Original Article

Care vs. care: 'Biomedical' and 'Holistic' Worldviews of Palliative Care

Corresponding author: Dr. Rosemary Frey, School of Nursing, Building 505, 85 Park Road, Grafton, University of Auckland, Auckland New Zealand. Fax: +64 09 367 7158. Email: r.frey@auckland.ac.nz, Tel. +64[09]923-1353

Dr. Lawrence Powell, Centre of Methods and Policy Application in the Social Sciences, University of Auckland, New Zealand Tel+64[09] 8200012 Email: la.powell@auckland.ac.nz

Prof. Merryn Gott, Professor of Health Sciences, School of Nursing, Building 505, 85 Park Road, Grafton, University of Auckland, New Zealand. Tel. +64 9 373 7599 ext 81655 [09]9231655. Email: m.gott@auckland.ac.nz

Abstract

Introduction: Scarce information has been collected regarding how the construct of palliative care is conceptualised from the physicians' perspective.

Aims: The purpose of this research was to explore and describe linguistically-embedded components of the Biomedical and Holistic views of palliative care, drawn from interviews with New Zealand physicians.

Method: This paper reports on data from the first phase of a larger mixed methods study of palliative care management within one acute hospital in New Zealand. Employing data from 7 physicians interviews word-use patterns [in discussing palliative care issues] are explored within the context of one urban hospital, using a combination of multidimensional scaling and linguistic interpretive analysis.

Results: The components of the two worldviews of palliative care are outlined, highlighting the tension that exists between a Holistic worldview focused on social connectedness and - "total care" of a person, and a Biomedical worldview focused on control and mastery of disease. Profiles are constructed of the salient features differentiating Holistic and Bio-medical worldviews.

Conclusion: Physicians who habitually organize their knowledge and perceptions of clinical reality according to each of these two worldviews(bio-medical, holistic), appear to be having distinctly different experiences of their clinical reality – as reflected linguistically in how they describe it.

Keywords: Biomedical, Holistic, palliative, care, worldview

One's own thought is one's world. What a person thinks is what he becomes. -*The Maitri Upanishad*[1]

Across Western developed countries the number of patients with palliative care needs is expected to rise in tandem with the ageing population.[2] In New Zealand, it is estimated that the proportion of the population aged 75+ will increase from 5.6% in 2006 to 10.4% in 2031.[3] A recent New Zealand palliative care needs assessment estimated that 78% of people dying with palliative care needs are aged over 65, with approximately one quarter aged over 85 years.[4] This increased demand for palliative care input has led to a corresponding increased responsibility for palliative care delivery by generalist healthcare professionals. (Generalist palliative care is defined as palliative care provided for those affected by life-limiting illness as an integral part of standard clinical practice by any healthcare professional who is not part of a specialist palliative care team).[5]

In order to address this growing demand, physicians must depend on their previous experience and education. These understandings of appropriate palliative care delivery are in turn shaped by the physicians' worldviews. Previous investigations into physicians' perceptions of palliative care have usually focussed on exploring educational interventions.[6-8], or on testing knowledge.[9-11] There has however been a tendency to ignore the potential impact of how the construct of palliative care is conceptualised from the physician's perspective. The acquisition of knowledge is only one component of practice.-The perspective or worldview from which the physician approaches palliative

care provides the broader interpretive context within which technical knowledge is applied. [15]

In thinking about their social world, physicians have tended to locate themselves along a biomedical-holistic continuum. Empirical studies have repeatedly indicated a distinction between the belief in a bio-medical view of health [focused on treatment and cure] and a holistic view [dealing with total patient care].[12-14] The perspective or worldview from which the physician approaches palliative care impacts on his or her behaviour. Therefore to describe the way that the Holistic and Biomedical   worldview holders understand palliative care is to become aware of how these views shape the practice of medicine.

Research Question and Objectives

The research sought to explore the following question: What are the salient components of these two disparate subjective models of clinical reality (Biomedical, Holistic) as they relate to palliative care delivery? Following from this, the objectives of this research were to explore and describe these linguistically-embedded components of the Biomedical and Holistic views of palliative care, as drawn from interviews with New Zealand physicians.

Definitions

Definitions matter. They shape both understanding and practice. Changes in understandings of what is meant by 'palliative care' over the past thirty years have impacted on both the scope of the tasks performed in the field and the underlying

philosophy. The World Health Organisation's initial definition of palliative care (1990)[16] had stressed the approach's applicability to patients who were no longer responsive to curative therapy. This definition implied that palliative care should be utilised only in the last stages of care. Today there is a greater recognition among practitioners that palliative care should be included as early as possible in a patient's care plan.[17] Yet despite this acknowledgement, conflicting conceptions of the definition and timing of palliative care persist. Billings[18] had observed that variability in definition reflected conflicts among physicians as to the nature of the field, as well as influence from their own training and experience. Research by Hanratty et al.[19], found that for some physicians, conceptions of palliative care are still focused on managing the dying and dealing with quality of life issues. This difficulty in finding a consensus as to a palliative care definition was further highlighted in a qualitative study by McIlfatrick[20] assessing the views of patients, informal carers and healthcare professionals with regard to palliative care need. The results of the study indicated a diversity of opinion in terms of participants' understanding of palliative care.

Worldviews

This research explores differences between Biomedical and Holistic 'worldviews' of palliative care , so it is imperative to clarify what is meant by 'worldview.' Kearney[17] refers to worldviews as "macro thoughts" or what social and cognitive psychologists would call schemas, viz. "subjective theories about how the social world operates."[21, p. 145] They can also be conceived of as 'constructed reality frames', as described in the

work of Goffman [22] and Berger and Luckman.[23] For purposes of the present research, a worldview can be defined as a more or less internally consistent set of orientations to the 'world' of clinical practice—encompassing cognitive, affective, and normative perceptual predispositions—that functions as a cognitive map, or perceptual screen, through which the surrounding clinical reality is then selectively interpreted.[24, p. 119] These perceptual predispositions, comprising the worldview held by a clinician, are likely to impact on his or her practice of healthcare, influencing treatment priorities and choices.

A biomedical worldview has over many decades shaped the practice of medicine in the Western world. In essence, the biomedical worldview can be described as follows:

Its way of thinking is distinctly analytical and rationalistic. Clinical concerns are approached as puzzles to be solved; clinical encounters are treated as occasions for scientific inquiry. Because the object of analysis is the disease and not the patient, symptoms are treated as clues to diagnosis, instead of phenomena that are themselves worthy of treatment.[25, p. 761]

The outcome of such a view is that patients are treated as repositories of disease, dissected into their component parts, and divided among the various subspecialties. In counter position to this, the whole person and their complex interactions and relationships are relegated to a "non-medical" status. As stated by Fox [25, p. 762]:

A cure-oriented physician has no real need to get to know patients, no need to understand their individual values, and no need to explore how illness affects their

lives. In the curative model medical ailments are all separated from the persons who

serve as their host.

The Biomedical worldview thus identifies treatment of various parts with the ultimate

goal of a cure. If success in this model is defined as cure, death is defined as ultimate

failure, to be aggressively avoided at all cost. Patients whose diseases cannot be "cured"

are deemed as "untreatable" or "incurable". Within this worldview 'palliative care' is seen

as the port of last resort for those deemed beyond hope or waiting to die.

