International Journal on Emerging Technologies **11**(1): 54-61(2020)

ISSN No. (Print): 0975-8364
ISSN No. (Online): 2249-3255

Analysis of Sex Trafficking in India- A View on Health Care Context

R. Aarthee[1] and D. Ezhilmaran[2]
[1]Teaching Research Assistant, Department of Mathematics,
Vellore Institute of Technology, Vellore (Tamil Nadu), India.
[2]Assistant Professor(Senior), Department of Mathematics,
Vellore Institute of Technology, Vellore (Tamil Nadu), India.

(Corresponding author: R. Aarthee)
(Received 09 October 2019, Revised 04 December 2019, Accepted 14 December 2019)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: Human trafficking is a modernist form of heavy labor and is a well-known fact throughout the world. In addition to drug trafficking and the arms industry, sex trafficking is now the second-largest illegal activity in the world and is a growing crime. Sex trafficking is a crime when women or children participate by force in commercial sexual acts. While the twilight world of sexual relations around the world corresponds to an intriguing theme in our way of life, many people are unaware that sexual relations are happening on our terraces. The most common forms of sex trafficking are including forced labor, sexual exploitation, and child trafficking. There are many forms of human trafficking that are not as well-known but that, nevertheless, also require legal and policy responses. In this research, the authors attempted to analyze the crime of women in three phases. The first step is the analysis of the types of crimes, especially for women in every state of India. In the next step, the analysis of the purpose of kidnapping women and children in India and identified the most affected age group. Finally, based on previous results, the authors described the health problems of people affected by sex trafficking. The authors used three machine learning algorithms, such as the hierarchical agglomerative clustering algorithm, the multivariate linear regression and the OneR algorithm for analysis. The above methods are solved through the use of the R software and identify valuable results, such as the dangerous states of India in the crimes of women, identify the age group most affected for kidnapping and abduction and discussing symptoms important for victims of sex trafficking.

Keywords: Sex trafficking, Women Crime, Kidnapping and abduction, Healthcare, agglomerative hierarchical clustering, Multivariate linear regression, OneR algorithm**.**

I. INTRODUCTION

Sex trafficking is a type of current easement. These crimes occur when trafficking uses ferocity, counterfeiting or pressure to control another person to participate in commercial sex acts or to request work or services against their will.Sex traffickers use control, lies, obligatory easements and different types of compulsion to urge adults and children to participate in unintended sexual activities. The circumstances faced by the victims of sexual trafficking change significantly.Many exploited people are impractically associated with someone who then forces them or manipulates prostitution.Others are harassed with false guarantees of employment, for example by demonstrating or moving. Some are forced to sell sex by their parents or other relatives; they may be involved in a treatment situation for a couple of days or weeks or many remain in the same trafficking situation for years. Sex trafficking occurs in a variety of scenes that include false massage activities, through online promotions or escort administrations, in private massage parlors in the city or at truck stops, or in inns and motels.

Sex trafficking occurs within the largest commercial exchange, such as sexual entertainment, often at rates much higher than many people recognize or obtain. Trafficking in human beings has been found in environments dispersed throughout the sex industry in general, including private houses with a bad reputation, housing clubs, online escort administrations, fake massage activities, strip clubs, and street prostitution. Universally, a typical plan to attract women is to guarantee professions abroad as waitresses or local workers. Once outside the country and far from their family, traffickers take victims' visas and subject them to beatings or assaults to force them to their new "job". Sexual abuse harms a large number of women and young people worldwide every year. Universal sex trafficking occurs across national borders, which requires a global task to investigate, prosecute and convict sex traffickers and save trafficking victims. The Indian legislator does not fully meet the basic guidelines for ending traffic; however, he is working hard to do so. The administration has shown increasing efforts by increasing the number of distinct victims to an almost significant extent and expanding the spending limit for security programs for women and young people dealing with exploited people. However, the administration did not meet the basic guidelines in some key regions. In general, the protection of victims has remained insufficient and conflicting and the administration has occasionally punished those exploited by the arrests for crimes presented for being exposed to trafficking in human beings. The condemnation rate of administrations and the number of examinations, accusations, and sentiments were excessively low compared to the size of the trafficking in India, in particular as regards fortified and limited work.

Regardless of reports of some complicit authorities in the trafficking, the government did not report having explored these allegations.

As the 2018 report indicates, the government has expanded its efforts to protect victims. The National Crime Records Bureau (NCRB) detailed the government's recognizable evidence of 22,955 unfortunate victims in 2016, contrasted and 8,281 of each 2015. The NCRB explained that 11,212 victims were mistreated in limited jobs, 7,570 abused in sex trafficking, 3,824 vaguely abused and 349 abused in a limited marriage, although it is vague if limited marriage cases directly cause limited work or sex trafficking.

