Physical Violence against street children and its associated factors among street children in Jimma town, Southwest Ethiopia:- A community based cross-sectional

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Abstract

Background: Violence against children is a major public health, human rights, and social problem, with potentially devastating and costly harming children in every country. Even though evidences showed that street children accumulate a range of experiences of violence from an early age, physical and sexual violence are the commonest among street children. Street children's health is an area that is not well researched, especially the magnitude and forms of violence targeted to street children lack attention, in which only few qualitative studies have been done in different parts of Ethiopia in past remote years. Therefore, this study planned to determine the magnitude of physical violence and associated factors among street children, who were residing in Jimma town, March, 2019.

Methods: A community based cross-sectional study was conducted among 312 street children. Pre tested Self-administered structured questioners were used for data collection. Data were entered to Epi data version 3.1 and exported to SPSS version 20 for statistical analysis. Principal Component Analysis (PCA) was used to create a dichotomous dependent variable. Independent variables with $p\text{-value} \leq 0.25$ in bivariate analysis were included into multivariable logistic regression and variables with $P\text{-value} < 0.05$ in multivariable logistic regression were declared as statistically significant.

Results: A community based cross-sectional study was conducted among 312 street children from March 1st to 31st 2019. The study found that the magnitude of low physical violence to be 52.9% (95% C.I: 47.1- 58.7%) and high physical violence 47.1% (95% C.I: 41.3-52.9%). Factors like sex (being males) (AOR: 2.70, 95% C.I: 1.00- 7.36), sleeping under bridge (AOR: 2.08, 95%C.I: 1.11-3.89), deliver message (AOR: 2.43, 95%C.I: 1.20- 4.93), attending/washing cars (AOR: 2.17, 95%C.I: 1.22- 3.93), and begging (AOR: 3.12: 95%C.I: 1.33- 7.27) as a means of income generation and those who were tensioned, anxious or feel insecure during their street life (AOR: 1.90, 95%C.I: 1.03- 3.51) had statistically significant association with low physical violence. Being female (AOR: 2.82, 95%C.I: 1.01- 8.06) was statistically associated with high physical violence whereas factors like spent night under plastic shelter (AOR: 2.36, 95%C.I: 1.02- 5.46), spent night under bridge (AOR: 0.47, 95%C.I: 0.25- 0.89), can read and write (AOR: 0.11, 95%C.I: 0.03- 0.41), Attended/ washed cars(AOR: 0.48, 95%C.I: 0.27- 0.88) and begging (AOR: 0.40, 95%C.I: 0.17-0.96) pose less risk of having high physical violence.

Conclusion: Street children are experiencing low to high physical violence and a number of factors are contributing to this problem in the study setting. Intersectoral collaboration and efforts are needed to alleviate physical violence among street children. Policy formulation and law enforcement targeting to this street children and perpetrator is needed locally and nationally.

Key Words- Physical violence, violence against children, street children

Introduction

The problem of children living on the street is a global phenomenon. It has created enormous problems to millions of children in all parts of the world[1]–[3]. Among the vast majority of problems, violence can be mentioned. Violence against children is a public health, human rights, and social problem, with potentially devastating and costly harming children in every country, impacting families, communities, and nations, and reaching across generations[1], [3]. This problem becomes the worst scenario among children living and working on the street. Even though evidences showed that street children accumulate a range of experiences of violence from an early age, physical and sexual violence are the commonest among street children[2], [4]

The term street children have many definitions in different settings [5]. According to United Nations commission for human rights, Street children are defined as children under 18 years of age (based on how childhood is legally defined in that country) male or female who spend all or parts of their time on the street, lacks supervision, protection or guidance which put them vulnerable to a range of health and psychological risks/problems[6], [7]. The United Nations Children's Fund (UNICEF) strengthen these definition as “any girl or boy who has not reached adulthood for whom the street (in the broadest sense of word including the unoccupied dwellings, wastelands) has become her/ his habitual source of livelihood and who is inadequately protected, supervised or directed by responsible person” [8].

These children in many countries named after their daily activities like Juvenile prostitutes (Stuttgart), street gangs, vendors (Ghana). The other mutant names given like “street kids”, “parking body”, “teenage beggars”, “street bums”, “area boys and girls”; to express a complex phenomenon of street children [5], [8], [9]. The modern, socially and politically correct, equivalent to street children in Ethiopia especially in Addis Abeba is “Godana Tedadari” or “Berenda Adari”, which is meant to say street dwellers or those who live of the street [10]. The main point for all these definitions is that the issue of street children depends on nation, culture, existing social ideology, existence of serving organization, legal support and so on.