The opposing worldview, often referred to as 'Holistic', has in recent decades

increasingly impacted on health discussions, including palliative care delivery.[26, 27]

The Holistic worldview holds a more comprehensive perspective of the responsibilities of

healthcare, going beyond the roles of treatment and cure. Proponents of the Holistic view

seek to deal with the patient's "total" experience of illness, including those aspects that

are not responsive to medical interventions. Whereas disease holds centre stage in the

Biomedical model, that position is reserved for the patient under this view. As stated by

Mino and Lert [28, p. 228]:

Holistic model is as much hermeneutic [interpretive] as it is analytical. Ideally,

understanding total pain thus requires entering the patient's psyche, history, culture,

beliefs, and social relations. This means not only observing but also asking about and

interpreting the meaning of what she or he has lived through.

The management of illness is thus tailored to each person's individual values and

preferences. A specific treatment is applied only if it is considered worthwhile from the

patient's perspective. The relationship between physician and patient is one of a

partnership; it is a relationship between equals. This contrasts sharply with the hierarchical nature of the doctor-patient relationship in the Biomedical model. Under a Holistic approach the definition of palliative care therefore departs from medical-model proponents' understanding of the construct. Palliative care is defined within this worldview as "A programme of active and total care that provides relief from pain and other distressing symptoms, integrates psychological and spiritual aspects of care and offers a support system to help the family cope."[29]

Methods

A purposive sampling technique was used to recruit participants with knowledge about, and experience of, palliative care management within the acute hospital setting. In order to provide a diversity of experience amongst our participants, invitations were directed to physicians with different disciplinary expertise. Invitations to generalist palliative care providers were chosen because they provide the bulk of care to patients with palliative care needs. Ethical approval for the study was gained from the Auckland Region Research Ethics Committee.

Informed consent was gained for in-depth interviews with 7 physicians (6 male, 1 female) involved in generalist palliative care provision within an urban acute hospital. Interviews were conducted at a location determined by the participant, ranged from 30 to 45 minutes and were audio-recorded with participant permission. The participants were asked to explore their views of barriers to and facilitators of good palliative care management within the hospital and district health board. Questions included the participants' definitions of the term palliative care, their perceived role in palliative care

delivery as well as their understandings of a 'good death'. Verbatim transcripts of the interviews were created by an external agency, and the resultant text was analysed in three phases by RF and LP utilising the following procedure:

Phase One. Utilising a mixed methods approach, the analysis of collected interview data involved looking at patterns of palliative care–related linguistic behaviour [word-use frequencies among participants representing the Biomedical-orientation and Holistic types]. These patterns of word-use behaviour were first summarised in multidimensional scaling derived cognitive maps which linked together the ideas and views captured in the two worldviews. Founded in personal construct theory,[30]cognitive mapping techniques (also known as concept mapping) have been utilised in health research.[31, 32]

The utility of multidimensional scaling lies in its ability to give compact representations of shared meaning structures [in this case linguistic symbols] in a manner analogous to that theorised by symbolic interaction and social construction of reality theorists. Multidimensional scaling was thus used to determine if the interview texts could be sorted into two well-defined clusters that bear verisimilitude to the hypothesized worldviews (Biomedical or Holistic).

Based on the results of the multidimensional scaling, the transcripts of the seven in-depth interviews were then sorted into two composite text files, (i.e. Biomedical and Holistic). This was accomplished using the 'compare vocabularies' function of HAMLET,[33] which identifies similarities in vocabulary usage between the texts by generating the percentage of overlaps of words present in the transcript files selected.

HAMLET[33] is a programme designed to provide linguistic content mapping. It "quantifies and visually portrays shared meanings, so that they can be more easily grasped and interpreted by the analyst."[34] Transcript files with similar word usage were then displayed, using multidimensional scaling.

Phase Two. A content analysis of the compiled text material (Biomedical or Holistic) was then accomplished with the HAMLET, [33, 35, 36] which was used to generate two separate lists (one for each worldview type) of words related to palliative care, based on the counts of word frequencies within the two texts. Frequency of use was interpreted as a rough measure of the centrality or salience of a word to each of the two worldviews. The 50 most frequently repeated "non-garbage" words, (excluding articles, conjunctions, etc.), were drawn from the total generated word frequency lists from the two composite text files. Word usage for each participant type was then expressed as a percentage of the total words in this 50-word sample (to normalise across the two subsamples, which had different total word counts).[37]

Phase Three. Text quotes illustrative of both types were selected based on the results of the 50-word sample and multidimensional scaling of the 35 words $\times$ 2 participant-types matrix, in both two and three dimensions, using WORDPROX.[38] WORDPROX utilises non-metric multidimensional scaling, which belongs to a group of techniques within the psychometric tradition of mapping shared meaning. Other techniques within this tradition include: individual differences scaling, correspondence analysis, Q-sort techniques, hierarchical cluster analysis, repertory grid analysis, partial order scalogram and facet analysis, covariance structure analysis, social network analysis

(e.g. UCINET), and linguistic content mapping (e.g. HAMLET).[34, 39] Direct

quotations were then selected to illustrate the themes raised by participants, indicative of

both worldviews. Only limited participant information has been associated with relevant

quotes in order to maintain participant anonymity.

Results

Interviews were conducted with 7 physicians. The majority (6) were of NZ

European ethnicity, while one was Maori. None of the participants reported having

received any formal training in palliative care (see Table 1 for participant characteristics).

Table 1:

Participant Characteristics by Interview Number

Interview Number	Role	Gender	Age	Ethnicity	Time in Current Position	Formal Palliative Care Training
1	consultant geriatrician	Male	50-59	NZ European	11-15 years	none
2	renal physician	Male	40-49	NZ European	6-10 years	none
3	medical oncologist	Male	40-49	Maori/NZ European	0- 5 years	none
4	emergency medicine	Female	40-49	NZ European	6-10 years	none
5	intensivist	Male	50-59	NZ European	11-15 years	none
6	colorectal surgeon	Male	60-69	NZ European	11-15 years	none
7	house officer	Male	20-29	NZ European	0-5 years	none

Phase One. Results of the 'compare vocabularies' HAMLET analysis is visually

portrayed in Figure 1. The results demonstrate the clustering of interview texts

representative of either a 'Holistic' (Interviews 3, 5 & 6) or 'Biomedical' (Interviews 1, 2,