The government did not disaggregate the type of abuse experienced by the age, sex or nationality of the person in question and incorporated few crimes of non-treats in his general number of victim statistics, so the accompanying data 162 included a larger number of people who distinguished the absolute number of victims of trafficking. The government has distinguished 7238 women, 5532 young women as victims of trafficking. The government has generally maintained its efforts to anticipate human trafficking. In January 2018, the administration revealed that relief areas had been established in 33 major railway stations to provide rapid assistance to unaccompanied youth, who could be defenseless against abuse, including trafficking.

In the excitement of distinguishing the basic social powers that strengthen prostitution, have denied the prostitute any work other than that of a passive victim [1]. They asked that women also include innocent sexual intercourse, women who "fell" into illegal sexual relations. They accepted that prostitution was degraded so that no woman could choose her openly, even with the general level of opportunity with which women could be wives or workers. Sarkar et al conducted a cross-sectional survey based on a group of prostitutes in West Bengal, eastern India, to understand sex trafficking, cruelty, organizational skills and HIV contamination in them [2]. The test reported that trafficking victims faced more barbarism, including sexual brutality, and sexual cruelty was related to the acquisition of HIV in them. Lately, the growing concern about brutality against women around the world has put "trafficking" in universal motivation and in its association with the sex business, fortified work and exploitation and the different types of human rights violations.

II. BACKGROUND

Silverman investigates the systems and environments identified with the exploitation of sex trafficking between women and young people in South Asia rescued by the brothels of Mumbai, India [3]. John Frederick examined the legend of sex trafficking from Nepal to India. The creators examined the discourse on sex trade from Nepal to India among non-governmental neighborhood associations (NGOs), accomplices of donors, scholastics and governments, which developed from a small series of consultations and theories to a complex exchange and progressively refined [4]. Wirth *et al.*, (2013) [5] investigated whether the relationship between sex trafficking and HIV could be clarified without the opinion of someone else about limited prostitution or youthful age when prostitution was accessed using cross-sectional information gathered from 1814 adult prostitutes in Karnataka, India. Hennink and Simkhadaoffers a clearer understanding of the procedure and environment of sexual relations from Nepal using the information on trafficking in women [6]. Falb *et al.*, (2011) [7] focused on women and young women who had been treated for sexual abuse were expelled from the police or fled and received help from sanalapp, an NGO based in Calcutta [7]. The results show the perseverance of sex trafficking within Calcutta while presenting the need to anticipate traffic, particularly due to the high rate of HIV disease among women and young women.

Chattopadhyay and McKaigargue that prostitutes can be compromised and released, that HIV/AIDS control and law enforcement actions in India should feel that ad hoc advances in condom use or similar projects will not be convincing, controlling HIV/AIDS; and that more and more in-depth training for the improvement of prostitutes' living conditions questions the possible anticipation of HIV/AIDS [8]. Ghoshhas struggled to analyze the nature, causes, modalities, and volumes of negotiations in a nation that has recently become a vulnerable target in the place of South Asia for trafficking and trafficking in human beings [9]. The researcher basically analyzes the effect of these efforts with reference to models, political and experimental difficulties in the accumulation of information and the restrictions of universal law [10]. The creator presents two competitions of prevalent female activists promoted by activists against sex work and sex work that have influenced the practice of the activist identified with sex work [11]. The researcher analyzes the transnational traffic of young men and women in Nepal in India. Furthermore, the creator talks about the fact that the administration of India and Nepal is progressively working in the battle against the agreement [12]. The author records the land where women sell sex in Kerala since 1995 and their efforts to secure their rights [13]. The above is a part of the pieces of literature that depend on the sex trade. The literature on definitions and components of the danger related to sexual treatment is under development; however, the writing of the work of health workers with the intention of sex traffickers is even more limited. It is gradually perceived that health workers perform important work in identifying victims, distinguishing between tests and reactions and as supporters, in teams with national, provincial and neighboring organizations to draw attention to sex trafficking as a general medical problem and to meet the needs of exploited young people and adults and all-inclusive survivors. Currently, the creators have analyzed some written works that depend on sexual treatment and medicinal services.

