

EMOTION AND CARDIAC TECHNOLOGY: AN INTERPRETIVE STUDY

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ABSTRACT

This paper presents a frequently overlooked aspect of advanced technological care - that of the human dimension and emotions. Emotionality is defined as the emotional ways that a client experiences their embodied experience as a recipient of a cardiac pacemaker. One individual's story from a larger interpretive study of clients who received pacemakers is presented and interpreted. Kev's story encapsulates the difficulties of dealing with and understanding cardiac technology. When Kev's heart malfunctions he confronts a new reality; an experience where the 'technological body' is linked confusingly with emotion. This complex interplay between technology, the body and emotionality is discussed to demonstrate the importance of the mediating role that nurses can and should play in clients' adaptation and recovery.

INTRODUCTION

Contemporary western society continues to embrace technology even though the benefits of many technological interventions are unclear (Moynihan 1998). Technology as referred to in this paper is seen to be any activity by health professionals that precludes person-to-person interaction. Technology can be problematic because of its potential to cause harm. However, clients often do not realise they are at risk of damage from technological interventions as they are not encouraged to question the risks and benefits and remain silent and vulnerable in their illness experience.

Long-term problems include the person's interaction with the technology, prevention of iatrogenic complications, and, dependency on technology and medical care. There is a tendency to overlook the human experience of technology that leads to ineffective client education and reinforces ignorance and disempowerment.

This paper aims to explore the consequences of technology and emotionality through the presentation of one individual's story from a larger interpretive study of clients who received cardiac pacemakers. Emotionality is defined as self-feeling, feelings towards the body, or the way that a client situates their embodied experience as a recipient of a cardiac pacemaker.

BACKGROUND

A cardiac pacemaker is a highly technical device capable of controlling a person's heart rate within computerised parameters. The pacemaker unit includes the pulse generator, a lithium battery and electrodes. The approximate size of a matchbox, the unit is inserted into a surgically created pocket in the left pectoral area while the leads are threaded transvenously into the right heart chambers (Wagner 1995). In a medical framework, this is a relatively simple procedure. From an embodied view, the client's humanness is subtly but profoundly transformed - they are now inextricably attached to technology.

This technology has been shown to increase recipient's survival rate (Rasmussen and Mangan 1994) and is

effective in the prevention of sudden cardiac arrest (Bremner et al 1993). However, such literature tends to objectify the human heart as being separate from the body and separate from the non-scientific dimension that locates a person as a socially, culturally and historically influenced being (Merleau-Ponty 1962). Furthermore, this literature concentrates on the importance of the technology in saving lives and does little towards an understanding of the life experience once a person is a recipient of a pacemaker.

There is little literature that explores the embodied experience of being a recipient of a cardiac pacemaker. However, there is literature suggesting that cardiac pacemaker technology precipitates emotional chaos for individuals (Nanthakumar et al 1998; Nercessian et al 1998). Following a cardiac arrest and the intervention of a cardiac pacemaker, survivors have expressed ambivalence as they live a life of anxiety, insomnia and decreased self-efficacy (Doolittle and Sauve 1995) as well as fear of the device and its limitations (Kuiper and Nyamathi 1991).

As the population ages there is the likelihood that cardiac technology use will also rise (Mond 2001). However, discrimination in the use of technology has also become evident. For example, older people are often missing out on the most advanced medical technology because of the assumption that life would soon end (Hanaford et al 1994). Thus, the younger age groups who are deemed more valuable by society receive new pacemakers, while the older, less valued population, receive re-used pacemakers. Although Lind et al (1998) found no increased risk associated with re-used pacemakers, others such as Platt et al (1996) and Brady et al (1998) found that lead malfunction was common and the efficient performance of the device long-term remained unknown. Furthermore, Manez et al (1996) found that more than 70% of pacemakers interpreted external electrical stimuli as the heart's function, causing an inappropriate and dangerous response from the person.