4 & 7) perspective founded upon the percentage of overlaps of words present in the

transcript files. Based on this clustering, composite text files were created from the

individual interview texts for the analyses conducted in Phase Two and Phase Three.
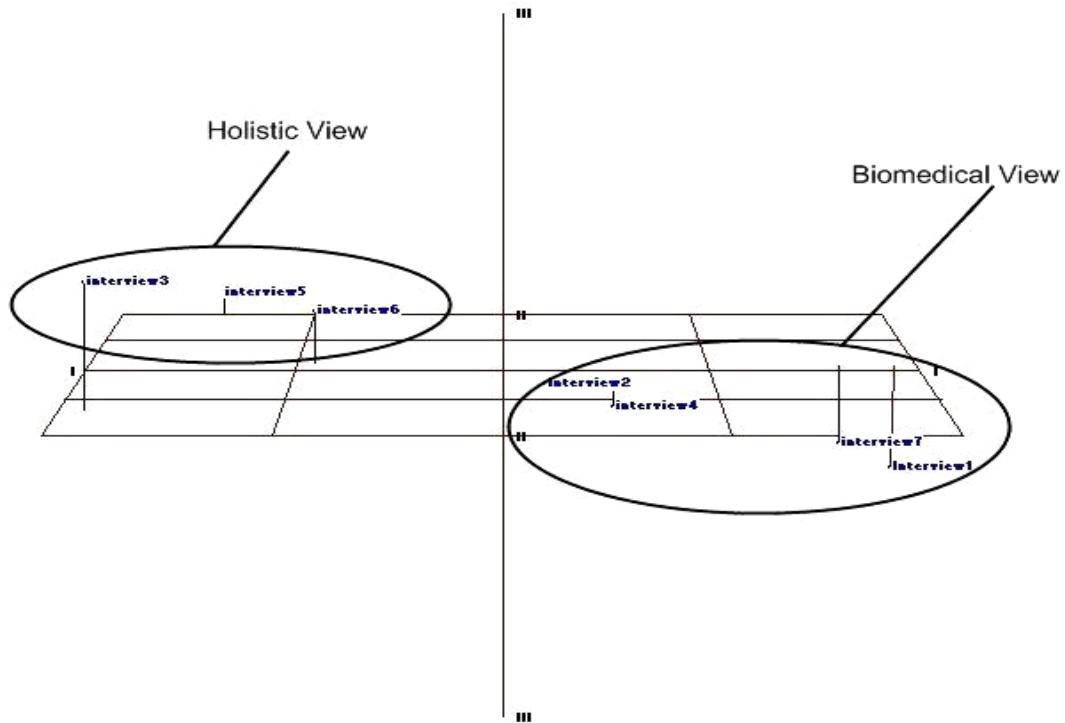
Figure 1. Distribution of interview texts based on similarities in word usage. (HAMLET

Kruskal-Guttman-Lingoes-Roskam smallest space coordinates in three dimensions.

Text	Dimension		
	I	II	III
Interview 1	1.00	.07	-.31
Interview 2	.10	-.28	.00
Interview 3	-.99	-.65	.37
Interview 4	.27	-.40	-.03
Interview 5	-.77	1.05	.07
Interview 6	-.48	.16	.14
Interview 7	.86	.06	-.24

Kruskal's Stress = 0.00081

Phase Two. Results of the linguistic-interpretive analyses are summarised in Table 2 (word usage by participant type) and graphically portrayed in Figures 2 and Figure 3. The latter four figures—which present a multidimensional scaling (Kruskal-Guttman-Lingoes-Roskam smallest space) representation of the words $\times$ 2 participant-types matrix in three dimensions using the WORDPROX program[38] —are particularly instructive in summarising relationships between word-usage patterns and participant type.[40-43]

The clustering of interview keywords in these Euclidean spatial configurations provides a useful overall mapping of linkages between semantic elements constituting the worldviews of those who hold to the Biomedical model, and those who prefer a more Holistic approach to care. The HAMLET and WORDPROX programmes both work by first searching for word co-occurrences and proximities in a text, then summarising these as a map, with each plotted point representing a word's relative location in a condensed two- or three-dimensional Euclidean space.[33,38] Keywords that co-occur frequently within an interview text will therefore appear close together in the mapped Euclidean space, whereas words that are rarely used in the same context will appear far apart on the map, resulting in a 'clustering of perceived similar meanings' effect that is useful in describing the overall global structure of the 'worldview.'

Table 2

Word Usage in Discussing Palliative Care Issues between the Biomedical View and the Holistic View: Composite Texts from Participants in one Urban Hospital in New Zealand (Expressed as Percentages of the Total Words in a 50-Word Sample of the Most Frequently Encountered Words)

Word	Biomedical View	Holistic View	Word	Biomedical View	Holistic View
acute	0.42	0.91	needs	2.11	3.67
always	0.35	0.48	oncology	0.07	0.43
approach	0.07	0.54	organ	0.07	0.54
appropriate	0.56	0.86	other	3.17	1.24
cancer	0.28	0.64	palliative	3.31	3.62
care	8.46	6.86	part	1.55	0.54
change	0.14	0.81	patient*	7.12	5.67
community	0.42	0.64	people	8.74	5.08
conditions	0.07	0.43	person	1.69	1.51
death/dying	3.80	2.21	personal	0.07	0.43
different	1.41	1.40	plan*	0.70	0.70
discussion	0.21	0.75	problem	1.19	0.54
doctor*	1.12	1.35	quality	0.14	0.43
family	3.17	1.45	question	0.07	0.54
home	1.90	0.54	right	0.56	0.86
hospital	3.17	3.51	room	0.77	0.43
illness/disease	0.98	1.02	service*	0.49	0.54
inappropriate	0.28	0.86	surgery	0.14	0.48
intensive	0.28	0.91	symptoms	1.26	0.00
involved	0.35	0.64	team	1.62	0.54
life	1.05	3.24	things	4.16	1.78
many	0.28	0.64	thought	0.63	0.70
medical*	1.12	2.27	treatment	1.33	1.29
mind	0.07	0.43	view	1.48	0.64
multi*	0.07	0.59	ward	0.49	1.29

[a]* Indicates that variants on a word were allowed, e.g. "plan*" would include "plans" and "planning".
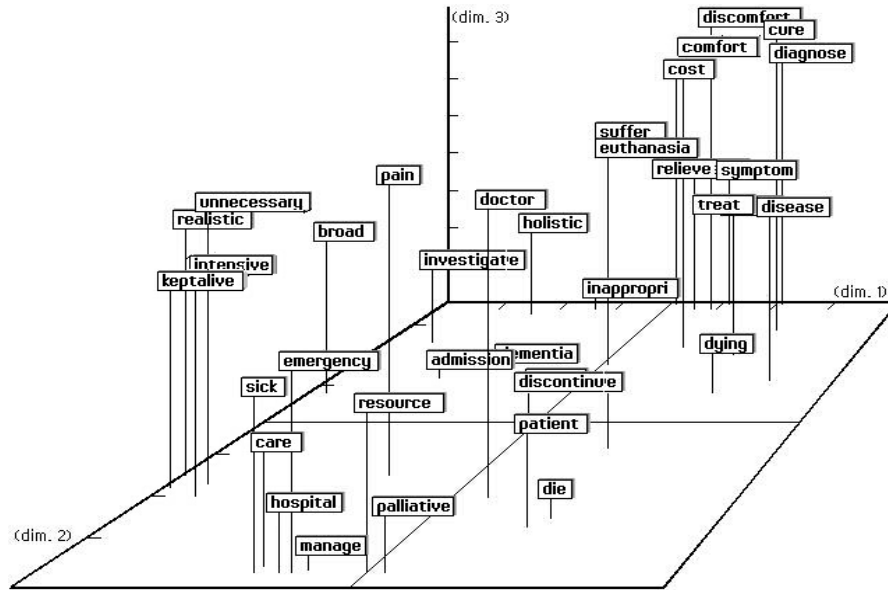
Figure 2. Derived spatial configuration for a Biomedical Worldview participant text (interview no.5), in three dimensions. (35-word sample, WORDPROX Kruskal-Guttman-Lingoes-Roskam smallest space coordinates)