The magnitude of street children may varies from countries to countries, level of urbanization, economic activities and so on. The numbers many vary from town to town within a country and sometimes difficult to know the exact number of street children especially in areas with poor vital registration and the developing world [10]–[12].

The Ministry of Labor and Social Affairs of Ethiopia in collaboration with UNICEF, estimated that the number of street children to be around 150,000 children who were living on the streets in Ethiopia of which about 60,000 live in the capital, Addis Abeba [13]. However, other aid organizations estimate the number to be much higher in that nearly 600,000 street children found nationwide and above 100,000 in the capital of Ethiopia, Addis Ababa[12]. Despite all these a recent head count by UNICEF in Addis Ababa, found that only 10,706 children's were found on the Street [13], [14].

In relation to factors contribute/ lead to life in street, most studies indicate that poverty, death of Parents (relatives), growth of towns and their attractive features to children, disruption of extended family system, unplanned pregnancies, domestic Violence and labor abuse, parent's lack of responsibility, family conflict, parental behavioral problems, rebellious behavior and attitude of the child are the major factors [6], [9].

The problems a street children face can be broadly seen as: social (poverty, illiteracy, discrimination, lack of access to resources, violence and stigmatization); physical (injuries, sexual and reproductive problems, malnutrition, vulnerability to common disease) and psychological /mental problems (stress, drug abuse and Alcoholism) [9],[13].

Violence; also contemporarily named as violence against children (VAC) is amongst the different forms of problems a children face in daily life and it encompasses a variety of forms and magnitude. A large proportion of children face violation of rights to their physical, sexual, mental and emotional rights in different circumstance by their parents, neighbors, community member and others in their living environment. This problem is highly rampant with various complications among children living out of full or partial control of parents like street children. Currently, reports showed that VAC is a very substantial and serious global problem [2][15]. It occurs in every country in the world in different forms and deeply rooted in cultural, economic, Political and social practice.

A ten years study by UNICEF figured an alarmingly high number of VAC in the globe revealing that 80% of children experiencing some form of violent punishment, varying from 45% in Panama to 95% in Yemen [15]. The prevalence estimate of child physical violence in East Asia and the Pacific region ranges from 1.16% to 17.45% for females and 5.25% to 34.95% for males whereas the prevalence of child sexual abuse ranges from 11% to 22% for girls and 3% to 16.5% for boys across the region [16]. A systematic review and Meta-Analysis in Gender-based violence among female youths in Sub-Saharan Africa revealed that the overall prevalence of gender-based violence ranged from 42.3% in Nigeria to 67.7% in Ethiopia. The lifetime prevalence of sexual violence ranged from 4.3 to 76.4% and physical violence ranged from 7.4 to 66.1% [17]. Information related to magnitude of all forms of violence specific to street children is still vacant globally that's why the world fail to develop policies and intervene for visible problems of the street world , so does Ethiopia. However, street children's health is an area that is not well researched, especially the magnitude and forms of violence targeted to street children lack attention, in which only few qualitative studies done in different parts of the country in past remote years. This information is, however, outdated and the findings may not be relevant in other setting. Therefore, this study sets out to determine the magnitude of physical violence and associated factors among street children. The generated information will serve as an update and base line data for researches, planners and aid organizations so that in a long run the issue of streetism and problems related to street children will get resolved.

Objectives of the study

Determine magnitude of physical violence against street children residing in Jimma town, south West Ethiopia

Identify factors associated with physical violence against street children in Jimma town, SW Ethiopia.

Methods and Materials

Study area and period

The study was conducted in Jimma town, Oromia regional state, South West of Ethiopia from March 1-31, 2019. The town is found at a distance of 345 km from Addis Ababa, the capital city of Ethiopia. The population size of the city varies from source to source. According to the 2015 National Urban System Study, the population of the city was 199,575 while the city administration claims over 200,000 of which 100,347 are male and 99,229 females. This makes the city among the top 10 most populous cities in the country. There are 6 public health institutions (4health centers & 2 hospitals) and 24 private clinics in the town. There are some non-governmental organizations that specifically targeted to serve orphan and vulnerable children. These are FAYA integrated; OSSA and RAHAB can be mentioned. FAYA Integrated Development Organization provides comprehensive services ranging from legal aid to medical treatment for these street children in the town. The organization has central office at Jimma town and decentralized offices at each thirteen urban Kebeles of Jimma town. Each office of respective kebele runs by community social workers and registered community volunteers ranging 20-30 on each Kebeles. These community volunteers work under close supervision from community social workers and have direct contact with the street children. The organization updates the number and list of street children regardless of age and sex

Study design

Community based cross sectional study design was employed from March 1-31/2019.

