A Study on Standard of Living Index (SLI) and its Influence on Rural Area Self-Poisoning Practices, Knowledge of First AID and Prevailing Traditional Practices in Rural Area of Hassan District, Karnataka (Cross-Sectional Study)

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Abstract

Suicide by pesticide poisoning consumption among young and old is preventable. More so in India, since larger population are involved in agriculture and its rampant usage for their cultivation. Also, due to weaker India's public health infrastructure and prevailing folk medicine practices, makes all the more difficult to save victims and it seems add in to huge burden.

Objectives: To estimate pattern of self-poisoning, first AID usage and folk medicine practices influenced by their standard of living.

Method: Four primary health centre (PHCs) villages of Hassan taluk were selected by simple random sampling and every fifth houses were considered as study subjects (159). To assess their socio-economic situation, standard of living index (SLI) comprising of their basic amenities was adopted to understand its influence on self-poisoning practices.

Results: The mean age of males were 44.23 (95 % CI 39.53 to 48.94) with SD (17.57) and females were 37.40 (95% CI 34.78 to 40.02) with SD (13.41). Traditional medicine (folk medicine) (125/78.6%) was practicing for their immediate self-harm (poison) relief. More than 98% respondents told that they do not have any idea or training towards first AID. 23% in higher living index said victim must be put on their back ($p<0.05$) for recovery. In logit model, predictors showed odds ratio that favoured an increase of risk for poison consumption for every one unit of increase of their education status and family members respectively- (OR 1.182, 95% CI 0.795-1.956; OR 1.081, 95% CI 0.438-2.666).

Conclusion: Neither first AID techniques were taught or put into practice which is imperative for life saving. Middle level study subjects were willing to involve themselves in first AID compared to higher class. Many people do not recognize colour marked symbols on pesticide bottle labels as an indicator of poison.

Keywords: *Self-harm, pesticide poisoning, first AID, Standard of living index (SLI).*

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Introduction

One of the commonest preventable method of suicide in certain countries of the world is pesticide poisoning. For every five deaths due to suicide, pesticide being the one among that[1]. Around 2 lakhs pesticide self-poisoning deaths occur each year world-wide[2]. Moreover, Suicide is the second leading cause

of death in less than 30 yrs age group [3]. India being a largely agricultural country that has contributed to 33% suicidal deaths due to poisoning. Along with that, due to improper public health infrastructure, peoplein rural India ought to travel not less than 100 kms to access health care is a reality even today[4]. As an alternative to immediate poison remedy, people use first AID and traditional method to save their kith and kin. Hence, the objective of present study was to estimate pattern of self-poisoning, first AID usage and folk medicine practices influenced by their standard of living.

Methodology

Out of 359 villages in Hassan taluk, Four villages (1.11%) (population,177 484) of Hassan district (Agile, Goruru, Nitturu, Shantigrama) were selected by simple random sampling where every fifth households were selected (by systematic sampling). One individual responsible person from these selected houses were interviewed based on pretested questionnaire and findings were recorded. People below 18 years, persons who couldn't comprehend and respond meaningfully were excluded. Standard of living index (SLI) based on household amenities and possession of some selected household items was used. The SLI can be developed by allocating scores to items. The total of scores may vary from lowest of 0 to maximum of 40. On the basis of total score, households are divided into three categories as: low-if total score is less than or equal to 9; medium-if total score is greater than 9 but less than or equal to 19; high-if the score is greater than 19. These three categories of SLI have been used in district level household surveys and NFHS in India.

The Data were analysed by SPSS software (version 22). This study obtained clearance from Institutional research committee and institutional ethical committee too.

Results

The study population for this study were selected from four primary health centers (PHC) jurisdiction. i.e. Agile PHC area-Agile village (Popl. 694) (38 households/23.9%); Gorur PHC -Kattaya village (popl. 725)(38/23.9%); Nittur PHC-Kellavathi village (Pop. 1017) (43/27.0) and Shantigrama PHC -Madenoor village (Popl. 850) (40/25.2%) from Hassan taluk of Hassan district.

The mean age of males were 44.23 (95% CI 39.53 to 48.94) with SD (17.57).In contrast, the mean age of females were 37.40 (95% CI 34.78 to 40.02) with SD (13.41). The minimum and maximum age between male and female were found to be 18 to 99 and 16 to 75 respectively. The interquartile range was almost same in both sexes (21). The sex wise tests of normality (Kolmogorov-smirnov) was significant (0.012).

With reference to their occupation, around 67 were unemployed and almost similar were agriculturist (66). Others were driver, laborer, health worker, petty business etc.