Word	Dimension			Word	Dimension		
	I	**II**	**III**		**I**	**II**	**III**
Holistic	-1.41	-1.66	-0.02	**emergenc**	.97	-1.18	-1.10
broad	-1.47	-1.15	-1.12	**sick**	1.14	-1.04	-.88
comfort	0.41	1.51	-.34	**euthanas**	.88	1.31	.67
pain	- 0.14	.98	-1.05	**symptom**	-.51	.79	1.14
relie*	-1.12	.36	1.10	**die**	.83	.97	.83
suffer	0.76	1.41	-.69	**dying**	.20	.68	1.16
discomfort	-0.76	1.60	.19	**dement**	-1.02	-.97	1.30
realistic	-1.29	-.18	-1.86	**disease**	1.22	.96	-.33
diagnos	-.32	1.50	.13	**manag**	.76	-1.30	.79
cur	1.34	.68	-.85	**unnecessar**	-.98	.15	-1.42
patient	1.20	.20	.14	**waste**	-.54	-.48	1.69
doctor	1.09	-.96	-.86	**discontinu**	-.77	-.34	1.42
hospital	1.02	-1.21	-.22	**keptalive**	-1.23	.06	-1.40
care	.75	.07	-.73	**cost**	-.75	1.36	-.00
palliat	1.44	-.53	.82	**resource**	1.64	-.82	.02
treat	.29	.45	.86	**inappropriate**	-.90	-.98	1.51
investigat	-1.13	-.61	.36	**admission**	-.64	-1.42	.42
intensiv	-.91	-.21	-1.71				

Kruskal's Stress = 0.19

As one can see from the Table 2 and associated Figure 2 , physicians holding a worldview consistent with the Biomedical worldview had a tendency to use terms related to death, illness, disease and medical treatments, in comparison to those who held a more Holistic view (Figure 3). The Biomedical worldview participants also included terms related to failure and symptom management. These terms were not commonly found among the Holistic participants, who were more focused on themes of life, the social world, and a multidisciplinary approach to care (Figure 3).
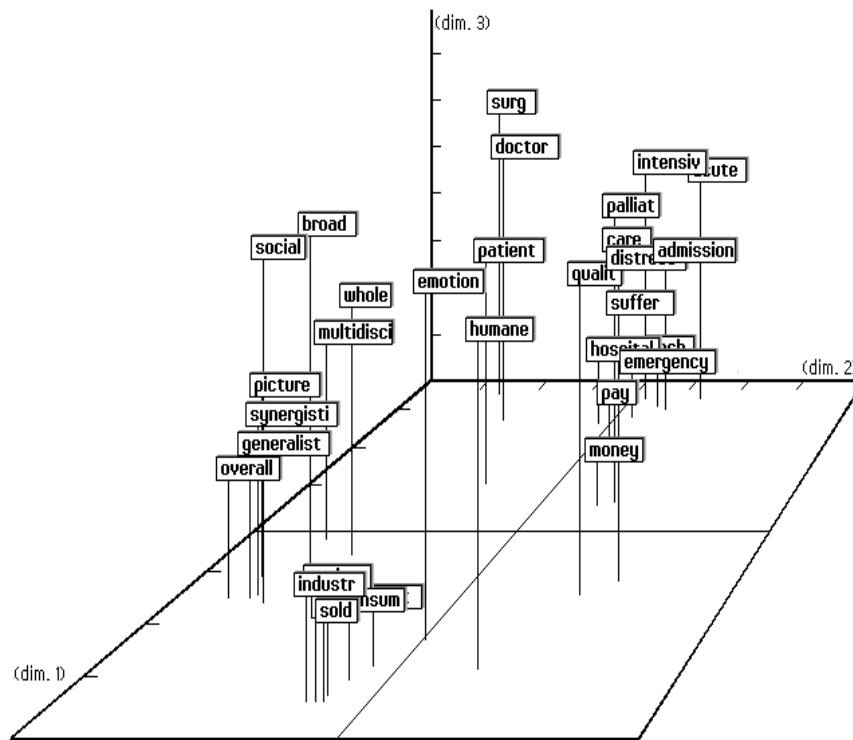
Figure 3 Multidimensional scaling representation of Holistic Worldview participant text in three dimensions with coordinates

Word	Dimension			Word	Dimension		
	1	2	3		1	2	3
broad	1.363	.1883	.9528	profit	-1.462	1.3853	-.2966
overall	-.571	.4381	-1.8504	consum	-1.383	1.4635	-.2056
whole	.604	-.0135	-.6738	bill	-.851	1.2763	-.0954
social	1.483	.4541	-1.5934	money	-1.627	-.8203	-1.4374
emotion	1.586	1.0151	1.4194	market	-.56	1.172	-.1509
multidiscipl	.14	.1003	.7386	industr	-.633	1.2045	-.1698
care	.52	-.2366	.6692.	sold	-.932	1.2243	-.1823
qualit	1.198	.5088	1.3233	tech	-1.161	-1.5544	-.5048
distress	.959	.2175	1.2747	acute	.353	-1.1764	.7568
humane	1.349	1.0857	1.4581	hospital	-1.045	-1.4727	-.3143
suffer	.774	.3491.	1.1784	doctor	.766	-1.2808	.7853
palliat	.952	.0471	1.138	admission	-.283	-1.164	-.1749
patient	.37	-.379	.2963	intensiv	.43	-1.1881	.5123
generalist	-.304	.3386	-1.3618	emergency	-1.237	-1.4146	-.6759
synergistic	-.077	.3248	-1.302.	surg	.915	-1.1306	.8847
picture	.019	.3215	-1.4941	pay	-1.656	-1.284	-.9043

Holistic View: Kruskal-Guttman-Lingoes-Roskam smallest space coordinates in three dimensions Kruskal's Stress = 0.17

Phase Three. What follows is a further interpretive analysis of predominant themes comprising the respective worldviews, based on frequently-used terms related to both the Biomedical and Holistic types as identified in the earlier multidimensional scaling analyses:

Definitions of Palliative Care

In the first instance, the definitions of palliative care differed dramatically. Physicians from the biomedical perspective tended to see palliative care as equivalent to end of life care. From this perspective, end-of-life care constitutes the whole of what palliative care deals with rather than denoting the final stage of care for a patient with a life-limiting illness.

Palliative care is care for the patient whose disease is not curable, so the patient will die from the results of the disease and it's futile to attempt or to have the illusion of fixing that particular problem. (Interview 1 – Biomedical)

In contrast, physicians from the Holistic perspective saw palliative care as applicable across the spectrum of care. It should be utilised simultaneously as an on-going component of care, and not restricted to comfort care when curative treatments have been discontinued.