A need for the human dimension

It is argued that the human dimension has been overlooked in this literature and that by examining technology in this way the person is invisible, there is no embodied experience, no human reality, and no lived concepts of everyday life with an implanted device within the body (Leonard 1994). The technology of an implanted cardiac pacemaker offers the possibility to open up the person's life-world, and yet this technology, paradoxically, constrains rather than provides freedom (Sandelowski 1993). As a generalisation, the cardiac pacemaker is at the same time life saving, ominously uncertain, it invades body space, and is a symbol of dependence. The question of whether the benefits of such technology outweigh the risks needs to be considered so that clients are able to choose, with confidence, surgical intervention or non-intervention (Craft and Grasser 1998). Thus, there is a need to explore the ways that people respond, attempt to cope and integrate cardiac technology into their life. This paper focuses on Kev's story, a narrative that encapsulates important insights about technology, the body and

emotions, which were revealed in a larger interpretive interactionist study of eight clients who received cardiac pacemakers (Anderson 2000).

METHODOLOGY

Interpretive Interactionism

The larger study was located within the methodology of interpretive interactionism which draws on poststructuralist thought (Denzin 1989). Poststructuralism encompasses those beliefs, which offer a critique of essentialism, a way of thinking central to modernism. Essentialism assumes identity is monolithic, totalising, fixed and homogenous rather than diverse and multiple. Essentialism tends to erase differences and convinces people to think that things are naturally so, rather than culturally so (Giroux 2000). Poststructuralist research seeks to find, expose, disrupt and expand those sites of resistance and to notice the local, the different and to aspire to changing the status quo.

Interpretive interactionism is a poststructural method that was used to evaluate the interaction between client and provider to determine how effectively the public program of manufacturing, marketing and implanting the human body with cardiac pacemakers performs (Denzin 1989). Interpretive interactionism is concerned with exploring and evoking the personal meanings, revealed in narrative form. In this case, the focus was on the interaction between the private experience of the individual and the public health program in which they were situated. Evoking participants' narratives is an important way of revealing and understanding that person's subjectivity, embodiment, and cultural conditioning.

Narratives are potentially informative for health professionals because they help providers to become more aware of client/provider reactions and expectations regarding illness, treatment, and relationship with health professionals. The study proceeded to search for narratives within the data in order to reveal the person's subjective experience and expose potential alternatives to the status quo, particularly in relation to the interaction between pacemaker recipient and health care professional.

Selecting participants

The sampling method was purposive (Patton 1990) in that participants sought were those who were informed about the research project and had personally experienced pacemaker implantation. The sampling was also homogenous (Sandelowski 1995), a strategy employed to enhance rigour in a resource limited situation and to facilitate deeper insight within a case situation. This was achieved by focusing only on male war veterans from one hospital. Following ethical approval participants were accessed from client medical records from a medium sized private hospital in Brisbane, Australia. Clients selected were war veterans, 65 years or more, male, able to articulate their experience of living with an implanted cardiac pacemaker, and not currently hospitalised. Potential

participants were contacted by telephone and the purpose of the study explained to them. Eight men voluntarily participated. They ranged in age from 68 to 79 years.

Data collection

The study explored the research question 'How does the war veteran experience his body in relation to invasive cardiac technology?' This question arose as a result of a critical analysis of the literature that demonstrated a paucity of interpretive cardiac pacemaker material. The narrative experiences of war veterans who were recipients of implanted cardiac pacemakers were gathered and examined for interactions with broader social milieu. Participants were asked to explore their experience and were requested to provide descriptions of their emotional reaction to the situation. Unstructured interviews were utilised in order to elicit stories about experiences and took place in the private home of each participant. Data were constituted from audio-taped interviews conducted with the participants, who all consented via written protocol.

Data analysis

The analysis process for this study involved an interactive approach using content analysis for comprehension and thematic analysis in order to synthesise and theorise the findings (Morse and Field 1996). Transcripts of each interview were read in an inductive manner, looking for significant statements and epiphanies associated with the hermeneutic objective - to understand the perceptions of the participants about their implantation experience. The notion of epiphanies is important to interpretive interactionism and refers to those experiences, which represent major turning points or moments of insight.

SUPPORTING THE PARADIGM CASE

Kev's narrative has been utilised as a paradigm case that presents the essential elements of emotionality in the cardiac technology experience. A single case orientation, also known as the science of the singular (Simons 1980), has potential to deepen understanding of the particular. It is likely to promote depth of insight, produce thick description and become the basis from which researchers may make interpretation of data faithful to the individual case (Sandelowski 1996).

