

Black or gallows humour has long been recognised as having therapeutic value, particularly when used by individuals dealing with traumatic incidents. With this in mind, it is no surprise that this type of humour is commonly used by emergency services personnel. It is a bona fide coping mechanism which can contribute to the resilience, health and wellbeing of emergency services personnel but one which, to the uninitiated, may appear callous and uncaring. With student paramedics now taking the higher educational route into paramedicine, they will have had less exposure to ambulance service culture before qualifying than would have been the case with the old 'in service' pathway. This often results in the type of humour employed by their new colleagues coming as something of a culture shock. This article hopes to go some way to explain why this type of humour is employed, what purposes it serves, and prepare students so that it may appear less shocking when they first encounter it.

Humour is an integral part of human relationships and plays numerous and significant roles in both personal and social lives ([Ertel, 2002](#)). Theories on humour abound and come from a wide variety of perspectives such as psychological, sociological, anthropological, linguistic and theatrical ([Haig, 1986](#)). It is accepted that humour can act as a form of tension release ([Koestler, 1964](#); [Martin and Lefcourt, 1983](#)) and that it can be used as a valuable coping strategy for those who have to encounter unpleasant or traumatic events in the course of their everyday lives ([Moran and Massam, 1997](#); [van Wormer and Boes, 1997](#); [Schwab, 2002](#)). Medical and emergency services personnel are particularly likely to use humour to counteract the effects of dealing with stressful situations and this contributes to a person's resilience when dealing with stressful situations ([Grafton et al, 2010](#); [Griner, 2013](#)). [Van Wormer and Boes \(1997\)](#) studied humour as a coping mechanism as used by staff working in an accident and emergency (A&E) department and found that they typically used five varieties:

- Tension relieving nonsense
- Play on words
- A sense of the preposterous and incongruous
- Gallows humour
- Foolish jest.

Emergency services personnel are particularly likely to use 'gallows humour' for coping with life in harsh and upsetting settings ([Maier et al, 1989](#)). Such use of gallows humour, however, is often considered trivial or unprofessional ([Kinsman and Major, 2008](#)), and may be perceived as insensitive or hurtful by others ([Sultanoff, 1995](#)).

This is a particularly relevant point when today's route to becoming a paramedic is considered. Historically, aspirants would join the ambulance service as non-emergency staff and would spend a number of years immersed in ambulance service culture before they achieved emergency medical technician or paramedic status. By the time they graduated to 'front-line' duties they had become acclimatised to the rare and particular brand of humour employed by many emergency services personnel.

With the push for paramedicine to be recognised as a profession and with the advent of professional registration, the route to becoming a paramedic moved away from ambulance service training to higher education. After a relatively short spell in university, students would be straight out onto

emergency ambulances to start their work placement without the time to become used to the humour employed by their colleagues and mentors.

Some higher education paramedic programmes work in partnership with ambulance trusts and have a route of entry for existing emergency medical technicians or emergency care assistants. As these students have already spent a number of years in the ambulance service they are not unprepared or underexposed to the role. However, many students entering the profession exclusively through the higher educational route cannot initially understand the seemingly callous humour that is employed by their new colleagues. It is hoped this article will go some way to illustrate to new student paramedics that the use of such humour is neither cruel nor unfeeling, but a bona fide coping mechanism among many emergency medical personnel.

Definition of gallows humour

Before going any further it is necessary to define the term 'gallows humour'. Gallows humour is a type of humour that arises from stressful, traumatic or life-threatening situations ([Moran and Massam, 1997](#)). Also known as black humour, gallows humour takes its name from jokes about the condemned man or hopeless victim ([Freud, 1905](#)). While initially used for this specific situation, the term black or gallows humour has come to be used for humour in traumatic or stressful situations ([Moran and Massam, 1997](#)). Black humour was summed up very well by [Knickerbocker \(1964\)](#) when he characterised it as terrible and marvellous at the same time.

In the 1930s the French coined the phrase 'humor noir' ([Stevanovic, 2007](#)); however, examples of black humour can be found far further back in time than the examples previously given. [Stevanovic \(2007\)](#) points out that for the ancient Greeks, the concept of death and humour were closely linked. This is embodied in the humorous epitaphs of that time and on the other kind of epigrams with a death theme.