In order to find out from study subjects about recently occurred poisoned incident in their close vicinity, more than 30% said that within past one year and around 36% said even beyond one or two years-poisoning had happened. More than 90% (145) recollected from their past memory and revealed that poisoning, drowning or hanging combination type of incident very often arose. Further probing regarding type of poison used with intent of suicide, more than 61% said, it was pesticides but sometimes even rat poisons were consumed during those dire situations. For an immediate conservative measure, they depended on traditional medicine (folk medicine) (125/78.6%) as immediate relief. More than 98% respondents told that they do not have any idea or training towards first AID. By their personal intuition and understanding, more than 66% have had said, looking for breath odor or drooling of saliva in a victim is an indication of poisoning. Also, more than 55% opined that preserving poison contents or poison labels are useful and has significant role to confirm in later assessments. Around 50% depended on social media or through neighbors and friends to acquire knowledge and information regarding poisoning. Also, not more than 42% of respondents have had noticed about color marked labels on poison container/bottles etc. To the surprise, not more than 18% showed any interest in indulging themselves in first AID during emergency situations. But more than 85% of respondents said they would induce vomiting in victim as a first AID measure once or twice or even repeatedly (72%). Around 45% said, they would use soap water, salt water, butter milk or even fecal matter sometime to induce vomiting to save poisoned victims. As their belief is concerned, around 13% replied to query related to usage of edible oils saying- "it is a burden on the stomach". More than 98% do not know anything about poison countering agent's availability but some said, they prefer to use it (15%). Some specific questions about handling unconscious

victims-more than 95% said, they would take the poison affected individuals to hospital as early as possible. Not more than 37% has had any knowledge about ambulance availability (phone details) to be used for poisoned victim to seek hospital care. Almost everyone in these 4 primary health centers area, they prefer to convey to inhabitants that not to attempt on their life using poison agents.

More or less, in both the living standard(medium and high) category, (Table 1) around 77% and 80% respectively believe in practice of homemade remedies as a first AID measures. Almost similar type of observation seen about breath odor as significant signs in poisoned victims-29% and 31% respectively. Around 58% in medium class said, there is usefulness in preserving poison content for future use. Not less than 50% subjects in lower class obtained their first AID information through friends, books and gossiping rather than from any reputed sources. A question that was asked to find their attributes towards first AID help from individuals for poisoned victims-more than 70% in medium class compared to higher class (38%) were willing to perform on victim. 61% in medium class said they would induce vomiting in victims. Among those in higher category, 37% of them said, better to rest poisoned victim comfortably so that it would calm him and give him/her a hope of survival. 23% in higher living index said victim must be put on their back ($p<0.05$).

Table 1: Relation between Standard of Living Index and responses of study subjects over self-poisoning situation

Characteristics	**Pearson Chi-square value**	**P value**
Sex	0.213	0.645
Age	5.875	0.319
Occupation	6.286	0.392
Marital status	0.142	0.706
Education	4.120	0.249
Family	0.029	0.866
Religion	0.042	0.838
Questions asked to respondents		
Any attempts in your area	2.604	0.626
Any personal experience regarding poisoning	0.009	0.924
Usual form of poison/suicide in your area	6.029	0.303
Common motives behind suicide/poison consumption	7.690	0.174
Your knowledge about different types of poison often used for poisoning	3.733	0.443
First AID practiced in your area	0.756	0.685
Did you undergo any first AID training?	2.356	0.502
Signs and symptoms that alarm for poisoning	9.604	0.212
Significance of preserving poison content	0.658	0.417
Sources of information	9.977	0.041*
Do you know the significance of colour labels on poison products?	0.362	0.547
Your choice of preference to do first AID on the site of poison	0.098	0.755
Different types of first AID practices	0.044	0.833
Do you know about poison counter agents?	0.341	0.559
Procedure to make person comfortable who consumed poison	2.684	0.443
Position to be followed in poisoned victim	7.480	0.058*
Managing unconscious poisoned victim	7.762	0.457

Characteristics	Pearson Chi-square value	P value
Your knowledge about mouth to mouth breathing	4.815	0.028*
Your knowledge about CPR	1.776	0.620
Various modes of transport used during emergencies	4.207	0.649
Preference of treatment for poisoned victim	9.365	0.025*
Do you know financial burden due to poison consumption?	1.344	0.246
Your interest to avert similar incident in your place	1.981	0.159

Note: *Denotes statistical significance

Table 2: Logistic regression of Standard of living index (SLI) and poisoning responses of study subjects

