

Hanging: Nature of ligature material applied and type of hanging according to point of suspension

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ABSTRACT

One of the most common manners of unnatural death that has been rapidly increasing in Nepal is suicide. The choice of method depends on the accessibility and availability of the means. Therefore suicide by hanging with the ligature material ranging from torn clothing, bed sheet to a shoelace is incorporated. Objective of this study is to find the choice of the type of ligature material used by the victims and the type of hanging found in relation to the point of suspension in both genders. This prospective study was conducted in all cases of death due to hanging (44 cases) during the year January 2007 to April 2008 coming for post mortem examination at BPKIHS Dharan Nepal. Nearly half of the hanging victims (21 or 47.72%) used rope for hanging and nearly one third victims (14 or 31.81%) used shawl, rest of victims 4 (9.09%) used sari, 2 (4.54%) victims used either bed sheet or woolen muffler in each and belt was used as ligature by one (2.27%) of the victims. It was observed that in more than half of the cases (25 or 56.81%) hanging was partial (i.e. some body parts were touching the ground). Amongst partial hanging cases, female victims (16 or 64%) outnumbered the male victims (9 or 47.37%). While rest 19 (43.18%) cases were complete hanging (i.e. body was not touching the ground)

Keywords: Hanging, ligature material, complete hanging, partial hanging.

INTRODUCTION

Hanging is best defined as the constriction of neck by a ligature tightened by the weight of the body.¹ When the point of suspension is over the center of occiput, there is a maximum possibility of occlusion of the arteries and this is known as typical hanging, while all other points of suspension are called atypical hanging.² Hanging is a particularly lethal method of suicide with an estimated fatality rate of over 70%.³⁻⁵ Asphyxia in hanging results from compression or constriction of the neck structures by a noose or other kind of stricture about the neck tightened by the body weight. Hanging may occur with the body in any position since carotid artery can be occluded with relatively little force (5kg).⁶

In hanging from a high point of suspension, the victim is either fully suspended, with his feet clean off the ground or he is suspended with his knees slightly flexed.

In hanging from a low point of suspension (Partial Hanging), a comparatively little force, about 4.5 kg is enough to occlude blood vessels of the neck. The term Partial Hanging is used for such cases in which the bodies are partially suspended, or for those in which bodies are in a sitting, kneeling reclining, prone or any other posture.⁷⁻⁸

The ligature usually consists of rope, electrical cord belt or other material fashioned into a slip knot. A variety

of ligature materials may be used for hanging ranging from a rope or chain to a cord, belt, towel, bed sheet and so forth.⁹

Systemic study to explore medico legal aspects of hanging deaths in Nepal has not been done. This study may divulge in enhancement of understanding upon the preference of type of ligature material for suicide by hanging and the types of hanging based on the level of suspension seen suicide and help to determine that any ligature material at any position can cause death of a person. This study was conducted with the objective to study the choice of ligature material preferred by both male and female for hanging and to study the type of hanging in relation to the point of suspension.

MATERIALS AND METHODS

This prospective study was conducted in all cases of death due to hanging during the year January 2007 to April 2008 coming for medico legal post mortem examination at BPKIHS Dharan Nepal. A total of 358 postmortem were out of which 44 cases was of hanging. A detailed history from Police and relatives Pre-tested questionnaire with variables regarding the type of ligature material used, regarding, position of knot and whether any part of body was touching to ground or not. In cases where the police or relatives failed to communicate regarding position of knot it was determined by examination of

ligature mark and blood less layer neck dissection was done. Finally the computation of data was done with the help of Microsoft Excel and SPSS program in tabular forms and observations were recorded, analyzed and discussed.

RESULTS

From Table-1 it is observed among the choices of method of committing suicide as much as 44% victims hanged themselves to accomplice suicide amongst them females were more in number (25 or 56.81%) as compared to males (19 or 43.18%).

Further that nearly half of the hanging victims (21 or 47.72%) used rope for hanging and nearly one third victims (14 or 31.81%) used shawl. Among the rest of victims, 4 (9.09%) used sari, 2 (4.54%) victims used either bed sheet or woolen muffler in each and belt was used as ligature by one (2.27%) of the victims.

Still further, it was observed that both males (11 or 25%) and female victims (10 or 22.72%) chose rope as the ligature material nearly equal in frequency to commit suicide. Maximum of female victims (13 or 29.54%) preferred shawl, while other types of ligature materials were used by the rest of the male victims (5 or 11.35%) such as bed sheet, woolen muffler or belt.

It was observed that in more than half of the cases (25 or 56.81%) hanging was partial (i.e. some body parts were touching the ground). Amongst partial hanging cases, female victims (16 or 64%) outnumbered the male victims (9 or 47.37%). While rest 19 (43.18%) cases were complete hanging (i.e. body was not touching the ground)

Thus it was observed that majority of the hanging suicidal victim’s body was touching the ground and this was more so among the female victims.

Table-1: Nature of ligature material used in relation to gender used for hanging

Nature of ligature	Female	Male	Total
	N (%)	N (%)	N (%)
Bed sheet	0	2(4.54)	2(4.54)
Rope	10(22.72)	11(25)	21(47.72)
Sari	2(4.54)	2(4.54)	4(9.09)
Shawl	13(29.54)	1(2.27)	14(31.81)
Woolen muffler	0	2(4.54)	2(4.54)
Belt	0	1(2.27)	1(2.27)
Total	25(56.81)	19(43.18)	44(100)

DISCUSSION

The present study (Table-1) revealed that among the choices of methods of committing suicide, in as much as 44% victims hanged themselves to accomplice suicide and amongst them females were more in number (25 or 56.81%) as compared to males (19 or 43.18%).Further, nearly half of the hanging victims (21 or 47.72%) used rope for hanging and about one third victims (14 or 31.81%) used shawl as ligature material. Thus it was observed that both males (11 or 25%) and female victims (10 or 22.72%) chose rope as the ligature material nearly equal in frequency to commit suicide. Maximum of female victims (13 or 29.54%) preferred shawl, while other types of ligature materials were used by the rest of the male victims (5 or 11.35%) such as bed sheet, woolen muffler or belt.