FINDINGS

The findings relate specifically to Kev's emotionality as he experienced cardiac technology. Findings are presented under the six themes of 'feeling not myself', 'the technology of the medical encounter', 'the cardiac technology experience', 'intensive technology or intensive care?' the 'discharge experience' and 'questioning the cardiac technology experience'.

Feeling 'not myself'

Kev's story picks up the emotional experience of feeling 'not myself' (Leonard 1994; Shilling 1993). Kev is a 68-year-old male, a Vietnam veteran and a recent

recipient of a cardiac pacemaker. He describes his physical and emotional experience with cardiac technology as 'electronic mayhem'. Kev first became aware that something was wrong when he 'lost it' while towing a caravan interstate with his wife beside him.

Kev: I had driven a caravan approximately 30 years, so it wasn't a new ball game to me. All of a sudden I found I had run off the side of the road and I was mowing down the posts. In retrospect I have no recollection of how this happened. It was just, I lost it - consciousness. I corrected and weaved across the road a number of times - rolled and wrecked the caravan.

This momentary loss of consciousness signals his transformed reality from wellness to illness. Kev's subsequent struggle to understand his experience involved becoming caught up in the emotions of loss, confusion and overwhelming shock.

Kev: As a result of that, when we came back, I went to my doctor. He examined me and sent me for a CAT scan. I had the brain scan and that proved there was no problem there. I went back to my own GP and he wrote me a line to go to hospital for a cardio examination. I'm afraid I dallied. Nearly six months before I did anything about it. I wasn't in any fear - I'm too busy.

He contemplates the 'why' of losing the familiar body even for a few seconds. Ultimately, it was this uncertainty and wish to know that brought Kev and his medical encounter together.

Emotionality in the technology of the medical encounter

On his wife's insistence a cardiologist examined Kev. There were no problems with his blood pressure and a previous carotid check displayed no blockage. Kev described an electrocardiograph (ECG) as 'terribly normal' until the cardiologist performed carotid massage, which brought about an asystole reading in the ECG. Kev described this examination as 'checking me out electronically'. The cardiologist informed Kev that he would be admitted to hospital under observation and for monitoring. Kev appeared to experience flashback anxiety in the telling of this encounter. He told the cardiologist 'it's impossible' because his wife was scheduled to have a hip replacement. Kev nervously laughed when he mistakenly referred to the pacemaker as 'not a transplant!'

The meeting between physician and Kev was a time of tension and he experienced fear as he waited to hear the diagnosis of an experience that he had not understood.

Kev: The diagnosis was very quick. It was just like being hit in the face with a wet sponge. That was a bit of a shock. When you go in to see a doctor... you feel like you are the guiltiest person in the world.

Kev perceived he had no physical restriction and set about explaining to the cardiologist that he was fit and healthy. He had been a sailor and was still able to run without loss of breath, he could climb ladders, crawl under cars and perform all types of physical activity. Kev was

pleading for more time to consider the technical solution, the process moved too fast for his comprehension. The cardiologist's response was inadequate, unempathic and dismissing: 'I'll see you Monday'.

Not being able to understand his situation, Kev sought to blame himself for his condition because he viewed himself as 'in charge' of his body. However, Kev's ambivalent state moved to terror when the cardiologist told him that he needed a cardiac pacemaker. Not only did this sound foreign but Kev was also aware of the dangers of such a diagnosis. Kev described his momentary loss of consciousness as an entry into 'an unknown' and now has begun to contemplate more of the unknown by imagining walking out of hospital as a 'bionic man'.

Emotionality in the cardiac technology experience

Kev tries to make sense of this unusual experience by drawing on what is familiar and helpful to him as a war veteran.

Kev: He cut a little pocket in my chest and ran those two electrodes into my heart. They were unsuccessful in implanting this device on that day. I felt I was all full of holes. When I came to there were all holes in me. They had even prepared the other side [of my body] here on the right to do the implants. There was more holes there.

