and with the objectives of the study.

Ethical Considerations

Informed consent from each participant was considered a first priority. Data collectors were given training on issues of ethics, confidentiality, and collection of data and other related procedures. The participants were requested to give genuine and complete responses. In all phases of the data collection, privacy of the participants was maintained. An informed consent was obtained from each participant before data collection. Every effort was made to safeguard the participants from potential risks.

Participants

Two hundred participants were selected from 16 clusters (sub-cities) in Addis Ababa using single proportion formula. Using the following formula, participants were taken from each group and hence proportionate sample size was taken.

$$nh = \frac{Nh}{N} n$$

Proportional allocation formula

N_h= population size in each stratum
h=Number of strata
N= population size = 258
n=total sample size (N1 + N2 + N3 … + N16) = 200
The age of the participants was in the range of 12 – 18 years (15%), 19 – 24 (59.5%), and 25 – 35 (25.5%). Regarding their marital status, the majority (79%) reported they are single. The remaining 10%, 6.5%, and 4.5% were found out to be divorced, widowed, and married, respectively. Educational status was also lower for the majority of the participants with the exception of only a few who reached secondary schooling (16.5%).

Data Collection Instrument

A highly structured survey questionnaire was used for collecting the data using, Beck Depression Inventory (BDI-II, PTSD Checklist (PCL and Simple Screening Instrument for Substance Abuse (SSI-SA as discussed below.

Beck Depression Inventory (BDI-II): The BDI-II is a 21-item instrument designed to assess symptoms of depression such as sadness, guilt, loss of interest, social withdrawal, and suicidal ideation (Beck, et.al., 1961). Nineteen of the items are designed on a 4-point scale according to increasing severity, with a further 2 items allowing the participants to indicate an increase or decrease in sleep or appetite. Items are scored on a 0–3 scale, yielding a score range of 0–63 where higher scores indicate greater depression severity. According to Beck et al. (1996), scores in the range of 0–13 indicate minimal depression, 14–19 mild depression, 20–28 moderate depression, and 29–63 severe depression (Raymond, Erin, & Richard, 2005).

PTSD Checklist (PCL): The PCL is a 17-item self-report questionnaire that prompts informants to endorse the level of distress that has co-occurred with each reported PTSD symptom over the prior 30 days. A five- point Likert scale is used. It ranges from 1, not at all to 5, extremely (Blanchard et al., (1996).

Simple Screening Instrument for Substance Abuse (SSI-SA): The SSI- SA is a 16- item scale, although only 14 items are scored so that scores can range from 0 to 14. A score of 4 or greater has become the established cut-off point for warranting a referral for a full assessment. Since its publication in 1994 the SSI-SA has been widely used and its reliability and validity were checked. A report by U.S. Department of Health and Human Services Agency for Healthcare Research and Quality revealed that SSI-SA has high internal consistency (0.83) and test- retest (0.9) reliability (Knight, Goodman, Pulerwitz & DuRant, 2000).

As shown above, 200 participants have willingly engaged in the study and the data were collected using the above techniques. The data were cleaned prior to the analysis in order to furnish quality data (Palys, 1997). The quality data are -data - whose volume is enormously reduced to a manageable level (Balso & Lewis, 2005).

Results

The collected data were analyzed for prevalence of prior (childhood) sexual abuse, work-related violence, PTSD, depression, and substance abuse. Inter-relationships among these variables were also examined as described below.

Childhood Sexual Abuse and Work-Related Violence

As seen in Table 1, 46(23%) of the 200 respondents reported a history of one or more incidents of childhood sexual abuse, whereas the remaining 154(77%) of them reported no history of childhood sexual abuse. Participants, police officers and other key informants also reported various kinds of violence commonly encountered by street-based female sex workers. These include degrading sexual behaviors by clients, forced sex at knifepoint, physical assault, robbery, forced sex with multiple individuals at the same time. Clients sometimes refuse to pay for services received, they may be insulting, they and take sex workers to unknown places, and torture them for days while doing worse things they want to them. And they may injure the women while they are drunk.