Chaffee and English provide a summary of the meanings of sexual trafficking and commercial sexual abuse, providing variables, welfare outcomes, victim recruitment and distinctive tests and reactions from medical service providers [14]. The creators presented the current educational contributions on human treatment for a group of viewers of social security and provide suggestions to further improve the educational program [15]. The creators have captured another point of view on this kind of brutality based on the sexual orientation of the people who have an exceptional point of view and an intimate learning of the push factors and strength, the health needs of the victims, the goods and

practices current accessible in the health system and barriers to care [16]. Researchers hope to probe medical students and prove the doctor's awareness of residential child sex trafficking and whether respondents accept that traffic awareness is essential for their education [17]. Alvari *et al.,* [18] present a semi-supervised learning approach that is prepared from the information accessible by name and without labeling and is evaluated in unseen data with further specialized verification. Some researchers influence the printed data of the 'Back page' site used for the notification ordered to perceive potential examples of human trafficking activities that are displayed on the web and identify advertisements of great interest for authorization of the law to manually label a small part of the traced data [19]. Tong *et al*., (2017) [20] built a thorough discovery of commercial promotions, structured and prepared a deep multimodal model called a deep human trafficking network. A detailed research was carried out by some researchers about big data predictive analytics (BDPA). The authors discussed current and past trends on BDPA from the last ten years and applying Machine Learning algorithms in BDPA [21]. Some researchers discussed the strategies for organization, k-anonymization, and distributed privacy-preserving data processing. Moreover, the authors discussed the procedure and theoretical limits related to privacy-preservation over high dimensional knowledge sets [22].

There are approximately 800,000 people trafficked across international borders annually and, of these, 80% are women or girls and 50% are minors. The global sex trade is the fastest growing form of commerce, worth $32 billion annually.Victims of sex trafficking acquire adverse physical and psychological health conditions and social disadvantages. Victims may face legal barriers, where the traffickers will confiscate or sequester all forms of immigration and citizenry documentation. Language barriers, fear, limited knowledge, and lack of money are other barriers that women and girls may face to prevent them from escaping the sex trafficking ring.Health care professionals can work to improve the screening, identification, and assistance of victims of sex trafficking in a clinical setting and help these women and girls access legal and social services. After the evaluation of the literary works, the authors recognize that there is a need between the crime of women particularly influenced by the age group of women in the motivation behind kidnapping and abduction, finally, with the help of Primary Data, in particular in the Tamil Nadu, of women who trade sexually. Side effects of common health problems in women affected by sex trafficking. For this type of analysis, female crime was analyzed through the hierarchical agglomerative grouping, the target of kidnapping and kidnapping analyzed by the multivariate linear regression and by the data on sexual traffic analyzed by the OneR algorithm.

Based on the results, the author identifies the ideas in the data and produces some solutions. The data was collected by the NCRB. Two sets of data were used for this investigation, the crimes against women in India and the purpose of abductions. Therefore, primary data was collected in the health department to analyze the health problems caused by sex trafficking.

III. RESULTS AND DISCUSSION

A. Agglomerative Hierarchical Clustering

Agglomerative Hierarchical Clustering (AHC) is an iterative strategy whose directive is simple.The reason begins by calculating the disparity between the objects N. At that point, two articles that, grouped together, formed a class that involved these two objects [23]. At that point, the difference between the class and the different N-2 elements is determined using the agglomeration model. The two elements or classes of articles whose grouping limits the agglomeration standard are clustered.This procedure continues until all objects have been clustered together. These progressive clustering activities produce a binary clustering tree (dendrogram), whose root is the class that contains each of the observations [24]. This dendrogram represents a hierarchy of partitions. So it is conceivable to choose a package by truncating the tree to a certain level, the level depends on the limits characterized by the customer or by increasingly objective criteria.

Algorithm: Agglomerative clustering can be presented in the following unified way. Let (d_{ij}) be dissimilarity in the entity-to-entity matrix. Initially, each of the cases is considered as a single cluster. The main steps of the algorithm are as follows.

Step 1: Find the minimum value d_{i*j*} in the dissimilarity matrix, and merge clusters $i*$ and $h(i^* \cup j*)$.

Step 2: Transform the distance matrix, substituting one new row and column $i* \cup j*$ instead of the rows and columns $i*, j*$, with its dissimilarities defined as

$$d_{i,i^* \cup j^*} = F(\mathrm{d}_{ii^*}, d_{ij^*}, d_{i^* j^*}, h(i), h(i*), h(j*))$$

Where *F* is a fixed function and $h(i)$ is an index function defined for every cluster recursively.

$h\left(i^* \cup j^*\right) = d\left(\mathrm{i}^*, j^*\right), \mathrm{h}(\{i\}) = 0$ for all $i \in I$. If the number of clusters obtained is larger than 2, go to step 1, else End.

Given:
A set *X* of objects $\{x_1,\ldots,x_n\}$
A distance function $dist(c_1,c_2)$
for i = 1 to n
  $c_i = \{x_i\}$
end for
$C = \{c_1,\ldots,c_n\}$
$l = n+1$
while *C*.size > 1 **do**
- (c_{min1},c_{min2}) = minimum $dist(c_i,c_j)$ for all c_i,c_j in C
- remove c_{min1} and c_{min2} from C
- add $\{c_{min1},c_{min2}\}$ to C
- $l = l + 1$

end while

The result of the agglomerative procedure can be represented as a tree, the singletons use in the lowest level, and every merging is shown by a node of a higher level connected with the two cluster nodes merged. The height of the merged cluster $i^* \cup j^*$ node is proportional

to the index function $h(i^* \cup j^*)$ .There are several popular specifications of the method:

Nearest Neighbour (Single-Link): the between cluster distance $d_{i^* j^*}$ is defined as the minimum of the distance d_{ij} by all $i \in i^*, j \in j^*; d_{i,i^* \cup j^*} = \min(d_{ii^*}, d_{ij^*})$.