It is generally assumed that the use of hanging and other traditional suicide methods is largely governed by their acceptability and by sociocultural norms. While acceptability provides a general framework of beliefs about whether or not to commit suicide and which method to use, sociocultural norms provide a framework for how to proceed, for example, in how to deal with obstacles to suicide. Hanging, for example, is a selective method because: it is violent; it needs some preparation; it needs some degree of courage and determination.¹⁰ Each method has its own particular obstacles. Typically, the greater the obstacles, the lower the acceptability of the method and the greater the proportion of suicides.¹¹

This study indicates that the availability of technical means has a large influence on the acceptability of a specific method and, indirectly, of suicide in general. In the present study it revealed that the use of the rope was most frequent as it is generally present at homes. Sari and shawl are the cloths worn by the females and one does not need to look for any weapon to plan suicide but can easily hang themselves at any place and any time with the cloths they are wearing. Similarly belt, muffler and bed sheets are also basic things that are normally present at home but are less convenient and reliable than rope.

Naik SK stated that considering the information gathered from the police records and from the relatives of the deceased and taking the examination findings of the ligature material where ever it has been sent along with the dead body, it is observed that soft ligature like scarf, napkin, sari, bed sheet etc used in 127 cases of hanging and hard ligature like jute rope, plastic onnylon rope, electric wire etc.¹²

Adarsh reported that the methods of suicide employed generally reflect the availability of methods in the

Table-2: Type of hanging according to point of suspension

Type of hanging (Level from ground)	Female	Male	Total
	N (%)	N (%)	N (%)
Complete	9(36)	10(52.63)	19(43.18)
Partial	16(64)	9(47.37)	25(56.81)
Total	25(100)	19(100)	44(100)

community. Pattern of suicide on a religion depends upon variety of factors, ranging from availability and access of the method, to the socio-economic status of the individual and also not to forget the prevailing cultural and religious influences.¹³

Leigh reported that in over half (52%, 38/73) of the cases of suicide was committed by hanging in police cells in England and Wales, the hatch/bolt hole to the cell door was used as the ligature point. The door or door hinge were used in about one-quarter of the cases.¹⁴

In our present study it was found (Table-2), that in more than half of the cases (25 or 56.81%) hanging was partial (i.e. some body parts were touching the ground). Amongst partial hanging cases, female victims (16 or 64%) outnumbered the male victims (9 or 47.37%). While rest 19 (43.18%) cases were complete hanging (i.e. body was not touching the ground) Thus it was observed that majority of the hanging suicidal victim's body was touching the ground and this was more so among the female victims. This finding is in conformity with the well accepted fact that partial hanging is mostly suicidal in nature.

Naik reported that out of data available on 232 cases of hanging, 15 victims died due to partial hanging where some parts of victims were touching the ground where as 217 victims died due to complete hanging.⁹

In England and Wales, cell window bars are the suspension point used in nearly half of prison suicides (48%)^{15,16} Other points of suspension are the bed (11%), cell fittings such as lights, pipes, cupboards, sinks or toilets (13%), or the cell door (5%).¹⁵ Saini found 35 cases were of hanging (8.97%) and common household materials like rope, plastic rope, wire, saree and chunni were used as ligature material and to reach at the site of suspension tables, stool, chairs & cot were used. Commonest point of suspension was hook of fan.¹⁷

It was observed that majority of the hanging suicidal victim's body was touching the ground and this was more so among the female victims. This finding is in conformity with the well accepted fact that partial hanging is mostly suicidal in nature. Completed hanging can occur in any condition and one should broaden their perspective view there is resemblance of the pattern of

ligature mark of strangulation and partial hanging so one should study the pattern of ligature mark along with neck dissection in depth and not depend upon the type of hanging to exclude strangulation before opining on cause of death.

Spitz stated that hanging can take place with the victim in any position, provided the pressure on the neck is maintained above that necessary for vascular occlusion. Hanging in a reclining or standing position is thus not uncommon or unusual. Due to the relative ease with which hanging can be affected, almost any type of noose will suffice.¹⁸ Knight stated that suspension is often not high enough to keep the victim's feet clear of the floor. Commonly, when the person steps from his support, the stretch in the ligature rope is sufficient to allow the feet to reach the ground, but this by no means prevents a fatal outcome. The weight of the upper part of the body leaning into the noose is more than enough to cause death. Successful hanging can occur from low suspension points, where the person is merely slumped against the door or bed or chair with the legs and buttocks supported on the floor, so that only the weight of the chest and arms is contributing to the fatal pressure within the noose. One 'hanging' seen by the author was successfully achieved by merely leaning the neck into the shallow curve of the low clothesline stretched between two posts in a garden.¹⁹

Generally it is presumed that hanging is a process in which the body is suspended with a ligature around the neck, which causes constriction of air passage preventing exchange of air between atmosphere & alveoli of lungs, leading to asphyxia and death. Constriction force is either the weight of the whole body or the weight of the head alone. A weight of 2Kg is sufficient for death in hanging. In present study we have seen that more than half of the cases were partial hanging and the fact that complete suspension is not required to successfully hang oneself, needs to be understood and communicated to those reviewing potential ligature points in institutional settings.

Thus we should always focus that along with the fact that hanging can be attempted with any obtainable ligature material and that one should be aware that although there may be pattern which may resemble strangulation but it should be distinguished from partial hanging through neck examination in depth.

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