Table 1: Respondents' History of Childhood Sexual Abuse and Work-Related Violence

Variables	Frequency	Percent
Childhood sexual abuse		
Yes	154	77.0
No	46	23.0
Total	200	100.0
Years spent in sex work		
1	24	12.0
2	54	27.0
3	23	11.5
4	39	19.5
5	15	7.5
6	16	8.0
7	13	6.5
8	11	5.5
9	3	1.5
10	1	.5
11	1	.5
Total	200	100.0
Violence during sex work		
No	48	24.0
Yes	152	76.0
Total	200	100.0
Violence reported to police		
No	51	25.5
Yes	149	74.5
Total	200	100.0

Prevalence of PTSD, Depression and Substance Abuse

As seen in Table 2, approximately one-third of the sex workers had positive indicators of PTSD, and close to 60% had scores indicating moderate-to-severe depression. In addition, close to two-thirds of this sample reported substance abuse.

Table 2: Prevalence of PTSD, Depression and Substance Abuse

Variable	Frequency	Percent
PTSD Score		
Normal (0-43)	138	69.0
PTSD positive (>=44)	62	31.0
Total	200	100.0
Depression Score		
0-13 (minimal)	55	27.5
14-19 (mild)	27	13.5
20-28 (moderate)	31	15.5
29-63 (severe)	87	43.5
Total	200	100.0
Substance Abuse Score		
0-3 normal state	77	38.5
4-14 substance positive	123	61.5
Total	200	100.0

Associations between Childhood Sexual Abuse and the Dependent Variables

To investigate the associations between childhood sexual abuse and current PTSD, depression, and substance abuse, a chi-square test was computed as shown in Table 3. The results revealed that the relationship between childhood sexual abuse and PTSD [x^2 (1) = 87.45, $p < .001$], childhood sexual abuse and depression [x^2 (3) = 49.514, $p < .001$] as well as childhood sexual abuse and substance abuse [x^2 (1) = 16.35, $p < .001$] were all found out to be significant. This indicates that respondents who have a history of childhood sexual abuse were significantly more likely to develop PTSD, depression and substance abuse symptoms than those with no childhood history of sexual abuse.

Table 3: Associations between Childhood Sexual Abuse and PTSD, Depression and Substance Abuse

			Childhood Sexual Abuse		Total	x^2	Df	Sig.
			No	Yes				
PTSD	Normal PTSD Score	Count	132	6	138	87.45	1	.000
		Expected Count	106.3	31.7	138.0			
		% within PTSD	95.7%	4.3%	100.0%			
		Std. Residual	2.5	-4.6				
	Positive PTSD Score	Count	22	40	62			
		Expected Count	47.7	14.3	62.0			
		% within PTSD	35.5%	64.5%	100.0%			
		Std. Residual	-3.7	6.8				
Depression Score	0-13 Minimal Depression	Count	55	0	55	49.514	3	.000
		Expected Count	42.4	12.7	55.0			
		% within PTSD	100.0%	0.0%	100.0%			
		Std. Residual	1.9	-3.6				
	14-19 Mild Depression	Count	22	5	27			
		Expected Count	20.8	6.2	27.0			
		% within depression	81.5%	18.5%	100.0%			
		Std. Residual	.3	-.5				
	20-28 Moderate Depression	Count	30	1	31			
		Expected Count	23.9	7.1	31.0			
		% within depression	96.8%	3.2%	100.0%			
		Std. Residual	1.3	-2.3				
	29-63 Severe Depression	Count	47	40	87			
		Expected Count	67.0	20.0	87.0			
		% within depression	54.0%	46.0%	100.0%			
		Std. Residual	-2.4	4.5				
Substance Abuse	Normal State	Count	71	6	77	16.35	1	.000
		Expected Count	59.3	17.7	77.0			
		% within depression	92.2%	7.8%	100.0%			
		Std. Residual	1.5	-2.8				
	Substance Positive	Count	83	40	123			
		Expected Count	94.7	28.3	123.0			
		% within depression	67.5%	32.5%	100.0%			
		Std. Residual	-1.2	2.2				

Correlations between Length of Stay in Sex Work and the Dependent Variables

The relationship between length of stay in sex work and dependent variables including PTSD, depression, and substance abuse were computed with Pearson correlation coefficients. As shown in table 4, length of stay in street sex work had a moderate positive correlation with PTSD (r= .559, p= <.01), depression (r = .620, p = < .01) and substance abuse (r = .430, p = < .01).