Farthest Neighbour (Complete Link): the between cluster distance $d_{i^* j^*}$ is defined as the maximum of the distance d_{ij} by all $i \in i^*, j \in j^*; d_{ii^* \cup j^*} = \min(d_{ii^*}, d_{i,j^*})$.

Average Neighbour (Average Link): the between cluster distance $d_{i^* j^*}$ is defined as the average of the distance by

$$i \in i^*, j \in j^*; d_{i,i^* \cup j^*} = \left(n_{i^*} d_{ii^*} / \left(n_{i^*} + n_i \right) + n_{j^*} d_{ij^*} / \left(n_{j^*} + n_i \right) \right)$$

Using the aforementioned methods of hierarchical agglomerative clustering in the data set on women's crimes, the authors cluster the crimes in each state of India. To perform cluster analysis, it must be necessary to build a detailed model of the different states. It would save a considerable amount of time and effort by grouping similar types of states, building a detailed model for only one of the typical states of each group and then expanding from these models to estimate the results for all utilities. Before using a clustering technique, the data must be normalized or standardized; Distance can be calculated between groups using the Euclidean metric. The sample values are provided in Table 1.

Table 1: Sample values of the distance matrix.

1	2	3	4	5	6
11481.4193					
110.654253	11443.13				
2758.47092	9595.395	2671.258			
6022.351277	7774.1111	5986.474	4580.98675		
62.841793	11440.24	76.72383	2701.4548	5983.726	
2910.327629	9452.014	2825.687	1757.22695	4829.68	2869.453987
14.917957	11478.42	117.7424	2763.78259	6024.958	66.222765
35.265229	11453.16	131.0545	2765.97515	6021.906	72.783615
1551.618041	10024.67	1492.082	1590.875231	4857.1	1503.557237

The above results are obtained with the hierarchical agglomerative clustering method. The authors were grouped for each crime in the states of India. The algorithm has grouped a greater amount of violation in the state of Uttar Pradesh. Similarly, the abduction and kidnapping in the state of Madhya Pradesh, death by dowry in Uttar Pradesh, cruelty by husband or relatives in three states such as Maharashtra, Uttar Pradesh, and Andhra Pradesh. The attack on women with the intention of angering their modest crime had a greater number in the state of Madhya Pradesh. The insult to women's modesty occurs mainly in the two states such as Andhra Pradesh and Uttar Pradesh. Bihar participated more in importing girls from foreign countries. In analyzing the total crimes of women, the algorithm shows that Uttar Pradesh is the most dangerous state for female crimes, in addition to the states of Uttar Pradesh, Andhra Pradesh, and Maharashtra which also involve more female crimes which are represented in Fig. 1.

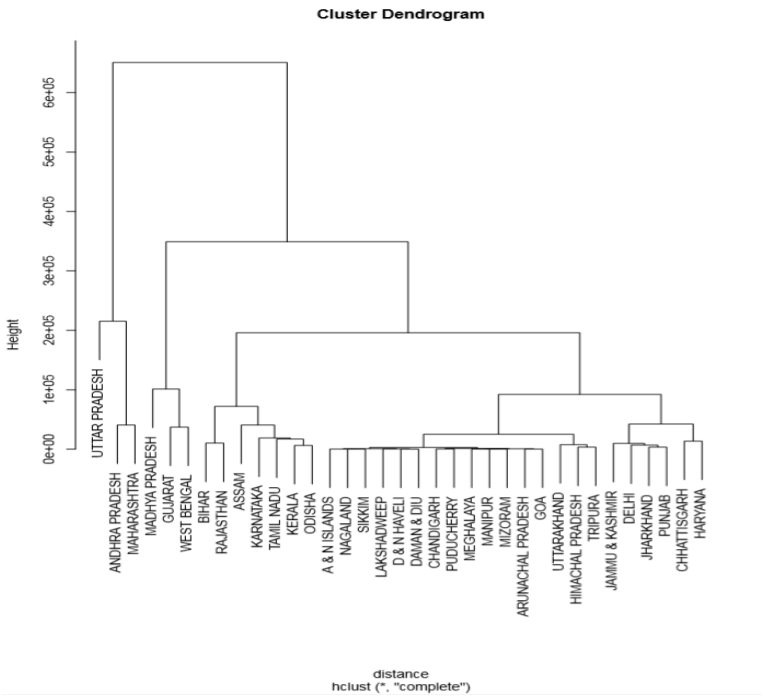

Fig. 1. Cluster dendrogram of total women crime.

