

Nurses' experiences of leech therapy in plastic and reconstructive surgery

Alison Reynolds, Colm OBoyle

H*irudo medicinalis* is a freshwater amphibious worm, black or brown in colour, and approximately 10 cm in length (Ward et al, 2008). Its salivary glands secrete a local anaesthetic so its attachment to its host is painless. The saliva contains vasodilators and the anticoagulant agents hirundin and calin, which together allow it to extract blood from its host (Mercer et al, 1987; Munro et al, 1991; Golden et al, 1995).

These blood-letting properties of the leech have been used by health professionals for some time (Bates et al, 1989). Suddaby and Mowery (2003) discussed how leech therapy decreases venous congestion after vascular reconstructive surgery, while marginal revascularisation of the replanted tissue occurs. Leech therapy is effective in the salvage of venously congested extremities, including digits (Valauri, 1991), nipples (Güneran et al, 2000), ears (Kim et al, 2009), lips (Walton et al, 1998), nasal tips (Mortenson et al, 1998) and penis (Pantuck et al, 1996). Leech therapy is also effective in the treatment of compromised pedicled and free transfer flaps (Chepeha et al, 2002; Gideroglu et al, 2003) where tissue from a donor site, whether with its own or a new blood supply, becomes obstructed by clotting or disruption of the vein. Without treatment, such vascular congestion can lead to transplant failure (Bui et al, 2007). Leech therapy has become part of nurses' expanding scope of practice in vascular and reconstructive surgery, with nurses accepted as the major frontline providers of this therapy (Whitaker, 2004).

Nurses' involvement in leech therapy is, however, rarely mentioned in the literature. This article discusses the emotional consequences for nurses of the use of leech therapy in Ireland.

Background

A search using the terms 'nursing' and 'leech therapy' revealed, among the benefits of leech therapy, several words and phrases that convey a negative emotional response in nurses. Bates et al (1989) noted that nurses often had 'qualms' about participating in leech therapy. In Yantis et al (2009), one interviewee described leech migration away from the site of application as 'bloody'

ABSTRACT

The aim of this study was to explore nurses' experience of using leech therapy. Leech therapy is useful in promoting revascularisation of skin grafts. Nurse disquiet in their role as leech therapists has been noted. This study explored the experience of Irish nurses. A qualitative design with an interview schedule was used to learn about emotional and practical clinical experiences. Interviews were carried out with seven nurses working with leeches in reconstructive surgery in 2013. These interviews were coded and explored for themes. Results revealed that many nurses feel aversion to the use of leeches. This may be associated with the use of a parasitic organism as treatment in conflict with the nurse's role in cross infection. It was also found that management of a nurse's own and patient's emotional responses is required. In conclusion, preparation for the role of leech therapy beyond the purely practical is necessary, and should explore affective responses of the practitioner and patients.

Key words: Leech therapy ■ *Hirudo medicinalis* ■ Plastic reconstructive surgery ■ Emotion work ■ Affect ■ Aversion

and 'scary'. Suddaby and Mowery (2003) described paediatric nurses in intensive care as having 'apprehensions' in handling the leeches and 'revulsion' in participating in the therapy. O'Hara (1991) and Kowalczyk (2002) also illustrate how nurse 'squeamishness' and 'revulsion' can affect their use of leech therapy. Together, these comments, which are almost asides in their respective papers, indicate that an exploration of nurses' experiences of leech therapy is warranted. In preparation, some theory with regard to aversive aspects of nursing practice must be considered.

Mary Douglas, in her seminal work *Purity and Danger* (Douglas, 1966), described dirt as 'matter out of place'. It can be seen that the nurse's role to maintain the health, and particularly the hygiene, of their patients would have a particular relationship with dirt and a concern for cleanliness. Holmes et al (2006) described circumstances that are contrary to normal social ordering as 'disruptive'. Many health issues and practices are disruptive, such as the presence of wounds, disabled bodies, troubled minds and the management of bleeding, vomit, faeces etc. The caring nurse is supposed to suppress feelings of disgust in order to maintain professional standards of respect and patient dignity. Nurses may appear calm and at ease, but they may be experiencing dramatic emotional responses to particularly aversive situations that can 'engage them on the personal level of anxiety and even fear' (Holmes et al, 2006: 306).