[Janoff \(1974: 303\)](#) sums black humour up very well:

'Black humour cannot be described as being pessimistic or simply lacking an affirmative moral voice. Rather, it lives outside these limits in a terrain of terrifying candour concerning the most extreme situations.'

Black humour as a coping mechanism

The Holocaust

A classic example of the use of black humour as a coping mechanism can be seen in the Holocaust. The idea of humour in the Holocaust may, to many, be an offensive concept. When viewed in context, however, this is certainly not the case. However uncomfortable it may be, humour in the Holocaust did exist. This is illustrated extremely well in a study by [Ostrower \(1998\)](#) who, on interviewing a Holocaust survivor, was told:

'When I was interviewed for Spielberg and they asked me, what I thought was the reason I survived, they probably expected me to answer good fortune or other things. I said that I thought it was laughter or humour.'

In a book by [Feig \(1979\)](#), Emil Fackenheim, philosopher and Auschwitz survivor, said simply: 'we kept our morale through humour'.

It must be emphasised the use of humour during the Holocaust in no way reduced the objective horrors. Rather it subjectively reduced them, thereby facilitating coping with them ([Ostrower, 1998](#)).

According to many survivors interviewed by [Ostrower \(1998\)](#), humour served as a stress reducer and was one of the methods people developed to cope. Humour helped the oppressed and victimised to get through their suffering and face the reality of their predicament without going insane ([Morreall, 1997](#)). This is supported by [Kuhlman \(1988: 1085\)](#) who states humour 'proposes an illogical, even psychotic, response to irresolvable dilemmas and offers a way of being sane in an insane place.'

Humour also serves a cohesive function, creating solidarity in those laughing together at the oppressors ([Morreall, 1997](#)). This concept has been supported by other studies when examining coping mechanisms in emergency medical services personnel ([Felton, 1998](#)), and is discussed later in this article. Such humour provides an alternative perspective on the world ([Morreall, 1997](#)) and acts as a stubborn refusal to give tragedy the final say ([Hyers, 1969](#)).

Emergency services personnel

Black humour is typically used by emergency services personnel ([Felton, 1998](#); [Moran and Massam, 1997](#)). Studies have shown that such humour arises from an incongruity within the humour stimulus ([Moran and Massam, 1997](#)). Comedy and tragedy can, in fact, be seen as going hand in hand. Both look at the same world and focus on the problematic side ([Morreall, 1997](#)). They are concerned with the disparity between how things are and how they should be ([Niebuhr, 1969](#)). Few things can be seen as more incongruous than the events emergency services personnel deal with on a day-to-day basis, and black humour is particularly found in situations where people have to continue working even though the nature of that work is incongruous ([Moran and Massam, 1997](#)).

In order to deal with such situations, emergency services personnel use humour with its often sick and morbid content ([Rosenberg, 1991](#)). Studies have shown those who are able to use humour to cope do not experience less stress, rather they are better able to cope with that stress ([Nevo et al, 1993](#); [Nezu et al, 1998](#)). [Dixon \(1980\)](#) states humour may be a protective mechanism allowing the individual to distance themselves from the stressor. This is particularly pertinent to emergency services personnel who may be able to use humour to distance themselves from emotionally and visually disturbing events at the scene of an incident. In this way, humour can be seen to have use as a cognitive reframing mechanism which aids coping ([Moran and Massam, 1997](#)).

A study by [Schwab \(2002\)](#) while not discussing emergency medical personnel specifically, does find that humour tends to be used as a general human coping mechanism in distressing situations. The use of such humour then, allows emergency services and medical personnel to rise above disturbing events and get on with what needs to be done. Staff dealing with such events cannot allow themselves to be immobilised by the situations they find themselves having to manage and, therefore, have to process disaster faster than others.

The use of black humour is a way of achieving this. [Villeneuve \(2005\)](#) discusses the work of a flight paramedic, Victoria Corum, who found in her study for her Bachelor's degree that 90% of the 608 paramedic respondents surveyed used dark humour as a coping strategy.

Cohesive function

As briefly mentioned when discussing humour in the Holocaust, humour has also been seen to serve a cohesive function. [Coser \(1960\)](#) noted humour can be a form of socialisation and affirmation of common values. Many of the emergency services personnel studied felt they could only share such humour with their colleagues and not family and friends, as it would not be understood and would be considered to be in bad taste ([Felton, 1998](#)). In this sense, humour can be seen to serve a connective function ([Schwab, 2002](#)) and create a sense of belonging and camaraderie. It can also act

as an important communication tool ([Kuhlman, 1988](#)). [Shimizu et al \(1986\)](#) found that laughter was one of the most important means of communication.