In his experience of moving from old self to enhanced-with-technology-self, Kev felt full of holes. Kev's narrative continues to this point without a single reference to the device as a cardiac pacemaker. He refers to the pacemaker as 'it' or breaks off in mid-sentence, which gives the pacemaker no form at all. Yet the pacemaker is part of him. Indeed it gives him life. The reference to being 'full of holes' evokes images of the body as a battleground, and Kev as the casualty. While his distress is not explicitly stated in literal language, this interpretation of emotional meaning reveals a deep ambivalence that Kev, and perhaps others in receipt of life saving technology, experience. He is at once still the same person and also forever technically altered.

Kev: It could be cowardice (nervous laugh). But definitely I was in severe pain. It just felt as though I had been stabbed in the arm on two occasions.

The notion of feeling cowardly is similar to how soldiers feel during combat when trauma blocks reality (Woolley 1998). In spite of his pain, Kev speaks of his body as not belonging to him. He appears to need detachment from his body in order to cope with the intrusion from mixed emotions of fear, relief and pain. The extreme state became almost a surreal or dissociative state as Kev described his body experience in a manner that placed him outside his own body as if he were an observer. Dissociation is an extreme protective mechanism used to deal with overwhelming experience (McAllister 2000). Kev attempts to express the means by which he detached himself from the cardiac pacemaker.

Kev: I just keep saying, really it was for the fellow in the bed next to me, and they actually put it in me.

Beyond the surgical experience, Kev faces another challenge: finding meaning and acceptance in the intensive care unit.

Intensive technology or intensive care?

Once inside the intensive care unit, Kev's conversation centres around awareness of his interaction with intensive care technology. Kev had not been within hospital walls for 46 years however, as a male and a Vietnam veteran accustomed to military technology, the stark physical environment of the unit seems to sharpen Kev's recall of the invasive power of technology.

Kev: After the procedure they sent me down to intensive care. They said, 'You won't get any sleep tonight because we'll monitor you down there'. Intensive care as you are aware, is a hive of activity. The machine was sounding off and they kept adjusting it.

For Kev, the experience of intensive care precipitated his sleep deprivation as he was confronted with machine alarms 'sounding off' that reminded him of being in a war zone and in a foreign place. The traditional intensive care schema of one-to-one nurse/patient ratios suggests that nurses have a visible presence and are of great importance in the lives of patients. Thus, one might predict that at this point Kev will make mention of the nurses' presence.

Kev: In intensive care, I didn't know what they were doing. They waved this enormous thing over me. Oh! Good God. I reckon it's like half an armored personnel carrier. I was still on the monitor at the time and they wheeled this enormous thing over. I said, what's going on here? He said, I'm going to take an X-ray. I never want to go in for another operation. As he wheeled that in, I could have gone - clunk! Couldn't I? I could have fallen off my perch. The thing that tickled me is they classify it as a minor procedure, not surgery.

Kev does not note a prominent role for nurses. Instead, that place is taken by technology. Indeed, Kev's conversation recollects nurses as an amorphous 'they', the people who attend to the technology of the 'monitor,' 'the machine,' and 'adjusting it'. While Kev hopes nurses will offer him reassurance in his frightened state, they instead attend to the technology rather than to the person or to his emotional needs. Kev's fear extends to terror as he becomes aware of his mortality and the unknown.

The discharge experience and emotionality

Pacemaker technology and its link with fear are apparent also in Kev's post-hospital experience.

Kev: After I came home I was getting severe reactions. The diaphragm seemed to be reacting like this heaving action. It was quite distressing because it was like a hiccup, but it was definitely thumping. I've sat up in the middle of the night in great fear... from this thing bumping.

There is no trust or emotional security in the following description of when pacemakers go wrong.

Kev: I went back to see him [the doctor] and they wired me up. They adjusted this [pacemaker] to a more comfortable level. He said, it was set a bit severely. Apparently, they can adjust you.

Kev described this experience as ‘electronic mayhem’, and he speaks about the severity and intensity of how ‘they can adjust you’. These words denote the power that technology holds over Kev and in the architecture of power relations his body is constructed as docile (Eckermann 1997). By using the second person ‘you’ Kev removes himself from the experience and gives up his emotional identity and succumbs to being this technological self.