Table 4: Pearson Correlations between Length of Stay in Sex Work and PTSD, Depression, and Substance Abuse

Independent variable		PTSD Score	Depression Score	Substance Abuse Score
Length of Stay in Sex Work	Pearson Correlation	.559**	.620**	.430**
	Sig. (2-tailed)	.000	.000	.000
	N	200	200	200

**. Correlation is significant < 0.001evel (2-tailed)

Correlations among PTSD, Depression, and Substance Abuse

A Pearson correlation revealed that there was a strong positive correlation between PTSD scores and depression scores (r = .799, p < .001, as well as a positive correlation between PTSD and substance abuse (r = .576, p< .001) and between depression and substance abuse (r = .554, p< .001).

Predictive Value of PTSD on Depression and Substance Abuse

To investigate the influence of PTSD on depression and substance abuse, linear regression analyses were computed. Table 5 reveals the amount of variance in the dependent variable (depression) as explained by the independent variable (PTSD). Approximately 64% of the variation in depressive symptoms can be explained by the presence of PTSD. The F-test also revealed that this proportion of variance is statistically significant [DF (1, 198); F: 348.649, p<0.001].

Table 5: Linear Regression Summary for PTSD on Depression

Model	Sum of Squares	Df	Mean Square	F	Sig.	R^2
Regression	23652.523	1	23652.523	348.649	.000[a]	.638
Residual	13432.432	198	67.841			
Total	37084.955	199				

a. Predictors: (Constant), PTSD symptom score

Adjusted R^2 = .636 Std. Error of the Estimate = 8.23654

Table 6 indicates that approximately one-third of the variation in substance abuse symptoms can be explained by the independent variable of PTSD. The F-test also revealed that this proportion of variance is statistically significant [DF (1, 198); (F= 98.464), p<0.001].

Table 6: Linear Regression Summary for PTSD on Substance Abuse

Model	Sum of Squares	Df	Mean Square	F	Sig.	R^2
Regression	907.901	1	907.901	98.464	.000[a]	.329
Residual	1825.694	198	9.221			
Total	2733.595	199				

a. Predictors: (Constant), PTSD
Dependent Variable: Substance Abuse Adjusted R^2 = .329
Std. Error of the Estimate = 3.03656

Discussion

Prevalence of Post-traumatic Stress Disorder among Female Street-Based Sex Workers

The results show that there is a high prevalence of PTSD among female street-based sex workers, with 31% of them meeting the criteria for PTSD. However, this proportion might be even higher if the participants were better educated, as those who are from lower educational background may not be capable of accurately describing their PTSD symptoms. The researchers noticed that some of the participants did not even seem to realize that these symptoms were disrupting their life.

The results of the present study are supported by findings of other similar investigations. For example, studies which examined the prevalence of PTSD in samples of female sex workers have identified rates ranging from 17% (Chudakov, Ilan, Belmaker, Cwiken, (2002) to 63% (Farley et al., 2003). Roxburgh, Degenhardt, and Copeland (2006) also found out that 47% of their samples of 72 street-based sex workers in Sydney, Australia met the criteria for post-traumatic stress disorder based on a diagnostic interview. Furthermore, of the women who met the criteria for PTSD, 91% suffered from the chronic form of the disorder. This is much higher than the lifetime prevalence of PTSD in the general population, ranging from a low of 0.3% to a high of 6.1% (WHO, 2008).

Prevalence of Depression among Street-Based Sex Workers

Street-based sex workers are marginalized group of people who suffer poor treatment from the general population and are prone to being stigmatized. They sell their bodies for money, a practice which is not considered acceptable by a majority of society, leading sex workers to develop very negative views of their lives and themselves. The nature of the job itself is very stressful as it contains much violence, degradation and fear, resulting in a sense of hopelessness, depression, and often suicidal feelings.

In the current study (n = 200), the majority (145, or 72.5%) have mild to severe depression. Furthermore, 43.5% of the participants scored high enough on the BDI-II, indicating severe depressive symptoms. The fact that sex workers have higher rates of depressive symptoms than the general population is supported by a study conducted by Roxburgh, Degenhardt, and Copeland (2006), also using the Beck Depression Inventory (BDI-II).These researchers found out that 87% of their sample of 72 women reported symptomsindicative of at least mild depression, whereas 54% of the participants scored high enough on the BDI-II, indicating severe symptoms.

