Suicide by hanging: multicentre study based on coroners' records in England

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Summary We studied 162 cases of hanging by suicide occurring in 24 coroners' jurisdictions in England within a 6-month period in 2001. Prison and psychiatric ward suicides accounted for only 6% of these. The most frequently used ligatures (ropes, belts and cable) and ligature points (beams, girders, lofts and trees) are commonly available in community settings, limiting opportunities for prevention. In only half the cases (52%) were victims fully suspended with both feet off the ground. Four per cent had also taken an overdose.

Declaration of interest None.

Hanging is the most common method of suicide in England and Wales, accounting for about 2000 deaths each year (Department of Health, 2002; Brock & Griffiths, 2003). Previous studies have been confined to specific geographical locations and have not comprehensively investigated potentially preventable aspects of these deaths (Bowen, 1982; Davison & Marshall, 1986; James & Silcocks, 1992).

In this short report we describe a large case series of hanging suicides from a wide geographical area focusing on the possibilities for restricting access to means, which is one of the objectives of the National Suicide Prevention Strategy for England (Department of Health, 2002).

METHOD

We studied hanging suicides occurring within the jurisdictions of 24 coroners between 1 July 2001 and 31 December 2001. We initially approached the coroners serving the 3 research centres (Oxford, Bristol and Manchester). A further 21 coroners, 7 from each centre, were randomly selected from a list of coroners within 50 miles (or 1.5 hours' travelling time) of each centre. Three coroners, from 2 centres, did not agree to participate; they were replaced with the next randomly selected coroners in the relevant centres. Five of the jurisdictions were urban, 15 mixed urban/rural and 4 rural. All deaths by hanging or self-strangulation given a suicide or open verdict were examined.

We collected demographic data, information on the timing and location of the act, who discovered the person, whether they were alive when found, whether alcohol or drugs had been consumed (including details of toxicology reports), contact with psychiatric services, whether the person was suffering from a psychiatric disorder at the time of death and their history of self-harm. Psychiatric diagnoses were based on both general practitioner and psychiatric reports. Where the individual had not had contact with a psychiatrist, diagnoses were formulated on the basis of witness accounts. Information on the ligature, ligature point and degree of suspension was recorded.

RESULTS

One hundred and sixty-two cases of hanging (85.8% males) were identified across the 24 districts. A verdict of death by suicide was returned in nearly all cases (155 out of 162, 95.7%). The remainder (4.3%) were recorded as open verdicts. Seven individuals (4.3%) had engaged in simultaneous self-poisoning.

Demographic characteristics

Mean ages were similar in males (40.6 years) and females (42.2 years). Eleven individuals (6.8%) were psychiatric in-patients and 5 (3.1%) were prisoners. Only 5 (3.1%) of the psychiatric in-patients died on the ward.

Contact with psychiatric services and psychiatric diagnosis

Information on contact with psychiatric services was available for 117 individuals (72.2%). Forty-eight of these (41.0%) were in contact with a psychiatric service at the time of death.

Among the 128 cases where an assessment of psychiatric disorder was possible, more than half (71 out of 128, 55.5%) had a primary diagnosis of affective disorder and 13.3% had schizophrenia (17 out of 128). Information on past self-harm was recorded for most individuals (152 out of 162, 93.8%). Nearly half of these had previously self-harmed (68 out of 152, 44.7%).

Location of death and discovery

In two-thirds of cases (106 out of 162, 65.4%) the person hanged themselves at their home, either indoors or in their garden, shed or garage. In 27 cases the death occurred outside in a public area. Sixty-eight individuals (42%) were found by a family member or partner. In 7 of the 162 cases (4.3%) the individual was found alive and was taken to hospital.

Ligatures used for hanging

Where this was recorded (98.8% of cases) the main ligatures used were rope or cord (49.4%), belt (13.1%), electric cable (11.9%), and dog lead (6.3%). Items of clothing other than a belt (scarf, tie, dressing gown cord, shoe-lace) were used in one-tenth of hangings (16 out of 160, 10.0%). Information on the source of the ligature was available for only 73 cases (45.1%). In most (63 out of 73, 86.3%) this had been in the household at the time.