B. Multivariate linear regression

This is quite similar to the simple linear regression model, but with multiple independent variables contributing to the dependent variable and hence multiple co-efficient to determine and complex computation due to the added variables. The equation of multivariate linear regression is,

$$Y_i = \alpha + \beta_1 x_i^{(1)} + \beta_2 x_i^{(2)} + \ldots\ldots + \beta_n x_i^{(n)}$$

Y_i is the estimate of i^{th} component of a dependent variable y having n independent variables and x_i^j denotes the i^{th} component of the j^{th} independent variable or feature similarly cost function is as follows,

$$E(\alpha,\beta_1,\beta_2,\ldots,\beta_n) = \frac{1}{2m}\sum_{i=1}^{m}\left(y_i - Y_i\right)$$

where m data points in training data and y is the observed data of the dependent variable.

Model formulation: The purpose of kidnapping and abduction datasets contains 721 observations and 13 variables. By using multivariate linear regression it's easier to identify the female age group affected in the purpose of kidnapping and abduction. Using data visualization tools it's clearly shown in Fig. 2 that for illicit intercourse purposes only the large numbers of girls are kidnapped by the culprits.

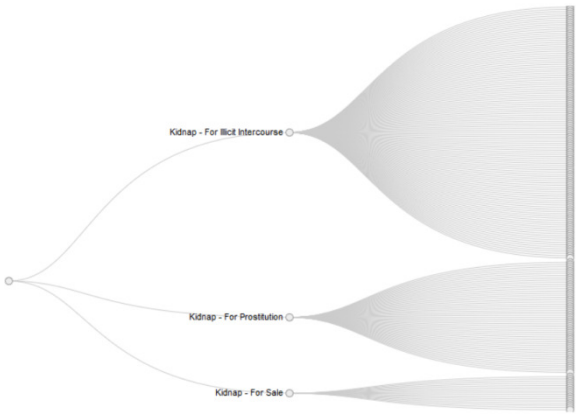

Fig. 2. Rates of the purpose of kidnapping.

Model building: The multivariate regression model is an estimated group name as a function of different age groups.

$$\text{Group Name} = \beta_0 + \beta_1.10\,\text{years} + \beta_2.10-15\,\text{years} + \beta_3.15-18\,\text{years} + \beta_4.18-30\,\text{years} + \beta_5.30-50\,\text{years} + \beta_6.\,\text{above}\,50\,\text{years}$$

The multivariate linear regression model provides the following equation for the age groups of affected women in the purpose of Kidnapping and Abduction.

Table 2: Interpretation of kidnapping and abduction.

	Estimate	Std.Error	t value	Pr (>|t|)
(Intercept)	2.023664	0.31304	64.645	<2e-16 ***
Female_upto_10_Years	–0.10799	0.042172	–2.561	0.01065 *
Female_10_15_Years	–0.02276	0.007028	–3.238	0.00126 **
Female_15_18_Years	0.007594	0.002415	3.145	0.00173 **
Female_30_50_Years	–0.00556	0.001097	–5.068	–5.0685.12e–07 ***
Female_10_15_Years	0.011009	0.003608	3.051	0.00236
Female_above_50_Years	0.010969	0.013437	0.816	0.41459
Residual standard error	0.778			
Multiple R-squared	0.818			
Adjusted R-squared	0.811			
F-statistic	14.71			
p-value	6.90E-16			

Based on previous results, we can conclude that women with an age range of 18-30 years are the most important group for kidnapping and abduction. Subsequently, the 10-15 and 15-18 age group belongs to the same category and is the most significant group. Women with a 10-year age group are less significant than other age groups. Females between 30-50 years are less preferable. Women over the age of 50 have no significant impact on the purpose of the abduction. The model explains the 81.1% variance in the data.

C. OneR algorithm

The health problems encountered in victims of trafficking are largely the result of several factors: food deprivation and sleep, scandalous pressure, risks of movement, ferocity (physical and sexual) and risky work.Since most of the exploited people do not have easy access to medical services, when they arrive at an all-around doctor, medical problems progress much [25]. These women are at high risk of contracting various sexually transmitted diseases and often there are screams of limited and dangerous premature births, physical abuse and torments, which can cause broken bones, injuries, dental problems (for example, tooth loss) and burns of cigarette.