Dominelli (1986) suggested that depression among sex workers led to stigmatization and sex work is seen as immoral and deviant. According to this view, internalizing such stigma undermines women's sense of empowerment and leads to feelings of submissiveness and further self-degrading behavior. Various researchers have also examined depression and emotional experiences of female sex workers. For example, Kramer, (2003) asked 119 female sex workers to generate words that describe their feelings while engaging in sexual acts with customers. Of these emotional words, 90% had negative connotations. The most frequently occurring words generated by these women included sadness, depression, undesirability, anger, resentment, detachment/disconnection, fear, and anxiety.

Prevalence of Substance Abuse among Female Street-Based Sex Workers

In female sex working populations, drug use could reasonably be considered the norm rather than deviant behavior (Jung, Song, Chong, Seo, & Chae, 2007). In this study, most street-based sex workers used one or more types of drugs or alcohol as part of their daily lives. For many sex workers much of the money they make in the night goes to buy substances during the day. The frequently-used substances include cigarettes, cannabis, hashish, khat, shisha, and alcoholic drinks in the belief that these would help them in their jobs. For most of them, the major reason for using substances is to help avoid negative thoughts and to serve their clients in a more relaxed mood. It also helps them to cope with the night cold temperatures and weather conditions, to stop the conflicts and negative thoughts about themselves and their work, and to stop worrying who their next client is and what he might do against them.

Therefore, in this study, a simple screening instrument for substance abuse revealed that out of the total of 200 participants, 123 (61.5%) of them met the criteria for substance abuse. This result is supported by other studies which show that the rates of drug and alcohol use in female sex-working populations ranges from 48% (Farley, et al., 2003) to 94% (Roxburg, Degenhardt & Copeland, 2006). Drugs and alcohols not only serve as tools by which individuals can avoid or block out painful memories of traumatic pasts, but they also help these individuals numb their fear so that they can perform their services effectively (Kramer, 2003).

Associations between Childhood Sexual Abuse and Current PTSD, Depression, and Substance Abuse Symptoms

Of the total 200 respondents in this study, 46(23%) of them reported a history of one or more incidents of childhood sexual abuse. For most of them, the abusers were their relatives, stepfathers, villagers, and strangers or employers encountered after coming to Addis. In addition, chi-square analyses of associations between childhood sexual abuse and current PTSD, depression, and substance abuse revealed a significant and positive relationship.

Previous studies examined the role of past and current traumas in the development of PTSD. Farley, et al. (2003) found out that of the 63% of their sample who met the criteria for PTSD, those with greater severity of symptoms generally had a greater number of lifetime traumatic incidents, including childhood and adult sexual and physical assault. In support of this, Farley and Barkan (1998) reported that 68% of female sex workers interviewed met criteria for lifetime diagnosis of PTSD. This was associated with sexual abuse and exposure to trauma in childhood. In addition, the more types of violence reported (childhood physical and sexual abuse, rape and physical assault while working),

the greater the severity of PTSD symptoms.

A study by Ulibarri et al (2009) examined histories of past emotional, physical, and sexual abuse as correlates of current psychological distress using data from 916 female sex workers enrolled in a safer sex behavioral intervention program in Mexico. These researchers found that history of sexual abuse was the strongest predictor of both depressive and somatic symptoms of the three abuse items. This suggests that history of sexual violence may be significantly associated with more serious mental health consequences. Roosa, Reinholtz, and Angelini (cited in Ulibarriet al., 2009) also reported that for Mexican-American women, history of childhood sexual abuse accounted for more variance in depression scores than the background variables of social class, family size, marital status, extent of child physical abuse, and teen pregnancy. Goldstein (cited in Alexander, 1998) reported that significant drug use is more common among street sex workers. Approximately 60% of street prostitutes who use drugs did so prior to becoming involved in prostitution, and indeed, turned to sex work to pay for the drugs. It is in this population that a significant association between sex work and a history of childhood sexual abuse has been found. However, instead of determining the association between childhood sexual abuse and current mental health situations, many studies tend just to report the prevalence of childhood history of sexual abuse among street sex workers and its influence to join sex work in their later lives. Lindeland (2010) hypothesized that those who have experienced childhood or adult trauma are more likely than the general population to become involved in sex work and vice versa. Sex workers are furthermore subjected to higher rates of PTSD, dissociative pathology, substance abuse, and depression than the general population, though again a causal relationship is difficult to determine.