Alison Reynolds, Nurse, St. James' Hospital Hospital Dublin, Ireland

Colm OBoyle, Assistant Professor of Midwifery, School of Nursing and Midwifery, Trinity College Dublin, Ireland

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Table 1. Participants' degree of experience in using leech therapy

Participants' degree of experience in using leech therapy		
Pseudonym	Years' experience	Number of times participated in leech therapy
Fiona	7 years	27
Aisling	6 years	24
Aine	4 years	17
Maebh	4 years	16
Mairead	4 years	15
Siobhan	3 years	13
Ciara	3 years	12

Other theorists explore disgust and aversion, and their writings can be useful in understanding nurses' reactions to these aspects of their role. Miller (1998) described disgust as a way of distinguishing the boundaries that exist between 'safe' and 'contaminating'. Kristeva (1982) used the term 'abjection' (from the Latin root 'to cast from or throw away') to describe the psychological defence against, or rejection of that (the abject) which is perceived as a threat. Miller went further to investigate the characteristics of things that humans find repellent, aversive or disgusting. Key aspects are viscous things in contrast to solid/liquid things; wet in contrast to dry; organic in contrast to inorganic; and animal in contrast to plant—all of which may explain aversive reactions to the leech. Furthermore, the use of organisms usually associated with the presence and spread of disease in a curative context is likely to introduce a counter-cultural tension for nurses. This is potentially problematic, not only in leech therapy, but probably also in the use of insect larvae for wound debridement (Shi and Shofler, 2014; El-Tantawy, 2015), though that particular treatment example is not considered in this study.

Finally, Hochschild (1983) described the professional management of emotions (albeit in other contexts) as 'emotion work' or emotional labour. This concept has been expanded to include the management of the emotional state in someone else while managing one's own emotions (Steinberg and Figart, 1999).

Leech therapy is thus an example of a disruptive health practice in which nurses participate.

Methodology

Aim and objectives

The aim of this study was to investigate nurses' experiences of participating in leech therapy in plastic and reconstructive surgery.

The objectives were to investigate nurses' experiences of participating in leech therapy, to investigate whether and how participating in leech therapy evokes an emotional response from nurses and to identify possible content for education and preparation for leech therapy.

Design

A descriptive qualitative research design was undertaken. Volunteers were invited to participate in semi-structured

interviews about their experience of using leech therapy.

Sample

A purposeful sample of nurses was drawn from a busy 30-bed plastic surgical ward in a major Dublin teaching hospital. Leech therapy is reported as being required irregularly but approximately once every 2–3 months. The ward is staffed by 26 nurses, 5 consultant plastic surgeons and 8 non-consultant hospital doctors.

The inclusion criteria were registered nurses with at least 2 years' experience working in plastic and reconstructive surgery and who had participated in leech therapy at least 10 times. Those with fewer than 2 years' experience or who had participated in leech therapy fewer than 10 times were excluded. A total of 7 of the 11 nurses who were eligible volunteered and were interviewed. Information about the level of experience of nurses who participated in the study is shown in *Table 1*.

Data collection and analytic rigour

Semi-structured interviews using a schedule of prevalidated questions enabled expansion and clarification of the topic. The interview schedule was compiled from the literature on leech therapy within a framework of the theories of aversion discussed above. Interview items were developed and considered for relevance and content validity in collaboration with a plastics clinical nurse specialist and a consultant plastic surgeon.

Analysis used a process of coding from transcripts and code clustering to develop major themes in a manner adapted from Colaizzi (1978). This process was made auditable by AR and verified by COB. The themes identified were returned to one of the nurse participants to validate their appropriateness and completeness.

Ethical considerations

This ward is the only site in Dublin regularly to carry out leech therapy. AR works in the same clinical site as the participants, but has no managerial seniority. Fully informed written consent was obtained before interview, with transcripts made available to the participants. Responses from each participant are reported under a pseudonym. The study received ethics approval from a university faculty of health research ethics committee and permission to access the nurse sample was gained from the hospital's nursing research access committee.

Results

Several themes were identified: aversion, anthropomorphism, ambivalence, emotion management of oneself and the patient and, finally, practical issues.

Aversion

All the nurses acknowledged a degree of distaste about working with leeches.

They might visibly squirm and distort their faces as they described the leeches and their need to be close to and manipulate them. They describe them as 'the black slug', 'blood-sucking, slimy bugs' and 'creepy crawlies'.

The nurse's responsibility for order and control, particularly of cross infection and bloodborne contamination in the hospital, is an issue. This concern becomes heightened when the engorged leech drops off and migrates elsewhere. The nurse may then have to search for and retrieve the leech, sometimes following a 'trail of blood' around the room:

'I have found leeches that have been lost around the room and I think it's just really gross, like, you know ... Well, infection control, and you don't want them to stick onto another patient.'