Psychological violence causes high rates of post-traumatic stress, discouragement, a self-destructive idea, chronic drug use and a large number of substantial side effects [26]. When suppliers got information about their encounters with trafficking victims, they revealed that these exploited people are less stable, are increasingly disconnected, have greater fear, progressively serious injuries and more important mental health needs than other victims of crime.A trafficking victim can take the same time from the provider to 20 victims of domestic violence [27]. The following is a list of common problems seen in victims of trafficking. Anxiety, Chronic pain, Cigarette burns, Complications from unsafe abortion, Contusions, Gastrointestinal problems, Depression, Fractures, Gastrointestinal problems, Headaches,Oral health problems, Pelvic pain, Posttraumatic stress disorder, Sexually transmitted infections, Suicidal ideation,Unhealthy weight loss, Unwanted pregnancy, Vaginal pain.

The above are common diseases that occur in women affected by sex trafficking.For this analysis, the authors used the primary data of the people involved and classified the data based on the symptoms and, using the decision rule, the authors identify the most common symptoms of women affected by sexual trafficking.The algorithm used in the decision rule is the OneR algorithm

A decision principle is a basic IF-THEN statement that includes a condition and a prediction. We can use a solitary choice guide or a combination of some principles to make a prediction. The decision rules pursue a general structure. IF the conditions are met, THEN make a forecast.The decision-making principles are probably the most interpretable forecast models. There are approaches to obtaining information.The OneR algorithm takes the principles of a solitary component. OneR is described by its simplicity, its interpretability in its use as a reference point.

The OneR algorithm recommended by Holte is one of the simplest rule induction algorithms. From each of the salient points, OneRchooses the one that transmits the greatest amount of data on the result of interest and makes the principles of the choice of this element. Despite the name OneR, which means "One rule", the algorithm produces more than one principle. It is really a guide for each of the elements of estimation of the best characteristic. The following are some favorable circumstances of the calculation.

Discretize the continuous features by choosing appropriate intervals. For each feature: (i) Create a cross table between the features values and the categorical outcome (ii) For each value of the feature, create a rule which predicts the most frequent class of the instances that have this particular feature value. Calculate the total error of the rules for the feature. (i) Select the feature with the smallest total error OneR always covers all instances of the dataset, since it uses all levels of the selected feature. Missing values can be either treated as an additional feature value or be imputed beforehand.

Now use the primary data of sex trafficking women to test the OneRule algorithm. All continuous input features were discretized into their 5 quantiles. The following rules are created and it is represented in Table 3.

The characteristic of the disease was chosen by OneRule as the best predictive feature. Since AIDS, post-traumatic stress disorder, chronic pain, suicidal ideation, and depression are rare, for every rule the majority class and, therefore, the expected label is always moderate and Minor, which is of little use. It makes no sense to use the tag prediction in this unbalanced case. The cross-table between the "Diseases", "Symptoms" intervals and the prediction along with the percentage of women who deal sexually with the aforementioned diseases is more instructive. The rules of decision of the sample are mentioned in Table 4.

Table 3: Sample data on sex trafficking women.

S.No.	Diseases	Symptoms 1	Symptoms 2	Symptoms 3	Risk	Result
1.	AIDS	Skin rashes and skin sores	Swollen glands	Fever	Major	Yes
2.	Posttraumatic stress disorder	Sexual violence	Terrorist attack	Eating disorders	Minor	No
3.	Chronic Pain	Muscle aches	Loss of stamina	Anxiety	Moderate	Yes
4.	Suicidal ideation	Doing risky or self-destructive things	Feeling trapped	Withdrawing from social media	Moderate	Yes
5.	Depression	Suicidal thoughts	Loss of interest	Irritability	Minor	No

Table 4: Sample of IF-THEN rules.

Rules:	
IF Symtoms.1 = burning pain	**THEN** Chronic Pain = Yes
IF Symtoms.1 = Combat exposure	**THEN** Posttraumatic Stress Disorder= Yes
IF Symtoms.1 = Developing personality changes	**THEN** Suicidal Ideation = No
IF Symtoms.1 = Doing risky or	**THEN** Suicidal Ideation = Yes
IF Symtoms.1 = fatigue	**THEN** Chronic Pain = No
IF Symtoms.1 = Feelings of emptiness	**THEN** Depression = yes
IF Symtoms.1 = insomnia	**THEN** Depression = No
IF Symtoms.1 = Menstrual Changes	**THEN** AIDS = No
IF Symtoms.1 = muscle aches	**THEN** Chronic Pain = Yes
IF Symtoms.1 = Pelvic Inflammatory diseases	**THEN** AIDS= No
IF Symtoms.1 = Physical assault	**THEN** Posttraumatic Stress Disorder = Yes
IF Symtoms.1 = sexual violence	**THEN** Posttraumatic Stress Disorder = No
IF Symtoms.1 = Skin rashes and skin sores	**THEN** AIDS = Yes
IF Symtoms.1 = suicidal thoughts	**THEN** Depression = No
IF Symtoms.1 = Talking about suicide	**THEN** Suicidal Ideation= Yes

When comparing with three symptoms, for symptom 1, 99%, symptom 2, 96% and symptom 93% this is represented in Table 5.