Other studies have examined the rates of childhood sexual abuse in populations that are highly correlated with current or future involvement in sex work. Vaddiparti et al., 2006) examined the rates of childhood sexual assault in a group of 594 substance-using women, some of whom were involved in the sex trade. The authors found high rates of childhood sexual assault in both groups, with the sex-trading women having a significantly higher reported rate (46%) than women who had no experience in the sex trade industry (36%).
Length of Stay in Sex Work: Correlations with PTSD, Depression and Substance Abuse
There is a general hypothesis that as street sex workers remain for longer periods in this work, their psychological distress also will increase. In this particular study, Pearson correlation coefficients revealed that there is a significant relationship between length of stay in sex work and dependent variables including PTSD, depression, and substance abuse. It is obvious that as street sex workers stay for longer periods with such persistent traumatic and distressing events; their mental health condition will worsen. This is supported by Jung, Song, Chong, Seo, and Chae (2007) who explored the relationship between length of time engaging in sex work and experience of PTSD symptoms. These researchers found that the reported PTSD symptoms increased proportionally to the length of the years that women engaged in prostitution. Multiple traumas related to engagement in prostitution for a long time are associated with the risk of developing PTSD and the severity of the PTSD symptoms.

Correlations among PTSD, Depression and Substance Abuse

The current study tried to examine the relationships among PTSD, depression and substance abuse. The results showed strong positive correlations between PTSD and depression, PTSD and substance abuse, and a moderate positive correlation between PTSD score and substance abuse, and depression and substance abuse ($r = .559$, $p = <.01$), depression ($r = .620$, $p = < .01$) and substance abuse ($r = .430$, $p = < .01$). Empirical stud-

ies investigating such relationships are limited, although Lindeland (2010) reported that depression has a strong relationship with trauma and PTSD as it is the most commonly diagnosed pathology following a traumatic event.

Similar findings have been reported by Roxburgh, Degenhardt, Larance & Copeland (2005) who found an association between current PTSD and severe depressive symptoms in which women reporting current PTSD were more likely to also report being depressed. There are also limited studies examining relationships between PTSD and current substance abuse in this population. For example, Lindeland (2010) reported that problems with alcohol and drug use occur independent of trauma, although comorbidity rates between these two related pathologies are high. This may be due to the fact that alcohol and drug use provide a way for trauma survivors to avoid the triggering stimuli they encounter in their day-to-day lives or to numb the persistent distress that they experience. Several authors have attempted to explain why substance abuse rates are so high among sex workers. For example, in their sample of 113 former prostitutes, Jung, Song, Chong, Seo, and Chae (2007) found that problematic drinking and smoking were positively correlated with the frequency with which these women experienced PTSD symptoms.

Empirical studies are limited in efforts to find the exact correlations between depression and substance abuse. However, some researchers report their general analyses of this relationship. For example, according to Hong et al.,2008), the secrecy and stigmatization associated with illegal commercial sex creates stress, conflict, and fear among female sex workers. Stressors include depression, internalized stigma, needs to hide their situation from family and friends, socioeconomic pressures and diminishing hope for the future. Therefore, drinking among female sex workers may serve as self-medication or a maladaptive attempt to cope with economic disadvantage, an impoverished life style, and stressful work.

Predictive Value of PTSD in Relation to Depression and Substance Abuse

In the present study, linear regression analyses revealed a significant influence of PTSD on both depression [DF (1, 198); F: 348.649, $p<0.001$] and substance abuse[DF (1, 198); (F= 98.464), $p<0.001$].However, the question remains: are these two disorders (depression and substance abuse) co-morbidly present with PTSD or are the distinct disorders which can be influenced by the severity of PTSD symptoms? Some symptoms such as sleep deprivation might occur in both PTSD and depression, and can then lead to a worsening of mood and increased depression. Furthermore, sex workers with PTSD who avoid people, places, and activities that remind them of traumatic events may begin to feel isolated, and thus experience symptoms of depression.