Length of service/experience

It is interesting to note that [Rosenberg \(1991\)](#) found that it was only the more experienced emergency services personnel who believed black humour could not be shared with those outside the job. New and inexperienced personnel felt they could readily share such humour and this introduces a very interesting variable which directly relates to student paramedics: experience or length of service.

[Rosenberg \(1991\)](#) found in her study that a subject's previous experience in critical care had a direct influence on the level of black humour used. This may also explain why [Moran and Colless \(1995\)](#) found that differences in reaction patterns following emergency and disaster responses were related to the age of fire fighters studied. It follows that the older the fire fighter the greater their experience. Thus, it may be that it is not simply the age of the fire fighter that is a deciding factor but also their level of experience. Experienced personnel will have been exposed to many traumatic sights throughout their careers, and as [Schwab \(2002\)](#) points out, they are not necessarily hardened, they are just over the initial shock.

A learned skill

Evidence exists to suggest that black humour is acquired by new emergency services personnel informally from their more experienced colleagues ([Felton, 1998](#)). [Rosenberg \(1991\)](#) found humour was passed on from experienced to inexperienced emergency services personnel via the process of observational learning. Not only did less experienced staff learn when to use black humour, they also learnt when it was deemed inappropriate ([Rosenberg, 1991](#)).

This raises the question as to whether humour can be learned. As discussed above, humour can be acquired, but can it be formally learnt? Some authors believe so. [Wooten \(1996\)](#) suggests that medical staff should increase their beneficial laughter by exposing themselves to humorous material or undertaking humour training. [Berk \(2004\)](#) suggests that one should endeavour to recognise stressful situations and purposefully try to inject humour into them.

This is an extremely doubtful strategy when considering black humour. Firstly, humour is ephemeral by nature ([Moran and Massam, 1997](#)) and a very personal thing. What appears funny to one person may not appear so to another. Secondly, the events and situations faced by emergency services personnel can in no way be perceived as objectively funny in themselves, particularly to those who have not been exposed to the role. Additionally, research suggests that spontaneity is the primary requirement for therapeutic humour ([Kuhlman, 1988](#)). [Moran \(1990\)](#) found in her study of humour and emergency work that all but one of the 15 cases studied showed that humour arose spontaneously and not as a conscious attempt at coping. Humour, particularly of the black or gallows variety, is handed on like a trait ([Rosenberg, 1991](#)), and is not a consciously employed coping strategy.

Patients

Studies have shown that it is not only health care professionals that can use and benefit from humour, but also patients. [Salzberg \(2000\)](#) found that humour was a valuable tool for patients coping with breast cancer. In her book written in collaboration with breast cancer patients and aimed to help other sufferers, humour strategies were proposed to decrease the apprehension linked with coping with the disease. As one sufferer summed up, 'laughter is like a candle in my

mind, filling it with light, shining into all the dark corners, illuminating me with life.' Lamprecht (2007) supports this theory, saying that using therapeutic humour gives patients the opportunity to forget about their anxiety and pain and, if only temporarily, can improve their state of mind and quality of life.

Humour can also be a useful tool to be used by staff and patients together. [Kuhlman \(1988\)](#) found that the use of humour between staff and patients allowed situations to be less depressing and resulted in staff 'playing' with patients as much as working with them, a strategy which benefited all concerned. This is supported by [Mauger \(2001\)](#) who, in her work as a counsellor, found that laughter with a client about him or herself could serve to reinforce their understanding of themselves. It could help clients to appreciate the irrationality of certain core beliefs by mocking negative perspectives ([Mauger, 2001](#)).

'While studies show that humour is a useful coping mechanism, those using it must be sensitive to where and when it is applied'

Personality type

Personality type is an important variable when considering how individuals react to traumatic events and as to what coping mechanisms they employ. [Kobassa et al \(1983\)](#) use the term 'hardiness' to describe an individual's personal resistance resource. It is believed that those with a 'hardy' personality are better able to cope with stress ([Cooper and Payne, 1991](#)).

While many incidents are horrific by nature, it is evident that not all emergency services personnel react in the same way ([Moran, 1998](#)). Emergency services personnel may differ in their coping styles and strategies, and whereas some may utilise and appreciate black humour, others may not.