Population

Source Population: All street children living in the thirteen urban Kebeles of Jimma town

Study Population: All available street children who were included in the study through fulfilling inclusion criteria and having age ranges from 12-18 years old during the study period.

Eligibility Criteria

Inclusion Criteria

All adolescent street Children who live only on the street and have no family contact or do not go back to their families at night time, residing on the street at least one month prior to the study and aged 12-18 years of age.

Exclusion criteria

Street children who have difficulties in communication (Impairment in auditory or verbal integrity)

Sample size determination and Sampling technique /Sampling procedures

Sample size was calculated considering parameters like 95% Confidence interval, 5% margins of error and 67.7% proportion of physical violence [17].

$$n = \frac{(Z_{\alpha/2})^2 P (1-P)}{w^2}$$

$$n = \frac{(1.96)^2 0.677 (1-0.677)}{(0.05)^2}$$

$$n = 336.02$$

Since the source population is less than 10,000, finite population correction formula applied giving

$n_i = n / (1 + n/N)$ where N is the source population (total street children) which is 365

$$n_i = 336.02 / (1 + 336.02 / 365)$$

$$n_i = 174.9 + 15\% \text{ non-response rate}$$

$$N_f = 201.135 \approx 202$$

Even though **202** street children were required for this study, there was no list of children residing on the street and even their number was not known in the study setting. To overcome this, a preliminary assessment was made to quantify available street residents. So that, 365 children were identified as street inhabitant of which 312 fulfill the inclusion criteria. The researchers decided to use 312 than 202 to assess magnitude and factors associated with violence that would assume to increase study power.

Data Collection methods and Procedures

Data were collected using pretested structured interviewer administered questioner composed of questions targeted to socio-demographic characteristics, family history, past history of illness, physical and sexual violence. Structured questionnaire was prepared after reviewing different published literatures and related studies[1][5][11][18] and adopted with modification to local context[19]. These questions were originally prepared in English language and then translated to local language (Amharic) for easy utilization and translated back to English before utilization

that helps to maintain consistency and quality of information gathered. The translated Amharic version was pretested on 10% (n=32) of the sample size, modifications made accordingly and internal consistency checked for the composite variable using cronbach's Alpha. Training was given to five data collectors and two supervisors emphasizing on the objectives of the study, what to be measured, how to collect information under each questions, ways to maintain quality of data and consistency of information. On field work, each data collectors were checking completeness of each questioner upon accomplishment and the two supervisors checked overall work routinely and check questioner quality and completeness each day.

In order to measure physical violence, a principal component analysis (PCA) was made based on 15 items adopting from ICSTA [19] and two components, namely low and high physical violence created following all steps of PCA using SPSS version 20 (IBM Corporation, Armonk, NY, USA) statistical software.

Data processing and analysis

The collected data were entered to EpiData version 3.1 (the EpiData Association, Odense, Denmark, Europe) then exported to SPSS version 20 (Armonk, NY, USA)). The data were checked for completeness and errors, described and checked for missing, outliers. Variable recoding and categorization made. Principal Component Analysis (PCA) was done to create a dependent variable. Descriptive statistics was done to determine frequencies, percentage, means and standard deviation distributions for the variables. Bivariate and multivariable logistic regressions were performed. A bivariate analysis was applied to determine the crude effect of each predictor variable on dependent. Independent variables with P-value <0.25 in bivariate logistic regression were included for multivariable logistic regression after checking their collinearity effect and normality of data using stepwise backward elimination procedure. Variables were considered as statistically significant at P-value <0.05 in multivariable logistic regression with respective 95%CI after checking for model fitness using Hosmer-Lemeshow goodness of fit.