The interaction between symptoms of depression and PTSD becomes increasingly complicated when the potential for the existence of additional comorbid mental health problems is noted. One additional comorbid disorder could be substance abuse, a problem that has been documented as a highly prevalent disorder among street sex workers. On the other hand, according to Brady et al. (2000), individuals with avoidance PTSD cluster symptoms have been shown to be at increased risk for utilizing substances to help avoid unwanted memories, thoughts, and feelings pertaining to the traumatic experience. While these substances may allow individuals to successfully avoid traumatic reminders, their sedating effects are likely to lead to general emotional numbing, potentially misperceived as depressed mood, and behavioral changes consistent with depression, including hypersomnia, lack of energy, and psychomotor retardation. Therefore, it is recommended that future research be done on the predictive nature of PTSD on depression and substance

abuse in order to confirm findings presented here.

Nonetheless, results of the current study are consistent with several investigations. Breslau et al.,2008) found that individuals exposed to trauma and who developed PTSD were at increased risk for developing depression compared to those who were not exposed to trauma and those who were traumatized but did not develop PTSD. This suggests that those who develop PTSD, are uniquely at risk for developing depression either as a reaction to dealing with PTSD symptoms or as a result of an underlying vulnerability for both PTSD and depression, existing prior to traumatic exposure, compared to those exposed but who do not develop PTSD.
Some authors have also attempted to explain why substance abuse rates are so high among sex workers and that PTSD predicts this substance abuse. For example, in their sample of 113 former prostitutes, Jung, Song, Chong, Seo, and Chae (2007) found that problematic drinking and smoking were positively correlated with the frequency with which these women experienced PTSD symptoms. Another study by Stewart et al., (cited in Somberg, 2008) reported that among women with PTSD and substance abuse problems, the presence of arousal PTSD symptoms was found to be the best predictor of alcohol and anxiolytic dependence.

Conclusion

The main purpose of this study was to investigate the prevalence of post-traumatic stress disorder, depression, and substance abuse among female street-based sex workers in Addis Ababa, Ethiopia. The following conclusions can be drawn from the study.

- Many of the female street-based sex workers who participated in this study reported complex histories of trauma, and the majority reported experiencing work-related violence. Mental health problems of PTSD, depression, and substance abuse were prevalent, and history of childhood sexual abuse among this population is very common.

- This study found out a positive association between history of childhood sexual abuse and severity of current mental health disorders (PTSD, depression, and substance abuse). This shows that those women who were sexually abused at their early age (childhood) had more severe symptoms of PTSD, depression, and substance abuse.

- Almost all the participants described street sex work as very distressing, and the length of stay as a sex worker was positively correlated with the severity of current PTSD, depression, and substance abuse symptoms. This means that the longer they remain in this work, the more severe their mental health disorders would be.

- This study also revealed positive relationships between PTSD and depression, PTSD and substance abuse, and depression and substance abuse in street-based sex workers.

- Finally, results of this study show a significant variation in depression and substance abuse scores due to severity of PTSD symptoms.

References

Alexander, P. (1998). Sex work & health: A question of safety in the workplace. *JAMWA*, 53, 2.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders: Text Revision* (4th ed.). Washington, DC.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders: (4th ed.)*. Washington, DC.

Balso, M. D. & Lewis, A. D.(2005). First Step: A guide to social research. Canada: Thompson.

Beattie, T.S.B., Bhattacharjee, P., Ramesh, B.M., Gurnani, V., Anthony, J., Isac, S., Mohan, H.L., Ramakrishnan, A., Wheeler, T., Bradley, J., Blanchard, J.F. & Moses, S. (2010). Violence against female sex workers in Karnataka state, south India: Impact on health, and reductions in violence following an intervention program. *Biomed Central Public Health*, 10:476.

Beck At, Ward., Mendellson, Mock J. Erbaugh J (1961). An inventory for measuring depression. *Arch Gen Psychiatry.* 1961 Jun;4:561-71

Bennett, P. (2005). *Abnormal and clinical psychology: An introductory textbook*: (2nd ed.). England: Open University Press.