You use those words end of life or palliative and it immediately brings up in people's minds that this is the end of their life. No, it's not the end of their life –

Well that's the paradigm which people have, I think, become constrained to by the use of these words, that these two issues are temporarily separated. That we have treatment and then we have, uh-oh, it's all failing, the patient's dying, now let's have

palliation or end of life...And therefore if you think of something which needs to go on

simultaneously with active treatment, you can see why I think it's inappropriate to use

the words palliative or end of life. Especially when in fact most of those patients to

whom those needs are equally important as the dying patients, need to have them

applied to them...I'm afraid that the DHB and the researchers in this endeavour can fall

into the trap of circumscribing palliative care needs to only be present in patients with

a dying trajectory recognised by somebody. That is, in my view, an inappropriate

paradigm to identify the patient care needs under discussion. They are much broader

than that (Interview 5 – Holistic)

Therefore the two views differ in whether palliative care should be a separate

(Biomedical) or an integral component (Holistic) of treatment. . As voiced by the

participant from the Biomedical perspective, palliative care is not part of his job

description. In this view palliative and curative care are separate non-interacting spheres

of treatment.

And then if it's got a particularly complicated medical part to it, then I would ring one

of the palliative care physicians and explain or hand over that part of it, and if it's not a

particularly medically complicated one then the nurse specialist I work with would

ring the palliative care nurse specialist and do the handover that way (Interview 7 –

Biomedical)

In contrast, for the participant holding the Holistic view, curative and palliative

therapies are seen as part of a multidisciplinary approach to care. Life-prolonging

therapies are utilised in combination with palliative interventions to promote not only

physical but comfort-focussed care. From this perspective there is no dichotomy

between curative and palliative treatment.

Palliative care is about symptomatic care and it's about holistic ~~and symptomatic~~ care.~~-~~
They [physicians] need to integrate themselves, and I know they're keen to, but I think

they need much more integration into the whole patient journey and the multi-

disciplinary approach to the management of patients (Interview 6 –Holistic)

Life and Death

Significantly, participants holding a Biomedical view more frequently made

reference to death and dying, whereas the Holistic view participants more often made

reference to life. The introduction of palliative care is synonymous with death and dying.

We stop people dying of vascular deaths and then they go on and die of worse things

really. I mean there's something not too bad about a big heart attack or a big stroke that

kills you relatively quickly rather than dragging it out and having a slow painful cancer

death. I mean it's much worse. It's a much worse way to go. (Interview 1 –Biomedical)

From the perspective of the Holistic participant on the other hand, the delivery of

palliative care is focused on need rather than prognosis. The use of palliative care as part

of a treatment plan is not an indicator of impending death. Palliative care is seen as a

component of the care for persons with chronic conditions as well as those patients at the end of life.

A lot of patients who might be thought of as having conditions that are likely to be acutely life threatening will recover despite our gloomy predictions. A lot of patients with what we might have thought of as inexorably fatal malignant conditions often live for many, many years in good health whilst receiving intensive treatments of various kinds. (Interview 5 – Holistic)

Treatment

The idea of the physicians' role differed sharply. For participants from the Biomedical perspective, the prevailing attitude is one that promotes a need for aggressive treatment. Thus social and psychological aspects of care are ignored.

We're trained to investigate and treat so we do. That's what we're good at

(Interview 1 – Biomedical)

In contrast the view of Holistic participants reflected the view that 'fixing' the patient was not the be all and end all of care. In such a view, diagnosis and treatment are not predetermined goals. Any treatment should take into account the patient's context and goals of care. A Holistic participant contrasts this view with, the curative focus of the Biomedical approach to care, which assumes not only that diagnosis and treatment are possible, but also that they are required.

There is a certain sort of technology imperative that is developed in modern medicine, which says 'somebody's acutely ill, let's take them to an ER'. As soon as they're

there, 'oh my God, they must have everything done'...Once you're in the emergency room the YUHAFTI syndrome starts – you have to do everything... But in fact whether you can or can't fix it is irrelevant to whether or not you should or should not fix it. And that moral question is never considered; it's just the simple technological fix question, which is considered by my acute practitioners these days, with a few exceptions in palliative medicine, intensive care medicine. (Interview 5 – Holistic)

Another Holistic participant challenges the assumption of the Biomedical approach that curative care is always best. From the Holistic perspective a specific treatment is considered as appropriate only if it is worthwhile from the patient's perspective.

So I think the way that this kind of dilemma usually plays out is there is a presumption at the hospital that people will want more care, but then there is a responsibility for the providers of care in the hospital to check at each point. (Interview 3 – Holistic)

Related to this theme is the equating of palliative care within the Biomedical view as an alternative to medical treatment rather than a component of an on-going care plan. From this perspective palliative care equates to end-of-life care.

So it's related to symptoms of pain, other forms of suffering, other physical ailments relating to the disease and about clear communication and setting goals as to what's being achieved and what's being done and what's not being done. So it's aimed at the patient's care and comfort with the expectation that that patient will die. No. I think

they [palliative care and end-of-life care] mean the same thing to me. (Interview 7 –

Biomedical)

In contrast, for Holistic physicians the goals of palliative care extend beyond symptom

control to other needs. Indeed palliative care is seen as a part of a total treatment plan

rather than an alternative to a curative treatment plan.

This patient has needs other than those of the reversibility of an acute life-threatening

illness. They need to be recognised and addressed irrespective of whether or not the

patient is going to die in this admission or in the near future...or indeed whether or not

their lifespan is not going to be affected by this illness. And they need to be applied...I

mean services need to be applied to those needs irrespective of those projected

outcomes. (Interview 5 – Holistic)

Between "care" and "caring"

Although the word ''care" is used frequently by both perspectives, the meaning of the

term varies. Within the Biomedical model the word care is confined to a clinical meaning

directed at symptom management, whereas in the Holistic perspective it is used more

broadly.-

So we would try to set that up beforehand, so I guess that's end of life care-planning or

advanced care planning and then the actual active palliative part might be much later

down the line (Interview 2 – Biomedical)

In contrast from the Holistic perspective caring is defined not only in terms of the

treatment of disease but more generally as the management of the patient's overall 'well-

being'. As Interviewee 6 explains, 'caring' requires the physician to be informed about the 'whole' context of the patient's life.

> [A]whole new dimension that must focus on their personal needs as a person.
>
> I do by virtue of being a doctor.   I know this sounds a bit grandiose but I work on the adage that the, you have to have, or at least attempt, albeit imperfectly, a Holistic approach to patient care . . . Therefore you have to get involved in matters of the nuances of illness as being a threat to their survival and as a threat to their wellbeing and quality of life, and you have to acknowledge those things and maybe address that.
>
> (Interview 6 – Holistic)

The appropriateness of treatment was also discussed. The two worldviews varied sharply as to who was responsible for making the decision as to the appropriateness of care. Within the Biomedical view the patient is held responsible for inappropriate treatment due to personal choice or a failure to plan. Speaking of a particular patient who routinely presented at the Emergency Department a participant from the Biomedical perspective stated:

> So she clearly was not going to go ever to a hospice because she just was going to turn up in our emergency department, which she continues to do. And so that sort of person is inappropriate from the point of view that she's not getting the best care, but it's appropriate from the point of view of that's how she wants to deal with it. And then there'll be other people who come inappropriately because there's not a plan sorted out because it hasn't been addressed by their teams, and a lot of people are in that situation. (Interview 2 – Biomedical)

In contrast within the Holistic view appropriateness is the responsibility of the physician. The respondent questions the motivations of physicians and whether the practice is actually consistent with patient preference. In other words, treatment decisions are driven more by the idea of what is technically possible rather than by what is best for the patient.