Results

A total of 324 children were candidate for the study from March 1-31/ 2019 from these 12 children were unable to trace back during the study period making the response rate of 96.3%. The study included 312 street children whose age ranges from 12 to 18 years old with mean Age of 14.2 ($\pm$ 1.6 S.D) years and majority of them 191(61.2%) were found in the age group of 12-14 years and almost 281(90.1%) were male. Majority of these children were born in rural 229(73.4%) and came to study area (Jimma) in different occasions where as 81(26.0%) in urban areas. In regards to religion and Ethnicity, majority were from Muslim 238(76.3%) and 238(76.3%) were Oromo in Ethnicity. In relation to educational status, nearly half 155(49.7%) have been attending primary cycle (1- 4th) grade and 22(7.1%) have been attending secondary

cycle (5-8th) of elementary school but 78(25%) never went to school. In addition to this, at the time of the study conducted 290 (92.9%) were not attending school. (**Table 1**)

Table 1: Socio demographic Characteristics of Street Children and their Parents in Jimma Town, South West Ethiopia, 2019 (N=312)

Characteristics	Category	Frequency	%
Sex	Male	281	90.1
	Female	31	9.9
Age	12-14	191	61.2
	15-16	87	27.9
	17-18	34	10.9
Place of birth	Urban	81	26.0
	Rural	229	73.4
	Do not know	2	0.6
Religion	Muslim	238	76.3
	Orthodox	44	14.1
	Protestant	24	7.7
	Catholic	6	1.9
Ethnicity	Oromo	238	76.3
	Amhara	19	6.1
	Keficho	18	5.8
	Dawro	31	9.9
	Others	6	1.9
Highest Education attained	never attend school	78	25.0
	only read and write	23	7.4
	1-4	155	49.7
	5-8	56	17.9
Current Educational status	Attending	22	7.1
	Not attending	290	92.9
Status of natural parents	Alive	156	50.0
	Dead	130	41.7
	Did not know	26	8.3
Death of Parents	Parental	50	38.5
	Maternal	46	35.4
	Both parents	34	26.1

Regarding family history, half of them mentioned that their natural families (both father and mother) were alive somewhere in the country where as 130(41.7%) mentioned as one or more of their parents were not alive (dead) but 26(8.3%) did not know about current family existence.

Socio-economic characteristics

These street children were involved in different income generating activities in order to cover daily needs. As a result, majority of them 225(72.8%) are used for carrying small items (“*serto-bella*”- local term) followed by attending and washing cars 84(27.2%), street vendor or trading

76(24.6%) and delivering messages 57(18.4%) respectively (**Figure 1**). The daily income of these children ranges from 15 to 100 ETB per day in which the Median income of the respondents was 35 (IQR=20) birr per day.

Figure 1: Work activities of street children for income generation, Jimma Town, South West Ethiopia, 2019

The duration at which these children had been spending on the street life ranges from 2 months to 72 months with the median duration of streetism 12 (IQR=17) months. Almost fifty percent of them spent one to three years on the street and had been using hotel veranda as a sleeping site at night. Relatively small number (13%) of them had been built a plastic shelter and slept under it. (**Table 2**)

Table 2: Duration at which street children spent on the street and sleeping site, Jimma town, South West Ethiopia, 2019

Characteristics	Category	Frequency	%
Duration of streetism (yrs)	Less than a year	119	38.1
	1-3 years	166	53.2
	4-6 years	27	8.7
Sleeping site at night	Plastic shelter	41	13.1
	night rented house	135	43.3
	Under bridge	63	20.2

Hotel veranda	159	51.0
Old and abandoned place	110	35.3
Market places	15	4.8

Substance use

Street children are more prone to use locally available substances for different purposes. This study found that 124(39.9%) of them ever used substances whereas 96(30.8%) were currently using substances at the time of study. khat; cigarette and Mastish (glue) were the most commonly used substances (**Figure 2**).

Figure 2: Commonly used substances ever before and currently by street children in Jimma Town, South West, Ethiopia, 2019.

These study participants also revealed that nearly 70% of them felt sense of anger, sadness and hopeless due to different challenges that they faced while living and working on the street. Additionally, nearly 68% of these street children were feeling fear, insecure and tensioned while living and working on the street because of 175(82.9%) attack from older gangs, 120(56.9%) daily robbery by others, 100(47.4%) arrest and attack by police officers and other.

Physical violence

In this study physical violence was assessed based on 15 items that was brought to Factor analysis using principal component analysis on SPSS software version 20.

Table 3: shows the frequency and percentage of physical violence three months prior to the study with respect to each item for street children residing in Jimma town, South west Ethiopia, 2019.