Bethelehem, T. (2007). *Poverty and the social context of sex work in Addis Ababa.* Addis Ababa, Ethiopia: Forum for Social Studies.

Blanchard, E. B., Jones, A. J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behavior Research and Therapy*, 34, 669-673.

Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and post-traumatic stress disorder. *The Journal of Clinical Psychiatry*, 61(Suppl. 7), 22–32.

Breslau, N., Peterson, E. L., & Schultz, L. R. (2008). A second look at prior trauma and the post-traumatic stress disorder effects of subsequent trauma: A prospective epidemiological study. *Archives of General Psychiatry*, 65, 431– 437. http://dx.doi.org/10.1001/archpsyc.65.4.431

Chemtob, C. M., Yoko Nomura, Khushmand Rajendran, Rachel Yehuda, Deena Schwartz, and Robert Abramovitz. (2010). Impact of Maternal Posttraumatic Stress Disorder and Depression Following Exposure to the September 11 Attacks on Preschool Children's Behavior, *Child Development.*81(4). 1129-1141.

Chudakov, B., Ilan, K., Belmaker, R. H., & Cwikel, J. (2002). The motivation and mental health of sex workers. *Journal of Sex & Marital Therapy*, 28(4), 305-315.

Dominelli, L. (1986). The power of the powerless: prostitution and the reinforcement of submissive femininity. *Sociological Review.* 34, 65-94.

Family Health International (FHI) (2002). *Mapping and census of female sex workers in Addis Ababa*, Ethiopia.

Farley, M. (2005). *Prostitution harms women even if indoors: Reply to Weitzer. Violence against Women*, 11, 950-964.

Farley, M. & Barkan, H. (1998). Prostitution, violence, and post-traumatic stress disorder. *Women and Health*, 27:37-49.

Farley, M., Cotton, A., Lynne, J., Zumbeck, S., Spiwak, F., Reyes, M. E., et al. (2003). Prostitution and trafficking in nine countries: An update on violence and Post-traumatic stress disorder. In M. Farley (Ed.), *Prostitution, Trafficking, and Traumatic Stress* (pp. 33-74). Binghamtom, NY: The Haworth Maltreatment & Trauma Press.

Geetha, S., Allen, F., & Aylur, K. S. (2009). An assessment of the mental health of street-based sex workers in Chennai, India. *Journal of Contemporary Criminal*

Justice, 25, 186-201. Doi:10.1177/1043986209333590.
Gotlib, I. H., & Hammen, C. (2010). *The handbook of depression*. The Guilford Press; Second edition
Harris, M., Nilan, P., & Kirby, E. (2011). Risk and risk management for Australian sex workers. *Qualitative Health Research*, 21, 386.
Hersen, M., Turner, S. M., & Beidel, D. C. (2007). *Adult psychopathology and diagnosis: (5th ed.).* New Jersey: John Wiley & Sons, Inc.
Hilsenroth, M. J., & Segal, D. L. (2004). *Comprehensive handbook of psychological assessment*. Hoboken, New Jersey: John Wiley & Sons, Inc.
Hong Y, Li, X. (2008). Behavioral studies of female sex workers in China: a literature review and recommendation for future research. *AIDS Behav.* 12:623–36. [PubMed] [Google Scholar]
Hoyle, R. H., Harris, M. J., Judd, C. M., (2002). *Research Methods in Social Sciences.* Spain: Thompson Learning.
Jackson, W. (1999). *Methods: Doing social research.* Scarborough: Prentice Hall.
Julian, D. F. (2009). *Post-traumatic stress disorder: Science and practice.* United Kingdom: Elsevier Inc.
Jung, Y. E., Song, J. M., Chong, J., Seo, H. J., & Chae, J. H. (2007). Symptoms of post-traumatic stress disorder and mental health in women who escaped prostitution and helping activists in shelters. *Yonsei Med J*, 49(3), 372-382.
Knight, J. R., Goodman, E., Pulerwitz, T., Durant, R. H. (2000). Reliabilities of short substance abuse screening tests among adolescent medical patients. *Pediatrics*, 105, 948-953.
Kramer, L. A. (2003). Emotional experiences of performing prostitution. In M. Farley (Ed.), *Prostitution, Trafficking, and Traumatic Stress* (pp. 33-74). Binghamtom, NY: The Haworth Maltreatment & Trauma Press.
Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.
Lalor, K. (2000). The victimization o f juvenile prostitutes in Ethiopia. *International Social Work*, 43 (2), 227-242.
Lam, R.M., Michalak, E.E., & Swinson, R.P. (2005). *Assessment scales in depression, mania and anxiety*. London: Taylor & Francis Group.
Lemma, A. (1997). *Introduction to psychopathology*. London: SAGE Publications.
Li,Q., Li, X., & Stanton, B. (2010). Alcohol use among female sex workers and male clients: An integrative review of global literature. *Alcohol & Alcoholism*,45, 188–199.
Lindauer RJ, Vlieger EJ, Jalink M, Olff M, Carlier IV, Majoie CB, Den Heeten GJ, Gersons BP (2005). Effects of psychotherapy on hippocampal volume in out-patients with post-traumatic stress disorder: *MRI investigation*, 35(10): 1421-31.
Lindeland, B. (2010). *Trauma symptomatology in female sex workers: A review of recent literature* (Master's thesis, School of Professional Psychology, Pacific University). Retrieved from: http://commons.pacificu.edu/spp/132
Ling, D. C., Wong, W. C. W., Holroyd, E. A., & Gray, A. (2007). Silent killers of the night: An exploration of psychological health and suicidality among female sex workers. *Journal of Sex and Marital Therapy*, 33, 281-299.
Nachmias, C. F. and Guerrero, A. L. (2006). *Social Statistics for diverse society*. London: Sage Publisher.
National Institute of Mental Health (2010). *The Numbers Count: Mental Disorders in America.* Retrieved May 23, 2010 from http://www.nimh.nih.gov/health/publications/the-numbers-count-mentaldisorders-in-America/index.shtml#PTSD.