Ciara

The nurses describe disposal of the leech with alcohol in particularly aversive terms:

'They bust open and blood pours out. Another bloodbath. It is disgusting and horrible.'

Mairead

Anthropomorphism

Many of the nurses attributed human traits and even feelings to the leeches—a process known as anthropomorphism.

One nurse described herself as having to 'fight off the leeches as they try to escape' from their container (Ciara). Another said:

'I turned around and the other [leech] was standing on the side of the pot, up tall like a soldier, and I screamed. Frightened the life out of me.'

Mairead

This tendency to anthropomorphise was quite common among the nurses and extended, for some, to expressing a degree of sympathy, particularly when disposal of the leeches was discussed. Several nurses expressed guilt at destroying them after 'using' them for their therapeutic properties:

'I mean, I feel guilty having to kill it ... for murdering all of the leeches.'

Aine

Despite their general aversion to leeches, the nurses often had difficulty reconciling themselves to their destruction. This ambivalence is also evident in their assimilation and promotion of the benefits of leech therapy.

Ambivalence

The perceived therapeutic value of leeches seemed to moderate both the aversive and anthropomorphic reactions of nurses.

The nurses spoke of a professional duty they have towards their patients. They referred positively to participating in leech therapy as it benefits the patients. One nurse recalled how often both the nurse and the patient could clearly see an improvement in a revascularised digit after leech application:

'I remember I had this patient who was a thumb revascularisation and I put two leeches on and I swear you could see the pink flowing back into it. Even the patient commented on it.'

Mairead

Reluctance on the part of the patient was acknowledged as common, and the nurses said they often presented the use of leeches as a last resort to save a failing graft. All seven participants agreed that if they were to find themselves in the situation where they needed leech therapy, they would consent to the treatment.

Emotion management

Emotion management was a clear concern for the nurses, who did not want to show discomfort on their part to the patient so that the patient might be reassured.

'I do think you have to hide your emotions for the sake of the patients. To give them confidence in your ability, you have to hide your emotions and act confident. If you are feeling squeamish, you shouldn't show it because at the end of the day you are putting it on their body. You need to instil confidence.'

Siobhan

Humour was also mentioned as a strategy to help acknowledge and deal with patients' emotional discomfort.

The nurses identified the face in particular, and the breasts in women, as bodily areas that patients often found difficult to cope with for leech therapy.

'On the face, the nose and that, because it's visible and there is no hiding it, and sometimes that's uncomfortable. And definitely the breast reconstruction. Women are already emotionally distressed and they find it harder.'

Maebh

They identified the inability to avoid seeing the leech being placed in situ, and moving and swelling on the face and near bodily orifices, as being most distressing to patients.

Practical issues

Practical challenges to leech therapy include removal of single and adherent leeches from a large container with many leeches. Application of a leech to the skin can be difficult as, being animate, they 'wriggle', 'climb', 'crawl' and 'swim around'. It can be difficult and time-consuming to induce an apparently reluctant leech to attach to the optimal part of the graft tissue.

'They often don't like being placed onto a dying flap and prefer to suck off healthier skin, like a warmer, juicier, healthier part, so that must be awful. Migration can be really time-consuming because if the flap is really bad, you literally spend ages to get it to latch on.'

Aine

As the leech can stay attached for 30–60 minutes (Mid Essex Hospital Services NHS Trust, 2016), constant direct one-to-one nursing supervision was often not possible in the research setting. The hospital site has no formal protocols for nurses administering leech therapy, relying instead on nurse-to-nurse education, but access is available to Mid Essex Hospital Services NHS Trust (2016), which offers some guidelines. Tips include

pricking the tissue if necessary to induce the leech to attach and using gauze to minimise migration, but these remain practical challenges to nurses using leech therapy. Too-fine forceps for the handling of leeches was also identified as a difficulty, as it increased the chances of the nurse having to physically handle the leech, albeit with gloved fingers.

Discussion

The negative effects of emotional discomfort, aversion, abjection or disgust arising from close working proximity with leeches are evident here, as in other literature (Suddaby and Mowrey, 2003; Yantis et al, 2009). These reactions are consistent with broader sociological theory about the rationale or evolutionary benefits of such aversion (Kristeva, 1982; Miller, 1998).