Gender

Gender is another variable to be aware of when considering how people use and appreciate black humour. In a body-handling exercise, [Alexander and Atcheson \(1998\)](#) found that black humour did not appeal to female police officers as much as it did to the male officers. It was theorised that this could be due to the fact that black humour can be aggressive in nature so may appeal more to males ([Alexander and Atcheson, 1998](#)).

Additionally, studies have found that the gender of the victims may have an effect on whether personnel find humour funny. [Levitt and Beins \(1997\)](#) found that women are less likely to appreciate humour with female victims, and males less likely with male victims.

Culture

Humour is not only dependent upon the individual's personality and perspective, but also upon culture. Studies have shown that cultural background may influence how individuals cope with and react to certain incidents ([Moran, 1998](#)). For example, British humour is notoriously dry and Jewish humour tends to lean towards the black side ([Ostrower, 1998](#)).

Culture, however, does not only refer to ethnic background. The culture of an organisation can influence reactions to trauma and stress ([Moran, 1998](#)). The culture of the emergency services generally lends itself to the use of black humour which, as has been seen, is a type of humour often found in extreme environments ([Moran, 1990](#)).

Control

Humour can also be used as a method for reasserting one's sense of control over a situation. [Horowitz et al \(1979\)](#) found that an important pre-disposing factor in post-traumatic stress disorder (PTSD) was a sense of loss of control. Emergency medical personnel regularly deal with situations where, aside from knowing what clinical interventions they are allowed to employ, they often have very little control over a situation. Relatives and patients can react in unpredictable ways and a patient's prognosis can be outside the scope of a paramedic's influence, despite treatment. Additionally, scenes of accidents are, by nature, unpredictable. Using humour allows detachment from the situation so some sense of control can be regained ([Wooten, 1996](#); [Berk, 2004](#)). This theory is supported by [Kobassa and Pucchetti \(1983\)](#) and is known as cognitive control. While emergency medical personnel are, to a great extent, unable to control external events, they are able to control how they view such events and their reactions to them.

Cautions regarding the use of black humour

Black humour, more than any other type of humour, must be used cautiously. Due to its often seemingly outrageous content it can easily be perceived by some individuals as insensitive and even hurtful ([Sultanoff, 1995](#)). Those with a degree of emotional distance from a traumatic event may not always appreciate that for those immersed in the crisis, black humour can be seen as offensive ([Sultanoff, 1995](#)). [Rosenberg \(1991\)](#) pointed out that in some circumstances the use of humour is wholly inappropriate. Among those listed were cases in which humour is used without regard to the situation, timing or individuals present, when it becomes annoying or tiresome, or when it interferes with job performance ([Rosenberg, 1991](#)).

Some authors have also expressed concern that humour prevents individuals dealing with anxiety. [Kubie \(1971\)](#) believes it is more important that a person confronts anxiety than suppressing it with humour. This argument is supported by [Haig \(1986\)](#), who believes humour is a form of denial and can be used as an avoidance measure, and [Mulkay \(1989\)](#) who views it as a form of withdrawal.

When humour is used badly or inappropriately then it changes from being a mechanism for stress relief to a source of stress to others ([Moran and Massam, 1997](#)). Additionally, it is not only the reactions of others to inappropriate humour that must be considered. [McCarroll et al \(1993\)](#) noted that it is not uncommon for individuals to be frightened by their own humour, as in certain instances they may believe they have gone too far.

While studies show that humour is a useful coping mechanism, those using it must be sensitive to where and when it is applied. It must be borne in mind that it has both the potential to benefit and the potential to cause harm. As [Sultanoff \(1995\)](#) points out, one must be prepared to repair any emotional damage that may arise from attempts to relieve either one's own or another's pain by the use of humour.

Conclusions

While the style of humour employed by emergency services and medical personnel is not exclusively of the black kind, it does seem to be the most used. Student paramedics with no previous ambulance service experience may find this difficult to understand. It may be of value to try to prepare student paramedics for such humour by introducing some of the underlying theory into the curriculum modules dealing with the social and psychological aspects of paramedic practice. If students are aware at the beginning of their career the type of humour they may encounter, it will hopefully come as less of a culture shock in the future.

There is room for further research to be undertaken in this area in the UK. Many studies are available from an international perspective, but it would be interesting to see if there was any further cultural difference between emergency healthcare providers from other countries.