Nixon, K., Tutty, L., Downe, P., Gorkoff, K., & Ursel, J. (2002). The everyday occurrence: Violence in the lives of girls exploited through prostitution. *Violence against Women*, 8, 1016-¬1043.

Palys, T. (1997). *Research decisions: Quantitative and qualitative perspective.* New York: Harcourt Brace and company.

Rauch, S. and Foa, E. B. (2006). Emotional Processing Theory (EPT) and exposure therapy for PTSD. *Journal of Contemporary Psychotherapy*, 36(2):61-65 DOI: 10.1007/s10879-006-9008-y

Roxburgh, A., Degenhardt, L., Larance, B., & Copeland, J. (2006). *Post-traumatic stress disorder among female street-based sex workers in the greater Sydney area, Australia: Biomed central psychiatry.*

..... (2005). *Mental health, drug use, and risk among female street-based sex workers in greater Sydney:* NDARC Technical Report, No, 237.

Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD checklist-civilian version: *Journal of Traumatic Stress*, 16(5), 495-502.

Somberg, R. J. (2008). Predicting comorbid PTSD & depression over time among victims of intimate partner violence. (*Unpublished doctoral dissertation*, George Washington University.) *UMI microform.* 3315905.

Surratt H, Inciardi J, Kurtz SP, Kiley M. Sex work and drug use in a subculture of violence. *Crime and Delinquency.* 2004; 50:43–59.[Google Scholar]

Sussman, S. & Ames, S. L. (2008). *Drug abuse concept, prevention, and cessation.* New York: Cambridge University Press.

Ulibarri, M. et al. (2009). History of abuse and psychological distress symptoms among female sex workers in two Mexico-U.S. border cities. *NIH public access, Violence Vict. 2009*; 24(3): 399–413.

Vaddiparti, K., Bogetto, J., Cellehan, C., Abdallah, A. B., Spitznagel, E. L., & Cottler, L. B. (2006). The effects of childhood trauma on sex trading in substance using women. *Archives of Sexual Behavior*, 35, 451-459.

Vanwesenbeeck, I. (2001). Another decade of social scientific work on sex work: A review of research, 1990-2000. *Annual Review of Sex Research*, 12, 242-289.

Wondie, Y., Zemene, W., Tafesse, B., Reschke, K. & Shroeder, H. (2011). The psychosocial consequence of child sexual abuse in Ethiopia: A case-control comparative analysis. *Journal of Interpersonal Violence*, 26(10), 2025-2041.