Table 5: Confusion matrix.

Prediction	No	Yes	Yes	Sum
No	0.47	0	0	0.47
Yes	0	0.07	0	0.07
Yes	0	0	0.47	0.47
Sum	0.47	0.07	0.47	1

So the concludes that IF a person has symptom 1 with the common diseases THEN the person has a chance of occurring common sex trafficking diseases is shown in Fig. 3.

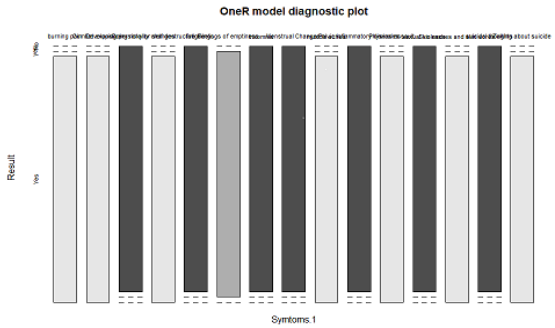

Fig. 3. OneR model diagnostic plot.

IV. CONCLUSION

Sex trafficking is a major general medical problem, both locally and universally. Healthcare professionals are regularly leading experts to communicate with trafficking victims who are still in captivity. Expert assessment and supplier interview skills increase their willingness to distinguish trafficking victims. The first clustering analysis shows that the total crimes against women occurred in the two states like Uttar Pradesh and Andhra Pradesh in India. The following analysis shows the age group most affected by the crime of sex trafficking. The result shows that the age group between 18 and 30 is the most affected by the problem of sex trafficking. Finally, we analyze the symptoms of a common health problem in women dealing with sex and the result concludes that people with IF have common diseases when symptom 1 is true, THEN the person has a common disease problem. Sex trafficking is a thenoteworthy worldwide medical issue, one that all medicinal services suppliers can't overlook. Despite the fact that dealing exploited people are probably not going to have sufficient and convenient access to human services, a few unfortunate casualties will be found in ladies' medicinal services rehearses for STIs, pregnancy, as well as premature birth administrations. Health care providers ought to be set up to recognize, treat, and help victims of dealing as a feature of their customary clinical practice. The government should appoint a qualified individual to teach young people, tutors, network people, and experts to combat sex trafficking by recognizing the warning signs.Not only the administration or the political people but, the public people also work in contact from the beginning with state and government officials to enforce the laws so that buyers and traffickers will go to prison and the survivors are insured.

V. FUTURE SCOPE

The author analysis sex trafficking in India. In the future try to address online sexual exploitation, otherwise known as cybersex trafficking, refers to the act of forcing children to illegal sex video. These videos are streamed to online predators from anywhere in the world in real-time, in most cases, by their own parents or relatives. An analysis is needed to identify the cybersex trafficking in India.

Conflict of Interest. The authors declare no conflict of interest.

REFERENCES

[1]. Kempadoo, K., Sanghera, J., & Pattanaik, B. (2015). Trafficking and prostitution reconsidered: New perspectives on migration, sex work, and human rights. Routledge.

[2]. Sarkar, K., Bal, B., Mukherjee, R., Chakraborty, S., Saha, S., Ghosh, A., & Parsons, S. (2008). Sex-trafficking, violence, negotiating skill, and HIV infection in brothel-based sex workers of eastern India, adjoining Nepal, Bhutan, and Bangladesh. *Journal of health, population, and nutrition*, *26*(2), 223-231.

[3]. Silverman, J. G., Decker, M. R., Gupta, J., Maheshwari, A., Patel, V., Willis, B. M., & Raj, A. (2007). Experiences of sex trafficking victims in Mumbai, India. *International Journal of Gynecology & Obstetrics*, *97*(3), 221-226.

[4]. Frederick, J. (2017). The myth of nepal-to-india sex trafficking: its creation, its maintenance, and its influence on anti-trafficking interventions. In *Trafficking and Prostitution Reconsidered* (pp. 127-147). Routledge.

[5]. Wirth, K. E., Tchetgen Tchetgen, E. J., Silverman, J. G., & Murray, M. B. (2013). How does sex trafficking increase the risk of HIV infection? An observational study from southern India. *American journal of epidemiology*, *177*(3), 232-241.

[6]. Hennink, M., & Simkhada, P. (2004). Sex trafficking in Nepal: context and process. *Asian and Pacific Migration Journal*, *13*(3), 305-338.

[7]. Falb, K. L., McCauley, H. L., Decker, M. R., Sabarwal, S., Gupta, J., & Silverman, J. G. (2011). Trafficking mechanisms and HIV status among sex-trafficking survivors in Calcutta, India. *International Journal of Gynecology & Obstetrics*, *113*(1), 86-87.