Characteristics	Categories	Frequencies	%
physical violence items	Push you, shake you or throw something at you?	210	67.3
	Hit, beat, spanked with a hand?	218	69.9
	Hit, beat or spanked with a belt, stick or other object?	178	57.1
	Twist your arm, ear or pull your hair?	196	62.8
	Hit with a closed fist?	174	55.8
	Locked, tied or chained you up	74	23.7
	Choked or tried to drown you	59	18.9
	Burned, scalded, crushed fingers or hands with intension to harm	41	13.1
	Forced to hold a heavy object?	58	18.6
	Threaten or attack you with a knife, gun or other weapon?	92	29.5
	Washed mouth with soap or pepper	64	20.5
	Made you stand/kneel for punishment?	128	41.0
	Made to stay outside in the cold or heat?	31	9.9
	Put in hot or cold water?	22	7.1
	Took food away as punishment?	83	26.6

General condition about PCA

All items included were dichotomous variables and underwent Factor Analysis (FA) using PCA and after eight iteration, FA ended up with high sampling adequacy of individual item (>0.5), overall measure of sampling adequacy (KMO= 0.718, Bartlett's test of sphericity= 0.0001 at df= 21) so that two components (namely low and high physical violence) could be created at 8th iteration in which 70.162% total variance explained (TVE), all communalities >0.5 , no complex structure

Prevalence of physical violence

This study indicates that all street children experience different form of physical violence that ranges from low to high degree of harm to physical integrity. Prevalence of physical violence for street children was showed as follow: high physical violence 47.1% (95% C.I: 41.3-52.9%) and low physical violence 52.9% (95% C.I: 47.1- 58.7%)

Factors associated with low physical violence taking high physical violence as a reference

Bivariate and multivariable logistic regression was used to identify factors associated with low physical violence among street children who were residing in the street of Jimma town for at least a month prior to the study during the year 2019. Majority of the predictor variables showed an association on bivariate analysis (**Table 4**). After data was checked for multi-collinearity, missing data and effect of confounding controlled using multivariable regression model; sex, spending the night under bridge, delivering message, attending/washing cars and begging as a means of income generating; feeling anxious, tensioned and insecure were statistically significant at $p\text{-value} \leq 0.05$.

Sex was one of the statistically significant factor for low physical violence in that males were almost three times more likely to have low physical violence than females street children (AOR: 2.70, 95% C.I: 1.00- 7.36, $p\text{-value}=0.05$). Street children who were sleeping under bridge were almost two times more likely to have low physical violence than those who didn't sleep under it (AOR: 2.08, 95%C.I: 1.11-3.89, $p\text{-value}=0.022$). Those who used for delivering message as a means of income generation had more than two times higher risk of having low physical violence than those who involved in other means of income (AOR: 2.43, 95%C.I: 1.20- 4.93, $p\text{-value}= 0.014$). Those who had been attending/washing cars were almost two times higher risk of having low physical violence than others (AOR: 2.17, 95%C.I: 1.22- 3.93, $p\text{-value}= 0.009$). Street children who had been granting money through begging were almost three times more likely in victimized to low physical violence than those who used other means of income (AOR: 3.12: 95%C.I: 1.33- 7.27, $p\text{-value}= 0.009$). Those who were tensioned, anxious and insecure during their street life were almost two times more likely to have low physical violence (AOR: 1.90, 95%C.I: 1.03- 3.51, $p\text{-value}= 0.040$) (**Table 4**).

Table 4. Bivariate and multivariable logistic regression for factors associated with low physical violence for street children residing in Jimma Town, South West Ethiopia, 2019.

Variables	Categories		Physical		COR(95%C.I)	AOR(95%C.I)	P- value
			Violence				
			High (**)	Low			
Age	12-14		83	108	1		
	15-18		64	57	1.46[0.92- 2.31]		
Sex	Male		125	156	3.05[1.36- 6.86]	2.70[1.00- 7.36]	0.05*
	Female		22	9	1		
Place of Birth	Urban		43	38	1		
	Rural		104	127	1.38[0.83- 2.23]		
Duration on the street	< a year		48	71	1		
	1-3 years		85	81	0.64[0.40- 1.04]		
	4-6 years		14	13	0.63[0.27- 1.45]		
Place to spend at night	Plastic shelter	No	119	152	1		
		Yes	28	13	0.36[0.18- 0.73]		
	night rented house	No	84	93	1		
		Yes	63	72	1.03[0.66- 1.62]		
	Under bridge	No	127	122	1		
		Yes	20	43	2.24[1.25- 4.02]	2.08[1.11- 3.89]	0.022*
	Hotel veranda	No	81	72	1		
		Yes	66	93	1.59[1.01- 2.48]		
	Old and abandoned place	No	96	106	1		
		Yes	51	59	1.05[0.66- 1.67]		
	Market places	No	139	158	1		
		Yes	8	7	0.77[0.27- 2.18]		
Income generating activities	Shoe shining	No	137	153	1		
		Yes	7	12	1.54[0.59- 4.01]		
	Carrying small items	No	41	43	1		
		Yes	103	122	1.13[0.68- 1.87]		