Suspension points and type of suspension

Roofs and ceilings (beam/girder or loft) were used as ligature points in about one-third of hangings (58 out of 162, 35.8%) (see Table 1). Of the outdoor ligature points, a tree was most commonly used (25 out of 162, 15.4%).

Information on degree of suspension was available for 149 cases. Seventy-eight of these (52.4%) were found totally suspended (both feet above the ground). In about one-quarter (35 out of 149, 23.5%) the subjects were suspended with their feet touching the ground, in 11 cases (7.4%) they were kneeling, in 13 lying (8.7%)

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Table 1 Ligature point used

Ligature point used	*n* (%)
Beam/girder	27 (16.7)
Tree	25 (15.4)
Loft hatch (includes bar across hatch)	20 (12.4)
Loft beam	8 (4.9)
Loft (no further information)	3 (1.9)
Banister	15 (9.3)
Back of door	13 (8.0)
Cupboard or wardrobe	7 (4.3)
Window frame	6 (3.7)
Curtain or shower rail	4 (2.5)
Cell bars/window	4 (2.5)
Hook or door handle	3 (1.9)
Balcony/stairs	3 (1.9)
Wall bracket/railing/fence	3 (1.9)
Bridge	2 (1.2)
Pipe or radiator	2 (1.2)
Shelving	2 (1.2)
Bed	2 (1.2)
Exercise rail/bar	2 (1.2)
Climbing frame/playhouse	2 (1.2)
Other[1]	9 (5.4)

1. Other: ladder (1), door frame (1), rail across toilet cubicle (1), control box for garage door (1), shed (specific ligature point not stated) (1), airing cupboard (specific point not stated) (1), roof of wendy house (1), fire escape stairs (1), outhouse (specific point not stated) (1).

and in 7 seated (4.7%). The precise position was unclear in a further 5 cases involving partial suspension (3.4%).

Hanging suicides in prison and psychiatric wards

All prison hanging suicides ($n=5$) took place in the prison cell. In 4 cases the ligature point used was the cell bars/window and in one case the toilet door. Sheeting (usually torn) was the ligature in 4 cases.

Three of the 5 hanging suicides which occurred on psychiatric wards used a belt and in one case a dressing gown cord. Ligature points used were a radiator fitting, a pipe (in the bathroom), part of the bed (metal bedhead), a wardrobe handle and the bed curtain rail.

DISCUSSION

The most common ligatures used in this sample (rope, belts and flex) are similar to those found in previous community-based studies (see, for example, Davison & Marshall, 1986). Although information regarding from where these ligatures had been obtained was rarely noted in coroners' records, they are easily available. Similarly the main ligature points used (beams, girders, lofts and trees) are commonly available. It would appear, therefore, that restricting access to ligatures outside institutional settings is not possible.

Suicides in institutions (prisons and psychiatric hospital wards) made up only a small proportion of the total hanging suicides (6.2%). Nevertheless such suicides are potentially preventable through environmental modification (Appleby *et al*, 2001; Burrows *et al*, 2003; Shaw *et al*, 2003). The ligature point used in one of the psychiatric ward suicides – the bed curtain rail – should no longer be available in psychiatric units as trusts were required by law to remove non-collapsible bed curtain rails by March 2002 (National Institute for Mental Health in England, 2003). Environmental audits, planned as part of the National Suicide Prevention Strategy to minimise the risk of hanging (National Institute for Mental Health in England, 2003), need to take into account, when assessing potential ligature points, the finding that nearly half of all suicides do not involve full suspension. The prison hangings identified in our study could not have been carried out in a full specification (ligature-free) 'safer cell' (Burrows *et al*, 2003).

In 7 cases of hanging the person also self-poisoned. If those who hang themselves are found alive, and treatment focuses on the hanging alone without investigation of possible additional suicide methods, the episode may still be fatal.

As it may not be possible to prevent hanging suicides through the restriction of access to ligatures and ligature points outside institutional settings, the focus needs to be on understanding the reasons for the use of this method and the prevention of factors leading to suicide generally.

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