> Well I suppose it's not so much that the interventions themselves aren't appropriate, it's that the interventions in those patients are inappropriate. So those interventions are often offered to people who are younger and don't have co-morbid states and have acutely reversible conditions with a high-expected benefit from that intervention. So gee, we've learnt we can do that with those people, let's just do it to everybody now (Interview 3 – Holistic)

Another Holistic participant went further to attribute the rise in inappropriate interventions to a "consumer culture' which has led to a de-professionalization of the physician.[44] The value-guided conduct of the physician to serve the best interests of his/her patient is thus undermined.[45]

> So what's lost is both honesty and what I call professional leadership. Doctors are very reluctant to give appropriate professional recommendations anymore. 'Oh I don't do that, I just lay out the options like an a la carte menu and then you tick, do you want the fries, do you want the garam masala, and whatever you like. You pick, I'll just do it.' (Interview 5 – Holistic)

Death in the Open

The two viewpoints also contrasted sharply as to the appropriateness of the hospital setting for providing end-of-life care. From the Biomedical perspective, the hospital should not deal with persons who are dying. The ethic of a 'hidden death" has been studied in other healthcare facilities. For example, previous research by Koramony[46] examined the institutional practices supporting a hidden death in aged care facilities including the removal of the dying person to a single room and the surrounding of the bed by screens.

Hidden death

Oh I think that that's definitely true from the point of view that the hospital doesn't provide the best treatment for those people. .. I'm sure that if people have decided that they don't want to have an active interventional sort of treatment then the best place is not the hospital because we don't do that well at all (Interview 2 – Biomedical)

In this perspective death is treated as an anomaly, and should therefore be segregated from the normal life of the hospital.

And there are simple things, like if somebody is dying they should be able to go to a side room (Interview 4 – Biomedical)

Death is normal

In contrast, for participants from the Holistic viewpoint, death in the hospital setting is appropriate, a normal part of experience. Regardless of technological advances, the reality of death has not changed. The 'death denying' nature of Western society has implications

for health professionals who must face this reality [47] According to this holistic

participant, the stress and concerns of health professionals can best be alleviated by

'mainstreaming' the process.

> It used to be possible when I was a junior medical staff person here in the 70s to
>
> die in a medical ward or a surgical ward without that death causing panic and
>
> distress amongst the staff... If those patients had care needs which at the time
>
> could not be managed outside of hospital, they would be quite well managed in
>
> the surgical ward. Patients would stay there for weeks, the room would become
>
> like their home, they'd have their own quilts and their own furnishings and their
>
> own photos and their own routine and as much as possible people tried to
>
> normalise their hospital experience and cared for them in a non-intervention way
>
> while they died. (Interview 6 – Holistic)

For physicians steeped in a worldview where cure is the ultimate goal, death is the

ultimate failure, which must be forestalled at all costs. As Interviewee 6 explains

> .. so when it does happen it's a disaster. 'Oh my God, somebody's dying, I have no
>
> idea what to do with somebody who's dying. Better call the ICU, better call the code
>
> red team, better call an emergency team, better escalate their treatment in some ways
>
> to stop them from dying. Or call someone else and take them off our hands or put
>
> them in a hospice somewhere or get rid of them. But they can't be part of this acute
>
> hospital'... And if it can't then at least let's remove the death and dying from any
>
> visible place and put it somewhere else looked after by specialists and death and dying
>
> teams so that we don't actually have to have it as part of the medical mainstream

(Interview 6 – Holistic)

Needs

Finally, there was also a focus within the Biomedical worldview ~~is~~ on the disease process.
Patients are often seen within the biomedical paradigm as merely hosts for diseases which
must be treated, and symptoms are merely clues to a diagnosis leading to an effective
treatment plan.

In contrast, the Holistic view sees treatment of the disease as one component of the
person's needs. Treatment from this perspective is comprehensive, encompassing not
only the physical but also psychological, social, cultural, ethical, and spiritual concerns of
the patient.

> Treatment of the whole person …the doctor has to bring not just their technical skills
> but they must bring humanity to that person as a human being. Therefore you have to
> get involved in matters of the nuances of illness as being a threat to their survival and
> as a threat to their wellbeing and quality of life, and you have to acknowledge those
> things and maybe address that. Every doctor has to do that, I think. So you're in
> palliative care whether you like it or not (Interview 6 – Holistic)

Shifting paradigms

A shift in paradigm would require of the physician a much broader consideration of
factors that impact on health and wellbeing, which would in turn require a greater

investment of time and additional education on the part of the physician. Within the current medical system, time is money. A Holistic participant voiced the following criticism of the current system:

Honesty and communication is part of what's missing…Doctors are very reluctant to give appropriate professional recommendations anymore. Oh I don't do that, I just lay out the options like an a la carte menu and then you tick. [It's about] resource allocation…And if an item is reimbursable, then it's an appropriate way to spend time. If an item such as family discussion, end of life care family discussion, might take 45 minutes of a patient care interview, well during that 45 minutes I could've done three 15-minute billable procedures. (Interview 5 – Holistic)

In terms of further knowledge acquisition, a Biomedical-view participant concurred that although desirable, both financial and time restrictions prevented further training.

I mean I'd like to have lots of training in lots of different areas but it's the practical issue of can I do it. I'd like to know about the resources but I probably don't want to spend a lot of time doing it. I mean I have to do my own job. (Interview 1 – Biomedical)

Discussion

The results of this study show that physicians who habitually organised their knowledge and perceptions of clinical reality according to each of these two worldviews (bio-medical, holistic), appeared to be having quite distinctly different experiences of their clinical reality – as reflected linguistically in how they describe it. As we have seen, this can be operationalized and demonstrated empirically in terms of their habitual tendency

to utilise different words and word combinations in describing that reality. The overall pattern found in the cognitive maps, in particular, appears radically different for the biomedical and holistic types, reflecting the differential word-use frequencies and clusterings of word patterns when they describe their clinical interactions with palliative care patients. The interpretive analysis of recurrent themes and phrasings provides further corroboration of this bifurcation in worldviews.

Though the The holistic view of health care has existed within the knowledge base of the medical profession since the time of Hippocrates it remains to be adequately integrated into palliative care. Plato, for example, had viewed health as an integration of the body and the soul. From this perspective "cure of the body without cure of the soul is not a whole cure." [48] In modern times, the psychosocial model developed by George Engel [49] has been successfully applied internationally to understand disease and its causes, and improve public health as well as doctor-patient relationships. As stated by Sulmasy[50, p. 25] the model:

> …Placed the patient squarely within a nexus that included the affective and other psychological states of that patient as a human person, as well as the significant interpersonal relationships that surround that person.

However, as illustrated by the results of our study, despite some shifts in view, a reluctance to adopt a more Holistic view of healthcare still persists among many physicians. These results are supported by a recent study conducted by Gott et al.[51, p. 7] in both England and New Zealand, which found that:

Participants working in generalist palliative care settings still equated 'palliative care' with 'terminal care', despite the fact that in both countries, the much more wide ranging WHO definition has been adopted for over a decade.