[8]. Chattopadhyay, A., & McKaig, R. G. (2004). Social development of commercial sex workers in India: an essential step in HIV/AIDS prevention. *AIDS patient care and STDs*, *18*(3), 159-168.

[9]. Ghosh, B. (2009). Trafficking in women and children in India: nature, dimensions and strategies for prevention. *The International Journal of Human Rights*, *13*(5), 716-738.

[10]. Smith, H. M. (2011). Sex trafficking: Trends, challenges, and the limitations of international law. *Human Rights Review*, *12*(3), 271-286.

[11]. Magar, V. (2012). Rescue and rehabilitation: A critical analysis of sex workers' antitrafficking response in India. *Signs: Journal of Women in Culture and Society*, *37*(3), 619-644.

[12]. Deane, T. (2010). Cross-border trafficking in Nepal and India-violating women's rights. *Human rights review*, *11*(4), 491-513.
[13]. Jayasree, A. K. (2004). Searching for justice for body and self in a coercive environment: sex work in Kerala, India. *Reproductive health matters*, *12*(23), 58-67.
[14]. Chaffee, T., & English, A. (2015). Sex trafficking of adolescents and young adults in the United States: healthcare provider's role. *Current opinion in obstetrics and gynecology*, *27*(5), 339-344.
[15]. Ahn, R., Alpert, E. J., Purcell, G., Konstantopoulos, W. M., McGahan, A., Cafferty, E., ... & Burke, T. F. (2013). Human trafficking: review of educational resources for health professionals. *American journal of preventive medicine*, *44*(3), 283-289.
[16]. Konstantopoulos, W. M., Ahn, R., Alpert, E. J., Cafferty, E., McGahan, A., Williams, T. P., ... & Burke, T. F. (2013). An international comparative public health analysis of sex trafficking of women and girls in eight cities: achieving a more effective health sector response. *Journal of Urban Health*, *90*(6), 1194-1204.
[17]. Titchen, K. E., Loo, D., Berdan, E., Rysavy, M. B., Ng, J. J., & Sharif, I. (2017). Domestic sex trafficking of minors: medical student and physician awareness. *Journal of pediatric and adolescent gynecology*, *30*(1), 102-108.
[18]. Alvari, H., Shakarian, P., & Snyder, J. K. (2016). A non-parametric learning approach to identify online human trafficking. In *2016 IEEE Conference on Intelligence and Security Informatics (ISI)* (pp. 133-138). IEEE.
[19]. Alvari, H., & Shakarian, P. (2019). Hawkes Process for Understanding the Influence of Pathogenic Social Media Accounts. *arXiv preprint arXiv:1902.01970*. 1-7.
[20]. Tong, E., Zadeh, A., Jones, C., & Morency, L. P. (2017). Combating human trafficking with deep multimodal models. *arXiv preprint arXiv:1705.02735*.
[21]. Basha, S. M., Rajput, D. S., Bhushan, S. B., Poluru, R. K., Patan, R., Manikandan, R., & Kumar, A. (2019). Recent Trends in Sustainable Big Data Predictive Analytics: Past Contributions and Future Roadmap. *International Journal on Emerging Technologies, 10*(2), 50-59.
[22]. Chouhan, A., & Singh, A. (2015). Privacy Preserving Data Mining: A Survey on Anonymity. *International Journal of Electrical, Electronics and Computer Engineering*, *4*(1), 89-92.
[23]. Bouguettaya, A., Yu, Q., Liu, X., Zhou, X., & Song, A. (2015). Efficient agglomerative hierarchical clustering. *Expert Systems with Applications*, *42*(5), 2785-2797.
[24]. Voorhees, E. M. (1986). Implementing agglomerative hierarchic clustering algorithms for use in document retrieval. *Information Processing & Management*, *22*(6), 465-476.
[25]. Barrows, J., & Finger, R. (2008). Human trafficking and the healthcare professional. *Southern medical journal*, *101*(5), 521-524.
[26]. Zimmerman, C., Yun, K., Shvab, I., Watts, C., & Trappolin, L. (2003). The health risks and consequences of trafficking in women and adolescents: findings from a European study. Including: human rights analysis of health and trafficking and principles for promoting the health rights of trafficked women. 1-130.
[27]. Clawson, H. J., Small, K. M., Go, E. S., & Myles, B. W. (2003). Needs assessment for service providers and trafficking victims. *Fairfax, VA: Caliber*. 1-74.

How to cite this article: Aarthee, R. & Ezhilmaran, D. (2020). Analysis of Sex Trafficking in India- A View on Health Care Context. *International Journal on Emerging Technologies*, *11*(1): 54–61.