Key Points

- Humour can act as a form of tension release and can be used as a coping mechanism.
- Emergency services personnel have been shown to typically employ the use of black humour.
- The unique brand of emergency services' humour may be a culture shock to student paramedics.
- A subject's previous experience has shown to have a direct influence on the level of black humour used.
- Black humour is acquired by new personnel informally from their more experienced colleagues.
- Humour has shown to be a valuable coping mechanism for many patients.

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References

1. Alexander D, Atcheson S (1998) Psychiatric aspects of trauma care: a survey of nurses and doctors. *Psychiatr Bull* 22(3): 132–6. doi: <https://doi.org/10.1192/pb.22.3.132>
2. Berk R (2004) Coping with the Daily Stressors of an Academic Career: Try Mirthium. *Academic Physician and Scientist*. July/August. http://www.ronberk.com/articles/2004_coping.pdf (accessed 26 November 2015)
3. Cooper C, Payne R, eds (1991) *Personality and Stress: Individual Differences in the Stress Process*. John Wiley and Son, Chichester
4. Coser R (1960) Laughter Among Colleagues: Staff of a Mental Hospital. *Psychiatry* 23: 81–95
5. Dixon N (1980) Humour: A Cognitive Alternative to Stress? In: Spielberger C, ed. *Stress and Anxiety*. Hemisphere, Washington DC
6. Ertel M (2002) Sociology of Humor. www.sociology.ccsu.edu/ertel/SocHumorSy102.htm (accessed 26 November 2015)
7. Feig K (1979) *Hitler's Death Camps: The Sanity of Madness*. Holmes and Meier, New York
8. Felton J (1998) Burnout as a clinical entity—its importance in health care workers. *Occup Med* 48(4): 237–50. doi: <https://doi.org/10.1093/occmed/48.4.237>
9. Freud S (1905) *Jokes and their Relation to the Unconscious*. Norton, New York
10. Grafton E, Gillespie B, Henderson S (2010) Resilience: the power within. *Oncol Nurs Forum* 37(6): 698–705. doi: <https://doi.org/10.1188/10.ONF.698-705>
11. Griner P (2013) Burnout in healthcare providers. *Journal of Integrative Medicine* 12(1): 22–4

12. Haig R (1986) Therapeutic uses of humor. *Am J Psychother* 40(4): 543–53
13. Horowitz, M; Wilner, N; Alvarez, W (1979) Impact of Event Scale: a measure of subjective stress. *Psychosom Med* 41(3): 209–18
14. Hyers M (1969) The Dialectic of the Saved and the Comic. In: Hyers M ed. *Holy Laughter: Essays on Religion in the Comic Perspective*. Seabury Press, New York
15. Janoff B (1974) Black humor, existentialism and absurdity: a generic confusion. *Arizona Quarterly* 30: 293–304
16. Kinsman A, Major J (2008) From critical care to comfort care: the sustaining value of humour. *J Clin Nurs* 17(8): 1088–95. doi: <https://doi.org/10.1111/j.1365-2702.2007.02090.x>
17. Knickerbocker C (1964) Humor with a moral sting. *New York Times Book Review*. September 1964, Sec. 7
18. Kobasa SC, Maddi SR, Zola MA (1983) Type A and Hardiness. *J Behav Med* 6(1): 41–51. doi: <https://doi.org/10.1007/BF00845275>
19. Kobassa S, Puccetti M (1983) Personality and social resources in stress resistance. *J Pers Soc Psychol* 45(4): 839–50
20. Koestler A (1964) *The Act of Creation*. Hutchinson, London
21. Kubie L (1971) The destructive potential of humor in psychotherapy. *Am J Psychiatry* 127(7): 861–6. doi: <https://doi.org/10.1176/ajp.127.7.861>
22. Kuhlman T (1988) Gallows humor for a scaffold setting: managing aggressive patients on a maximum security forensic unit. *Hosp Community Psychiatry* 39(10): 1085–90. doi: <https://doi.org/10.1176/ps.39.10.1085>
23. Lamprecht M (2011) A phenomenological inquiry of client experiences of receiving a humanistically-oriented therapeutic letter between counseling sessions from their counselor. https://etd.ohiolink.edu/!etd.send_file?accession=kent1308887247&disposition=inline (accessed 30 November 2015)
24. Levitt J, Beins B (1997) Hostility of good-natured humor: Can we laugh at ourselves? Presented at the 12 Annual University of Scranton Psychology Conference, Scranton, PA
25. Maier G, Berstein M, Musholt E (1989) Personal coping for prison clinicians: toward transformation. *Journal of Prison and Jail Health* 8(1): 29–39
26. McCarroll J, Wright K, Fullerton C (1993) Handling bodies after violent death: strategies for coping. *Am J Orthopsychiatry* 63(2): 209–14
27. Martin R, Lefcourt H (1983) Sense of humor as a moderator of the relation between stressors and moods. *J Pers Soc Psychol* 45(6): 1313–24 doi: <https://doi.org/10.1037/0022-3514.45.6.1313>
28. Mauger S (2001) The use of humour in stress management. *Stress News* 13(3): 1–4
29. Moran C (1990) Does the use of humour as a coping strategy affect stresses associated with emergency work? *Int J Mass Emerg Disasters* 8(3): 361–77