There are- several possible explanations for this reluctance. In the first instance, while the Holistic worldview considers the "whole person" including their social, psychological and spiritual needs as well as the interrelationships of these factors, the medical worldview has achieved its greatest successes by reductionism, considering not the human being in relationship but from a distance, separated into individual systems and organs to be examined.   Through such a process advances have been made in understandings that have had tremendous impact on human health and wellbeing. At the level of the individual, among those participants from a Biomedical view, this was reflected in their understanding of their role as physicians. For these participants, there appeared to be a shifting of palliative care to the responsibility of others within the hospital setting. In other words, palliative care was not part of their job description; it was the role of the palliative care 'team'. Biomedical view participants saw their duties to sit squarely within the realm of curative medicine.   There appeared to be a fundamental lack of acceptance that palliative care is a component of their work.[51] Such an 'inconvenient truth' would also have more immediate implications in terms of practice. A shift in paradigm would require of the physician a much broader consideration of factors that impact on health and wellbeing, which would in turn require a greater investment of time and additional education on the part of the physician. Within the current medical system, time is money. Ultimately then, a shift in paradigm requires

greater effort not only at the level of the individual physician, but at the level of

healthcare systems. A review of the international literature has demonstrated the positive

impact of education in palliative care on health providers' knowledge; attitudes and

practice.[52-55] As recommended by Alonso,[56] hospitals also need to provide a

context and resources, such as additional communication training, appropriate settings as

well as personnel to facilitate the adoption of a more Holistic approach to medical

practice.

   Despite these challenges, our research has provided evidence that this shift to a more

Holistic view of medicine is possible. The goal therefore would be in extending this view

beyond the few, to the many. To successfully adapt to all the needs of the patient as

person, a broadening of perspective is required.

As Sulmasy[50, p. 25] stated:

   To hold together in one and the same medical act both the reductivist scientific truths

   that are so beneficial and also the larger truths about the patient as a human person is

   the really enormous challenge health care faces today.

Future Research

       The themes outlined above offer some limited insights into the physicians'

contrasting subjective understandings of 'palliative care'. They also raise interesting

issues for further research into the possible effects of these preconceptions. However,

given our small sample size we acknowledge that our participants' views may not be

typical of physicians across New Zealand, or at the hospital under study for that matter.

The degree to which the views recorded actually provide an accurate picture of

physicians' worldviews remains unknown, and the use of standard definitions by some

participants to define palliative care might reflect merely a rote voicing of accepted

norms.

While some participants embraced a more Holistic approach to palliative care, those

holding a Biomedical view displayed attitudes, which could potentially create barriers to

effective palliative care delivery. As indicated in the text from the Biomedical view

example, the 'failure' of death was mentioned, as was an overall negative focus on death

and dying within palliative care. Attitudes, beliefs, and self-perceptions underpin

behaviour, and thus practice. Therefore the worldview held by a physician may either

support, or create barriers to, Holistic care. Our results suggest that a greater emphasis on

Holistic care within educational strategies might be of value. However the current study

is limited to the views of physicians practicing within an acute care setting. It would be

beneficial to also examine the views of general practitioners in the same manner as Gott

et al.[51], but on a larger scale. Challenging old attitudes and beliefs to the role of the

physician is a long-term project. In addition, other health professionals [e.g. nurse

practitioners, radiotherapists, and respiratory therapists] also intensively deal with

patients with palliative care needs. Future research should also explore how these

healthcare professionals view palliative care. Finally, evaluative research into the best

approaches to professional behavioural change with regard to palliative care would be

beneficial.

In this paper we have explored the Biomedical and Holistic worldviews of

palliative care. As the world's population ages, the need for the care of patients with

chronic conditions also rises.[2] In today's world holistic care is increasingly important in meeting the psychological, spiritual and environmental needs of patients. For patients with chronic conditions in particular, the harmful effects of an adherence to the traditional either/or model of curative and comfort care could be significant. Thus as the needs of the patient population change so too must the views of physicians. Longino [57, p. 19] speaking about the importance of whole person care stated: "By limiting your view to the disease state, you are missing the other factors in the story. Until you understand this, you may be able to get a patient out of the hospital, but you cannot keep him out for very long." Thus, curative and comfort care are not two ends of a spectrum but rather two vital components of a Holistic approach that best reflects the wishes of the individual patient.

Authorship: All research contained herein was conducted by the authors.

Word count: 6700

References

[1]   Cowell E.B. *The Maitri or Maitrāṇīya Upanishad*. Calcutta: The Asiatic Society of Bengal; re-issue1935 [tr].

[2]   Gomes J, Cohen J, Deliens L, et a. International trends in circumstances of death and dying amongst older people. In: Gott M, Ingleton C, editors. *Living with Ageing and Dying: Palliative and End of Life Care for Older People*. Oxford: Oxford University Press; 2011.

[3]   Statistics NZ. *Subnational population projections 2006* [base] - 2031. Wellington: Statistics New Zealand; 2010 [cited 31 August 2012]. Available from: http://www.stats.govt.nz/methods_and_services/information-releases/subnational-population-estimates.aspx.

[4]   Ministry of Health. *Advance care planning: a guide for the New Zealand health care workforce.* Wellington: MOH; 2011.

[5]   Ministry of Health. *The New Zealand palliative care strategy*. Wellington, NZ: Ministry of Health; 2001.

[6]   Mulder S, Bleijenberg G, Verhagen S, Stuyt P, Schijven M, Tack C. Improved competence after a palliative care course for internal medicine residents. *Palliative Medicine*. 2009;**23**:360-8.

[7]   Pereira J, Palacios M, Collin T, Wedel R, Galloway L, Murray A, et al. The impact of a

        hybrid online and classroom-based course on palliative care competencies of family

        medicine residents. Palliative Medicine. 2008;**22**[8]:929–37.

[8]   Wilkinson S, Perry R, Blanchard K, Linselll L. Effectiveness of a three-day

        communication skill course in changing nurses' communication skills with

        cancer/palliative care patients: a randomised controlled trial. *Palliative Medicine*.

        2008;**22**[4]:365–575.

[9]   Becker G, Momm F, Wagner B, Baumgartner J. Competency and educational needs in

        palliative care. *Middle European Journal of Medicine*. 2007;**119**[3-4]:112–6. .

[10]   Burge F, McIntyre P, Kaufman D, Cummings I, Frager G, Pollett P. Family medicine

        residents' knowledge and attitudes about end-of-life care. *Journal of Palliative Care*.

        2000;**16**[3]:5–12.

[11]   Slatten K, Fagerstrom L, Hatlevik O. Clinical competence in palliative nursing in

        Norway: the importance of good care routines. *International Journal of Palliative*

        Nursing 2010;**16**[2]:80–6. .

[12]   Bjorkland A, Svensson T, S R. Holistic and Biomedical concepts of health: A study of

        health notions among Swedish occupational therapists and a suggestion for developing an

        instrument for comparative studies. *Scandinavian Journal of Occupational Therapy*.

        2004;**13**[3]:141-50.

[13]   Berg G.V., Hedelin B, Sarvimaki A. A Holistic approach to the promotion of older

        hospital patients' health. *International Nursing Review*. 2005;**52**:73-80.

[14]   Choowattanapakorn T, Nay R, Fetherstonhaugh D. Nursing older people in Thailand: Embryonic Holistic rhetoric and the Biomedical reality of practice. *Geriatric Nursing*. 2004;**25**[1]:17-23.