Questioning the cardiac technology experience

Frustration, futility and desperation are evident in the following excerpt:

Kev: I feel I have more light-headedness than I ever experienced before. I feel that if this has been implanted to get rid of any of that, therefore something - well, the wires haven't come together properly. I don't mean my wiring. There's something just not quite right. I wouldn't dare suggest a misdiagnosis, but if I run this past him [the doctor] I'm sure he'll suggest you're going for a test for ingrown toenails or something like that. I'm sure he'll look to something else.

Kev's emotionality stems from doubt and loss of trust in relation to his diagnosis. He is now explicitly questioning the need for his body to be the site for an invasive cardiac pacemaker. Kev is now no longer passively accepting the legitimate, omniscient knowledge of medical expertise. His experience has taught him to be doubtful.

DISCUSSION

The cardiac technology experience

Kev's narrative reveals that the implantation of a cardiac pacemaker does not appear to be as routine, uncomplicated, or immediately successful as patient education literature portrays (Anderson et al 2002). Emotionality in the cardiac technology experience appears to involve struggle as a client makes new sense of him/herself, to accept a new, changed and technically enhanced self and through it all, medical knowledge simplifies, underemphasises and perhaps overlooks the personal struggle. Kev's experience exposes it as a potential nightmare. His talk of things that go bump in the night and cause ‘great sweating fear’ are language from horror genre. This negative emotionality arises out of a perceived destiny that is controlled by an external circumstance. Denzin (1984) suggests there is a ‘they self’ where ambivalence, emptiness and inner anger co-reside. The ‘they self’ epitomises the cyborg division of human and machine.

The medical encounter

Kev's fear as he waited to hear his diagnosis of an experience he had not understood can be likened to the analogy drawn by Joyce (1976) between the individual and

the medical encounter and a confessional interaction with a priest. Both situations are seen to be a state of highly charged emotionality that often follows feelings of blame, guilt, fear and terror. Joyce described how as the penitent awaits the priest, soft noises become unbearably loud and the penitent begs his/her thumping heart to be still. Kev experienced similar feelings as he sought to understand his experience and his new diagnosis whereby the technology became important and he as an individual was forgotten. Lawler (1997) refers to this as a common health care encounter because clients are ‘handing over’ their body, albeit temporarily.

Furthermore, Kev's description of being a ‘bionic man’ indicates a fear that technology will take control of his life and transform his reality of himself. The cardiologist appears unhelpful because he does not facilitate successful transition and the nurse is nowhere to be seen in this interaction. While Kev needed more evidence, sensitivity and reassurance the cardiologist seems unmoved and minimizing in his response. It is an encounter in which Kev's deeply confused and ambivalent state is suppressed rather than explored and supported.

Questioning the experience

Kev's narrative also raised concern with whether the negative aspects of the cardiac pacemaker outweigh the benefits or even whether the technology is required. Iskov et al (1997) also raise doubts about this technology because they found that clients during replacement pacemaker procedures for battery depletion exhibited natural rhythm. Subsequently, clients were found to have no further need for the pacemaker during a follow-up period of four years. One can therefore question the taken for granted assumption that the body is territory to be invaded and explored by medical technology no matter whether there are clear benefits or not.

Even the act of the insertion of the pacemaker could not be understood by Kev and he sought to make sense of this experience through other experiences with which he was familiar, albeit war experiences. Rudge (1999) argued that body procedures are at the core of self-identity for clients. Skin, as a first line of defense against invading organisms defines the border between internal and external identity. For the cardiac pacemaker client, skin is manipulated, made more of, its function altered. In the pacemaker procedure skin becomes a receptacle rather than a defense or a cover. No longer is the client able to take their skin for granted, and to see it, feel it, know it in the usual way. Clients' knowledge of skin is potentially fundamentally altered during what is seemingly a routine and simple procedure.

Intensive technology

As a Vietnam War veteran, Kev visualised an armored personnel carrier, with all of its terrifying connotations. He had never seen a mobile X-ray machine. It appears that Kev may have experienced what Stanislavski (1936) described as a wholly new and transformed reality constituted by his emotional chaos that could have been decreased by appropriate and sensitive communication.