Delivering messages	No	128	124	1		
	Yes	16	41	2.65[1.41- 4.96]	2.43[1.20- 4.93]	0.014*
Attending/ washing cars	No	117	108	1		
	Yes	27	57	2.29[1.35- 3.88]	2.17[1.22- 3.93]	0.009*
Begging	No	132	142	1		
	Yes	12	23	1.78[0.85- 3.72]	3.12[1.33-7.27]	0.009*
Street vending/ trading	No	104	129	1		
	Yes	40	36	0.73[0.43- 1.22]		
Ever used substance	Yes	64	60	0.75[0.48- 1.18]		
	No	83	104	1		
Duration of substance use	< a month	10	4	1		
	< 6 months	12	18	3.75[0.95- 14.76]		
	< a year	9	10	2.78[0.64- 12.06]		
	A year or more	18	16	2.22[0.58- 8.49]		
Feeling of anger, sadness and hopelessness	Yes	90	128	2.19[1.34- 3.59]		
	No	57	37	1		
Feeling of anxious, tensioned and insecure	Yes	87	124	2.07[1.29- 3.38]	1.90[1.03- 3.51]	0.040*
	No	60	41	1		

High (**)- indicates high physical violence was kept as a reference in Bivariate as well as multivariable logistic regression

Factors associated with high physical violence taking low physical violence as a reference

These street children had also been experiencing high physical violence that debilitates their physical appearance and emotional integrity. Multiples of factors were associated with high physical violence from which sex, educational status, place to spend at night; means of income, feeling of anger, sadness and hopelessness were statistically associated with high physical violence.

Sex was a statistically significant factor predisposing female than males for high physical violence in that females were almost three times more likely to have high physical violence than male (AOR: 2.82, 95%C.I: 1.01- 8.06, p-value= 0.05). Educational status determines the risk of having physical violence in that those who can read and write were 89% less likely to have high physical violence than others (AOR: 0.11, 95%C.I: 0.03- 0.41, P-value=0.001). Those street children who spent their night under plastic shelter were two times more likely to have high physical violence (AOR: 2.36, 95%C.I: 1.02- 5.46, p-value= 0.044). On the contrary to this, those street children who spent their night under bridge were 53% less likely to have high physical violence (AOR: 0.47, 95%C.I: 0.25- 0.89, p-value=0.002). Street children who were involved in begging and washing / attending cars showed less risk of having high physical violence. Those who attended/ washed cars were 52% less likely to have high physical violence (AOR: 0.48, 95%C.I: 0.27- 0.88, p-value=0.017). Street children who got their daily income through begging were 60% less likely to have high physical violence (AOR: 0.40, 95%C.I: 0.17- 0.96, p-value=0.041) as showed in **Table 5**.

Table 5. Bivariate and multivariable logistic regression for factors associated with high physical violence for street children residing in Jimma Town, South West Ethiopia, 2019.

Variables	Categories	Physical violence		COR(95%C.I)	AOR(95%C.I)	P-value
		Low(**)	High			
Age	12-14	108	83	1		
	15-18	57	64	1.46[0.925- 2.30]		
Sex	Male	156	125	1	1	
	Female	9	22	3.05[1.36- 6.86]	2.82[1.01- 8.06]	0.050*
Place of Birth	Urban	38	43	1		
	Rural	127	104	0.724[0.44- 1.20]		
Average Daily income	<35 ETB	95	70	1		
	>35ETB	70	77	1.49[0.95- 2.34]		
Highest Education attended	Never attended school	35	43	0.80[0.40- 1.60]	0.89[0.41- 1.93]	0.759
	Only read and write	19	4	0.14[0.04- 0.45]	0.11[0.03- 0.41]	0.001*
	1-4	89	66	0.48[0.26- 0.90]	0.51[0.26- 1.02]	0.056
	5-8	22	34	1	1	
Duration on the street	< a year	71	48	1		
	1-3 years	81	85	1.55[0.96- 2.50]		
	4-6 years	13	14	1.59[0.69- 3.69]		
Place to spend at night	Plastic shelter	No	152	119	1	
		Yes	13	28	2.75[1.37- 5.54]	2.36[1.02- 5.46] 0.044*
	night rented house	No	93	84	1	
		Yes	72	63	0.97[0.62- 1.52]	
	Under bridge	No	122	127	1	1
		Yes	43	20	0.45[0.25- 0.80]	0.47[0.25- 0.89] 0.002*
	Hotel veranda	No	72	81	1	
		Yes	93	66	0.63[0.40- 0.99]	
	Old and abandoned place	No	106	96	1	
		Yes	59	51	0.95[0.60- 1.52]	
	Market places	No	158	139	1	
		Yes	7	8	1.30[0.46- 3.67]	
Income generating activities	Shoe shining	No	153	137	1	
		Yes	12	7	0.65[0.25- 1.70]	
	Carrying small items	No	43	41	1	
		Yes	122	103	0.89[0.54- 1.46]	
	Delivering messages	No	124	128	1	1
		Yes	41	16	0.38[0.20- 0.71]	0.42[0.20- 0.85] 0.016*