[15]   Kearny M. *Worldview*. Novato, California: Chandler & Sharp; 1984.

[16]   World Health Organization. *Cancer pain relief and palliative care*. Geneva Switzerland: World Health Organization; 1990.

[17]   Sepulveda C, Marlin A, Yoshida T, A. U. Palliative care: the World Health Organization's global perspective. *Pain and Symptom Management*. 2002;**24**:91-6.

[18]   Billings J. What is palliative care? *Journal of Palliative Medicine*. 1998;**1**[1]:73-81.

[19]   Hanratty B, Hibbert D, Mair F, May C, Ward C, Corcoran G, et al. Doctors' understanding of palliative care. *Palliative Medicine*. 2006;**20**[5]:493-7.

[20]   McIlfatrick S. Assessing palliative care needs: Views of patients, informal carers and healthcare professionals. *Journal of Advanced Nursing*. 2007;**57**[1]:77– 86.

[21]   Markus H, Zajonc R. The cognitive perspective in social psychology. In: Lindsey G, Anderson E, editors. *Handbook of Social Psychology* [Vol 1] New York: Random House; 1985. p. 137-230.

[22] Goffman E. (1974). *Frame analysis: An essay on the organization of experience.* Cambridge,MA: Harvard University Press.

[23] Berger P.,& Luckmann T. (1967*). The social construction of reality: A treatise on the sociology of knowledge*. London:Penguin.

[24]   Frey R, Powell L. Beyond left-right ideology in the study of justice perception: Interdependent and independent distributive worldviews in Jamaica and New Zealand *Journal of Cross Cultural Psychology* 2005;**36**[1]:117-46.

[25]   Fox E. Predominance of the curative model of medical care: A residual problem. *Journal of the American Medical Association* 1997;**278**[9]:761-3.

[26]   Boyd K, Murray SA, Kendall M, Worth A, Benton TF, Clausen H. Living with advanced heart failure: a prospective, community based study of patients and their carers. *European Journal of Heart Failure*. 2004;**6**:585-91.

[27]   Hanratty B, Hibbert D, Mair F, Ward C, Capewell S, Litva A. Doctors' perceptions of palliative care for heart failure: focus group study. *BMJ*. 2002;**325**:581-5.

[28]   Mino J, Lert F. Beyond the Biomedical model: Palliative care and it's Holistic model. *HEC Forum*. 2005;**17**[3]:227-36.

[29]   Nottingham Health Authority. *Service Specification: Specialist Palliative Care to Nursing Homes.* Nottingham: Nottingham Health Authority; 1994.

[30]   Kelly G. *The Psychology of Personal Constructs*. New York: Norton; 1995.

[31]   All A, Huycke L, Fisher M. Instructional Tools for Nursing Education: CONCEPT MAPS. *Nurse Education Perspectives* 2003;**24**[6]:311-17.

[32]   Trochim W, Kane M. Concept mapping: an introduction to structured conceptualizaton in health care. *Journal for Quality in Health Care*. 2005;**17**[3]:187-91.

[33]   Brier A. *Analysis of joint frequencies of words in a text*. Southampton.UK: University Computing Service.; 2003.

[34]   Powell L. Two- and three-dimensional fairness representations in perceptual space justice

judgments as complex psycho-cultural constructions: An equity-based heuristic for

mapping. *Journal of Cross-Cultural Psychology* 2005;**36**[1]:48-73.

[35]   Brier A. A Pascal Program to Count Joint Frequencies of Words in a Text. *Siegener*

Periodicum für internationale empirische Sozialwissenschaft. 1985;**4**:177 96.

[36]   Brier A. Natural language processing and the analysis of structure. *European Political*

Data Newsletter. 1988;**68**:39-53.

[37]   Lingoes JC, Roskam EE, Borg I. *Geometric representation of relational data*. Ann Arbor,

MI: Mathesis Press.; 1979.

[38]   Powell L. WORDPROX: *A program for multidimensional analysis and spatial*

representation of word proximity patterns in text. [computer software]. Auckland:

University of Auckland; 2011.

[39]   Ashby FG. *Multidimensional models of perception and cognition*. Mahwah, NJ: Erlbaum;

1992.

[40]   Coombs C. *A Theory of Data*. . Ann Arbor, MI: Mathesis Press.; 1964.

[41]   Guttman L. A general nonmetric technique for finding the smallest coordinate space for a

configuration of points. *Psychometrika*. 1968;**33**:469-506.

[42]   Kruskal JB. Multidimensional scaling by optimizing goodness of fit to a non-metric

hypothesis. *Psychometrika*. 1964;**29**:1-27.

[43]   Roskam EE, Lingoes JC. MINISSA-1: A FORTRAN program for the smallest space

analysis of square symmetric matrices. *Behavioral Sciences*. 1970;**15**:204-5.

[44]   Starr P. *The social transformation of American medicine*. New York: Basic Books; 1982.

[45]   Ritzer G, Walczak D. Rationalization and deprofessionalization of physicians. *Social Forces.* 1988;**67**[1-22].

[46]   Koramony C. The sight and sound of death: The management of dead bodies in residential and nursing homes for older people. *Mortality* 2000;**5**[3]:299-315.

[47]   McConnell S, Moules N, McCaffrey G, Bouchal S. The hidden nature of death and grief. *Journal of Applied Hermeneutics*. 2012;**11**:1-7.

[48]   Stempsey W. Plato and Holistic medicine. *Medicine, Health Care, and Philosophy*. 2001;**4**[2].

[49]   Engle G. The need for a new medical model: A challenge for biomedicine. *Science*. 1977;**196**[4286]:129 –36.

[50]   Sulmasy D. A biopsychosocial-spiritual model for the care of patients at the end of life. *The Gerontologist*. 2002;**42**[3]:24-33.

[51]   Gott M, Seymour J, Ingleton C, Gardiner C, Bellamy G. 'That's part of everybody's job: The perspectives of health care staff in England and New Zealand on the meaning and remit of palliative care. *Palliative Medicine*. 2011;**26**[3]:232-41.

[52]   Back A, Arnold R, Baile W, Fryer-Edwards K, Alexander S, Barley G, et al. Efficacy of communication skills training for giving bad news and discussing transitions to palliative care. *Archive of Internal Medicine*. 2007;**167**[5]:453-60.

[53]   Bauwens S, Distelmans W, Storme G, Kaufman L. Attitudes and knowledge about cancer pain in Flanders.The educational effect of workshops regarding pain and symptom control. *Palliative Medicine*. 2001;**15**[3].

[54]   Kenny L. Education in palliative care: Making a difference to practice? *International Journal of Palliative Nursing.* 2001;**7**[8]:401-7.

[55]   Wilkinson S, Bailey K, Aldridge J, Roberts A. A longitudinal evaluation of a communication skills program. *Palliative Medicine*. 1999;**13**[4]:341-48.

[56]   Alonso Y. The biopsychosocial model in medical research: the evolution of the health concept over the last two decades. *Patient Education and Counseling.* 2004;**53**[2]:239-44.

[57]   Longino C. Beyond the body: an emerging medical paradigm. *American Demographics*. 1997;**19**[12]:14-9.