Characteristics	B value	OR	95% CI lower	95% CI upper
Poison related questions asked to respondents				
Any attempts in your area	0.042	1.042	0.824	1.319
Any personal experience regarding poisoning	0.0470	1.033	0.539	4.751
Usual form of poison/suicide in your area	0.264	1.302	0.982	1.725
Common motives behind suicide/poison consumption	0.014	1.019	0.873	1.189
Your knowledge about different types of poison often used for poisoning	0.019	1.019	0.873	1.189
Did you undergo any first AID training	0.033	1.034	0.903	1.183
Signs and symptoms that alarm for poisoning	0.021	1.022	0.897	1.164
Significance of preserving poison content	0.278	1.321	0.674	2.590
Do you know the significance of colour labels on poison products?	0.212	1.236	0.619	2.467
Position to be followed in poisoned victim	0.062	1.064	0.673	1.680
Your knowledge about mouth to mouth breathing	0.752	2.121	1.079	4.172
Your knowledge about CPR	0.440	1.553	0.775	3.115
Various modes of transport used during emergencies	0.095	1.099	0.922	1.311
Do you know financial burden due to poison consumption?	0.448	1.566	0.732	3.351

A logistic regression analysis (Table 2) was done to investigate is there a relationship between standard of living index (SLI) and practice of self-poisoning and first AID in rural areas of Hassan district, Karnataka. The predictor variables such as Age,sex, and occupation etc was tested a priori to verify there was no violation of the assumption of linearity in the logit model. The predictor variables such as age, sex and occupation in the logistic regression analysis was found not a significant contributor to the model. The estimated odds ratio for age, sex and occupation showed no increase in relation with standard of living index. Whereas education and family structure predictors demonstrates odds ratio that favoured an increase of risk for every one unit of increase of their education status and family members respectively (OR 1.182, 95% CI 0.795-1.956; OR 1.081 95% CI 0.438,2.666). apart from personal information and family, when different questions were put to elicit about poisoning and first AID from study subjects, respondents for queries such as about occurrence of poisoning in their areas, motives behind that, their knowledge and first AID training received, clinical manifestations, importance of preserving poison content, colour labels and position to be maintained for victims as predictor variables- odds ratio was more than one and showed there is an increasing influence of SLI for every one unit on predictors as mentioned above. Not only these variables, even that answered by subjects on cardio-pulmonary resuscitation, transportation and financial burden incurred also shows more than one for odds ratio. Among all the predictors, mouth to mouth breathing variable showed strong association-OR 2.121, 95% CI (1.079,4.172), that means for every two units increase of mouth to mouth breathing practice occurs

which directly bear on higher Standard of Living index (SLI).

Discussion

A rural area cross-sectional study on self-harm traditional practices using organophosphorus and other type of agents that were utilized by local inhabitants (n=159) in four primary health centre area of Hassan taluk. As literature search pertaining to self-poisoning practices was done, majority of studies were based on hospital cases reported with poisoned victims and their characteristics who had come for medical assistance. But there is a paucity of studies done at community level about people perception, problems of local traditional practices in regard to self-poisoning and their immediate rescue measures through first AID measures etc. As an alternate source, we attempted on a proxy data at the family level for better understanding on pesticide poisoning and its perspectives from those experienced self- harm in their households or neighbours in vicinity as a better indicator.

More or less as in our study responses, many who indulged in suicide ideation were males in the age group above 40 yrs. With reference to socio-demographic features, as in our study many were married, and not many even didn't had primary education apart from too many as illiterates[6,9,19]. Most of them hold farm holding activities. Especially women of younger age group and unmarried tried to get rid of their life by attempting suicide as corroborating to our findings[9,10]. Many times, as noticed in our study, family petty quarrels or family financial hardships paved way to them to consume available household poisons [5,13,16,19]. Some of the poisonous substances such as rat poison, bleaching agents and pesticides that were kept for agricultural and multiple purposes were consumed by family members with intention of self-harm leading sometime to death. These substances consumed were similar to that narrated in our study by respondents[11,13,18]. In our literature search, we could hardly find not more than few studies to support on first AID measures done on victim before being brought to hospital as observed in our study too[6]. Other than vomiting which was induced as a standard procedure to decontaminate or removal of consumed contents as reported in our study, many other traditional practices were done such as using activated charcoal and varieties of stomach emptying procedures[5,15]. Loss of consciousness was the sign that induced fear among our respondents and in other study results to convey the message for early hospitalization of victim[17]. In almost in every study opined that easy availability and access to pesticides and kerosene in rural areas were the major cause for suicide attempts[7,8,13]. Also impact on duration, costs of hospitalization[12] and education programmes[14] were observed as in our study. As a limitation, since this study was done with smaller purposive sample size with questionnaire method on study subjects at households, its findings for extrapolation need further careful assessment with rigorous procedures.

Conclusion

Rural area self-harm (pesticide poisoning) was quiet predominant and goes unreported most of the time. Obviously, only traditional medicine practices seem to be in place during emergencies. Neither first AID techniques were taught or put into practice which is imperative for life saving. Middle level study subjects were willing to involve themselves in first AID compared to higher class. Many people do not recognize colour marked symbols on pesticide bottle labels as an indicator of poison.

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Ethical Clearance: The study was approved by the institutional ethics committee of Hassan institute of Medical Sciences, Hassan, Karnataka (2017-18).

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