Attending/ washing cars	No	108	117	1	1	
	Yes	57	27	0.44[0.26- 0.74]	0.48[0.27- 0.88]	0.017*
Begging	No	142	132	1	1	
	Yes	23	12	0.56[0.27- 1.17]	0.40[0.17- 0.96]	0.041*
Street vending/ trading	No	129	104	1		
	Yes	36	40	1.38[0.82- 2.32]		
Feeling of anger, sadness and hopelessness	Yes	128	90	0.46[0.28- 0.75]	0.38[0.22- 0.67]	0.001*
	No	37	57	1	1	
Feeling of anxious, tensioned and insecure	Yes	124	87	0.48[0.30- 0.78]		
	No	41	60	1		

Low (**)- indicates high physical violence was kept as a reference in Bivariate as well as multivariable logistic regression

Discussion

This study revealed that the magnitude of low physical violence was 52.9% (95% C.I: 47.1-58.7%) whereas high physical violence was 47.1% (95% C.I: 41.3-52.9%). This showed that almost all of street children had been deprived of their right in that they had been experiencing physical violence. This finding was similar with the study that was conducted in Ludhiana city, Punjab, India in that 92.5% of home based street children were physically violated [20]. This finding was higher than findings that was reported in Ankara, Turkey in that 50% of the study participants had experienced physical violence [21]. The deference can be explained as the study that was conducted in Ankara, turkey was qualitative in nature, non-probability sampling technique was employed and socio-demographic and culture difference can be mentioned.

Even though there is a limited quantitative studies on street children violence, studies other than street children but on children living in poor socio-economic situation showed that they would experience violence specially targeted to their physical in daily occasion. A study done in South Africa supported this idea in that 99% of the study participants had been exposed to or experienced violence in their home, school and/or community. Two-thirds of children of school going age were reported as having been exposed to community violence and more than half of all children to violence in their home with high levels of violence perpetration were reported across childhood[22]. Another study that was conducted in Recanto das Emas, in Brasília (DF) was in line with the idea that children living in poor socio-economic and fragile community interaction are more vulnerable to violence indicating that more than 85% of the study participants were exposed to physical violence[23]. A study in Bangladish also showed similar scenario in that 99%, 95% and 83% of children experienced at least one form, two forms and three or more forms of physical violence in their lifetime whereas 93%, 79%, and 57% of them experienced one, two and three or more forms of physical violence in the past year respectively[18].

In Ethiopia, though there are a number of studies related to physical violence or violence at all, most of them are either qualitatively explored[1], [24]–[26] or totally studied on children in general population[27], that may cause limitation for the current study for comparison and more elaboration on the magnitude of low or high physical violence.

A number of factors showed significant association with low physical violence among street children. These factors include sex (being male), sleeping under bridge at night, used for delivering message and begging as a means of income generation, attending or washing cars and being tensioned, anxious or insecure. These factors were stated in different studies in Ethiopia as major associated factors. A study that was conducted in Addis Ababa[26], the capital city of Ethiopia, revealed that begging and manual work like attending/ washing cars were a major source of income for the street inhabitants and these make them more vulnerable to fighting with peers, scrambling of granted money by gangs and disrespect and physically inflicted punishment from perpetrators. Even though age and sex of the children were observed as a major determinant factors for physical violence in different studies[20][27], in the current study no difference had been observed on age (being older or younger) of the participants. Males were more vulnerable to physical violence than female. This might be due to the fact that males were more engaged in heavy tasks; face more violent situation from their peers or street gangs but females can obviously face sexually inflicted violence than physical violence or if they face that would be highly violent.

Those children who were exposed to heavy, labor abusing tasks like begging, attending/washing vehicles and delivering message “being serto-bela- local term” had been experiencing low physical violence than children in other income generating activities.