Kev referred to nurses being concerned with the cardiac technology and not him or his body, which effectively relegates Kev, the individual, to the background. Kev's body becomes a social and cultural construction as an extension of cardiac technology and the pacemaker. Thus, the cardiac pacemaker may be seen to lay claim to Kev's body, and his body became simply a pocket to hold the pacemaker.

Opportunity for nurses

It is apparent in Kev's story, that where the person confronts technology and the new role it will play in their life and their body lays an opportunity for nursing. Whilst Kev's story is unique and requires individualised responses from health professionals, there is much about the experience that may resonate for other pacemaker recipients and provide direction for nurses. For Kev, the pacemaker implantation involved an emotional struggle and was far from routine. In the medical encounter, Kev was located within a liminal space, a space of uncertainty between health and illness, between risk and benefit, between old self and new. In order to assist successful transition, the interactions in this encounter are crucial and this is where nurses can play a key role. As threshold people, or intermediaries, nurses can facilitate transition in many ways (Buchanan 1997). This is the time nurses can spend with clients, sitting quietly, answering questions, providing reassurance and assistance to make the transition from old self to new.

Without support, clients like Kev may feel abandoned while in a vulnerable and confused state, perhaps not making a successful transition to living well with a pacemaker, trapped in grief for the lost old self and unable to accept the new. It is likely too, that such clients will always remember that no one was there to help them move through this major life transition and cardiac nurses will have missed important opportunities to understand, validate and extend their caring work. Caring for client emotionality requires health care professionals to use psychosocial skills, empathy and compassion. Without a caring compassionate presence, in this situation Kev was left to an unmediated experience with medical technology, leaving him frightened, passive and immobilised.

Nurses can improve the cardiac technology experience for clients if they see their role as a facilitator during times of transition. Nurses can engage with clients as fellow humans, to get to know them and to establish a strong and obvious presence so that nurses can confidently and swiftly identify uncertainties and struggles and provide reassurance for fears and concerns. For example, reducing Kev's fears and concerns may have helped to alleviate some of the discomfort he experienced. Nurses who place their focus on technology rather than people are unlikely to see fear in the person's eyes; anxiety will not be detected if the person is assumed to be asleep; body tension will not be noticed if the person is not touched; and, emotionality will be overlooked if the person receives no sensitive communication. Individuals may have a cultural belief that there is a connection between their heart and soul. Concerns about the heart being occupied

by cardiac technology require nurses to take the opportunity to understand clients' concerns about technology. This experience with cardiac technology evokes concerns about being changed forever; it is about facing one's mortality. Sensitivity to the profundity of these moments is vital and may make all the difference in transforming a crisis into a turning point.

Mistakes can also be made when nurses detect emotional distress and proceed to define the client according to the emotion. Seeing the client as angry, depressed or anxious, risks labeling clients without understanding or assisting them. Nurses can use themselves therapeutically to help clients express distress, to feel calm and to alleviate potential problems. Machines and the noises they emit can be distressing; they can cause sleeplessness and anxiety. Such machines may seem routine to nurses but they may represent profound changes for clients.

If nurses were to remember that the pacemaker technology experience is more than a routine technical procedure, and a bodily experience where the person is forever altered in complex ways, then the client's experience and self is validated. A validating experience is likely to make a difference to successful recovery and adaptation. Competence with technology is also something more complex than the ability to turn dials, read displays and silence alarms. Nurses' roles in using technology competently involves communicating machine's functioning with the client and helping clients to interact more easily with such technology.

CONCLUSION

Rather than assuming that cardiac pacemaker implantation is routine and trouble-free, a poststructuralist perspective has revealed the experience to be complex and emotionally charged. By evoking and presenting a single narrative experience of a medical encounter, health providers are reminded of the tension between what is taken-for-granted by them and what is potentially life changing for the client. The study also highlighted alternative approaches that nurses can make to promote well-being and adaptation. As threshold people, or intermediaries, nurses can facilitate transition by being aware of their attributes and their actions. Sensitivity, patience, empathy and understanding are alternatives to being placatory and efficient. Spending time listening, and asking questions about feelings and emotions are ways of acting that may convey to the client that they are being cared for in their entirety, as human beings. It is argued that technology must be seen as an aid to cardiac care rather than its essence.

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