The moist, organic and squirming nature of the leech triggers an aversive response noted by other theorists (Miller, 1998). The nurses counter the urge to abjection or to cast the leech away by covering it from sight with a light dressing. The application of a leech onto the face, where it is unavoidably visible, makes the treatment additionally aversive. Miller (1998) mentioned that bodily orifices are often associated with danger, aversion and disgust. Concern about invasion of orifices, and application of leeches on or near the breasts or nipple in women, necessitate additional reassurances and perhaps more continuous attendance by the nurse during therapy (Mid Essex Hospital Services NHS Trust, 2016).

The sociological significance of dirt, disease and contamination for nurses who have to manage the disruptive aspects of human sickness and disease (Holmes et al, 2006) can be seen to face an additional challenge from the use of a wayward and parasitic organism as therapy. The recasting of such matter (parasite) that is conceptually out of place (Douglas, 1966) would appear to be a challenge. That the leech can migrate even further 'out of place' into the clean hospital environment, where the nurse has responsibility for appropriate standards of hygiene and sterility, can be a particular extra burden.

These concerns, the additional concern for professional appearance and behaviour, and the responsibility for patient comfort and care add additional layers of challenge to the nurse administering leech therapy. Emotion work is the effort required to manage one's feelings or emotions in social settings. In work settings it can be called emotional labour. Hochschild (1983) originally described emotional management in relation to the work of flight attendants, but the idea of emotion work or emotional labour has been adopted more widely and also applied in healthcare settings (Steinberg and Figart, 1999). Nurses being prepared for the role of leech therapy should be helped to become aware of their own emotional response to leeches and acknowledge that these may be negative or ambivalent. Furthermore they should also be encouraged to consider how they will manage their own and their patients' likely negative emotion about leech therapy.

This study has identified that nurses' ambivalence about using leech therapy can be made even more difficult when it comes to destruction of the leech after therapy. The tendency to anthropomorphise, which has not been identified elsewhere in the literature, seems to heighten the difficulty inherent in leech

disposal. It would seem that this aspect may have to be carefully considered from an ethical perspective. Although not cited directly by the nurses in this study, animal-rights campaigners, vegans and some religious adherents (either practitioners or clients) might very reasonably object to the use and disposal of an animal, even a 'lower' or invertebrate animal, in this pursuit of human gain.

The nurses themselves noted that educational preparation for the role was largely ad hoc and 'on the job', and they identified practical aspects of leech therapy that could be improved. The preparation of nurses to recognise, acknowledge and accept the emotional challenges of leech therapy, however, seemed to be particularly lacking. These complex sociological and personal emotional issues need to be given due consideration during preparation for the role. Nurses might then be in a better position to understand and manage their own and their clients' responses to leech therapy.

Limitations

This is a small qualitative study, carried out in only one Irish hospital, which may limit the transferability of the findings to other settings. That AR is a work colleague of those interviewed has not, the authors believe, inhibited free expression of the interviewees or the selection of themes and sample quotations.

Conclusion

This article adds to the limited literature on nurses' experience of leech therapy. It expands on what has been noted in other studies (Bates et al, 1989; Kowalczyk, 2002; Yantis et al, 2009)—i.e. that aspects of leech therapy can be aversive not only for patients, but also for practitioners. This article identifies sociological theories that identify dirt and its control as being particularly relevant to nursing practice (Douglas, 1966). The use of the parasitic physiology of leeches is revealed to bring another layer of disruption into play in these nurses' practice—namely, physically and emotionally aversive responses and abjection (Kristeva, 1982; Miller, 1998). Aversion requires a degree of emotion management, thus demonstrating once more the relevance of the work of Hochschild (1983) in this, and perhaps all, nursing practice.

Holmes et al (2006) outlined the need to incorporate theory of affect into nursing theory, discourse, education and practice. This study demonstrates the implications of attending to, and failing to attend to, aversion and emotion management in one small aspect of nursing practice. A theoretical basis for the emotional and physical preparation of nurses for the practice of leech therapy (and probably also its close equivalent the use of insect larvae in wound debridement) warrants greater consideration. The authors recommend that the emotional aspect of the role be included in any educational preparation for administering leech therapy. **BJN**

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KEY POINTS

- Nurses can find the medicinal use of leeches to be aversive
- Leech use may be in conflict with the nurse's wider role in bodily and environmental hygiene
- The nurse's management of his/her own emotions and patients' emotional responses is a central concern
- It is essential for educational preparation to include exploration of the emotional responses to leech therapy
- Nurse educators need to consider preparation for the additional burden of managing patients' emotional responses to leech therapy

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