Factors like sex (being female), and spending night under plastic shelter were positively associated with high physical violence. According to the current study, females were more vulnerable to high physical violence than low physical violence. It can be justified as females are targeted to sexual violence (rape) if they are found on the street especially at night. This may cause huge struggle among the two (perpetrator and perpestratee) causing slap, torture or something that can cause pain and harm to the girl. This may result in significant harm to physical appearance. Those children who had been spending their night under plastic shelter were also more vulnerable to high physical violence than others who spent their night under other means of sleeping. Street plastic shelters are not actually a safe place to sleep at but street children use it as a means of sleeping site so that older and street gangs wish to share or flee the owner and use it for themselves. This would result in a struggle and fight between the two groups resulting in harm to physical appearance[1][2].

There are some factors that negatively associated with high physical violence. These are educational status (can read and write), spending the night under bridge, delivering message, attending/washing cars, begging as a means of income generation and felling anger, sadness and

hopelessness. These factors can cause less vulnerability to high physical violence but causing low physical violence.

In this study ever or current use of substance, duration of streetism, average daily income and place of birth have no implication with either low or high physical violence.

Conclusion: Street children are experiencing low to high physical violence. This study showed in a single town (Jimma, south west of Addis Ababa, Ethiopia), 52.9% of street children had been experiencing low physical violence whereas 47.1% of them had been experiencing high physical violence. A number of factors like sex (being male), spending night under bridge, delivering message, attending/washing cars, begging and feeling anxious and insecure while living and working on the street were statistically associated with low physical violence. Factors like sex (being female) and spending the night under plastic shelter were statistically sound predisposing factors for high physical violence whereas educational status (can read and write only), delivering message, attending/washing cars, begging, feeling of anger, sadness and hopelessness while living and working on the street were less likely to predispose to high physical violence.

Recommendation: Street children who were living on the street had been experiencing low to high degree of physical violence that debilitates their physical integrity. Women, children and youth affairs of Jimma town need to work in implementing protective approaches for the rights of street children.

Non-governmental organizations (NGOs) that are working with vulnerable children in the study setting needs to know that a significant proportion of street children had been experiencing low to high physical violence so that working on the identified factors will help reduce the problem. An emphasis should be given to enhancing community- children interaction, provision of secured sleeping and living settings and means of income generating activities that will not debilitate their physical integrity.

Legal guardians and law enforcement affairs should work on legal basis on how the perpetrators of physical violence be accused of his or her action on street children.

Federal ministry of Women, children and youth Affairs, Ethiopia should formulate policies and strategies that are inclusive of street children and help to protect rights of the children.

Researchers should conduct studies that will show overall problems of street children and can help to formulate inclusive, strategies and policies so that the issue of street children will be resolved in a long run.

Abbreviations

AOR: Adjusted Odds Ratio

CI: Confidence Interval

COR: Crude Odds Ratio

ETB: Ethiopian Birr

FA: Factor Analysis

ICSTA: International Child Abuse Screening Tool

IQR: Inter Quartile Range

OSSA: Organization for Social Service Aids

PCA: Principal Component Analysis

S.D: Standard Deviation

SPSS: Statistical Package for Social Studies

TVE: Total Variance Explained

UNICEF: United Nation Children's Fund

VAC: Violence Against Children

Declaration

Ethics approval and consent to participate

Approved Ethical clearance letter was obtained from Jimma University Institute of Health, Faculty of Public Health Research Ethics Review Board on February 25, 2019; with reference no IHRP GO/757/2019. The official letter of support was submitted to Jimma town administrators, Jimma town health office and respective 13 kebele administrations, child and women's affairs bureau and Jimma town police department to get permission for the study. The nature of the study was explained to the study participants to obtain assent prior to participation in the study. Since this study was conducted on children less than 18 years, it is recommended to obtain written consent from guardian or parents. Nevertheless obtaining written consent from parents of street children was problematic. Thus written informed consent was waived as indicated on Ethiopian national research ethics review guideline (page 38 sections 6.14 and page 56 sections 8.3.5.3 of national research ethics review guideline[28]. Finally Privacy and confidentiality of collected information was ensured at all levels.

Consent for Publication: Not Applicable

Availability of data and materials

All data generated or analyzed during this study are included in this published article

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

DB and KT were involved in conception, design of study, data collection, analysis and final report writing as well as supervision and guidance of the work then prepared the manuscript for publication. Finally both authors have proof read the final manuscript.

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