30. Moran C (1998) Individual Differences and Debriefing Effectiveness. *Australasian Journal of Disaster and Trauma Studies*. 1998(1)
31. Moran C, Colless E (1995) Positive reactions following emergency and disaster responses. *Disaster Prevention and Management* 4(1): 55–60.
doi: <https://doi.org/10.1108/09653569510079050>
32. Moran C, Massam M (1997) An evaluation of humour in emergency work. *Australasian Journal of Disaster and Trauma Studies* 1997(3)
33. Morreall J (1997) Humour in the Holocaust: Its Critical, Cohesive and Coping Functions. www.holocaust-trc.org/humor-in-the-holocaust/ (accessed 26 November 2015)
34. Mulkay M (1989) *On Humour, Its Nature and Place in Modern Society*. Polity Press, Cambridge
35. Nevo O, Keinan G, Teshimovsky-Arditi M (1993) Humor and Pain Tolerance. *Humor* 6(1): 71–88. doi: <https://doi.org/10.1515/humr.1993.6.1.71>
36. Nezu A, Nezu C, Blissett S (1998) Sense of humor as a moderator of the relation between stressful events and psychological distress: a prospective analysis. *J Pers Soc Psychol* 54(3): 520–5. doi: <https://doi.org/10.1037/0022-3514.54.3.520>
37. Niebuhr R (1969) The Dialectic of the Saved and the Comic. In: Hyers M, ed. *Holy Laughter: Essays on Religion in the Comic Perspective*. Seabury Press, New York
38. Ostrower C (1998) Humor as a defense mechanism in the holocaust. <http://web.macam98.ac.il/~ochayo/absract.html> (accessed 26 November)
39. Rosenberg L (1991) A qualitative investigation of the use of humor by emergency personnel as a strategy for coping with stress. *J Emerg Nurs* 17(4): 197–202
40. Salzberg R (2000) How to keep laughing! A guide to coping humour for breast cancer patients by breast cancer patients. Available from: <http://www.harthosp.org/portals/1/images/20/keeponlaughing.pdf> (accessed 27 November 2015)
41. Schwab P (2002) Humor's Role in Tragedy. www.fundamentallyspeaking.com/pdf/HumorandTragedyEMTs.pdf (accessed 26 November)
42. Shimizu A, Kawasaki T, Kawasaki T, Azuma T, Tanaka M (1986) Objective evaluation of laughing. *Stress Med* 2(4): 333–8. doi: <https://doi.org/10.1002/smi.2460020409>
43. Stevanovic L (2007) Ridiculed death and the dead: black humor. <http://www.doiserbia.nb.rs/img/doi/0350-0861/2007/0350-08610701193S.pdf> (accessed 26 November)
44. Sultanoff S (1995) Levity Defies Gravity; Using Humor in Crisis Situations. *Therapeutic Humor* 9(3): 1–2
45. van Wormer K, Boes M (1997) Humor in the emergency room: a social work perspective. *Health Soc Work* 22(2): 87–92. doi: <https://doi.org/10.1093/hsw/22.2.87>

46. Villeneuve A (2005) Why paramedics go for the punch(line). dartmed.dartmouth.edu/sprin05/html/disc_paramedics.php (accessed 26 November 2015)
47. Wooten P (1996) Humor: an antidote for stress. *Holist Nurs Pract* 10(2): 49–56