

Healthcare professionals' online use of Violence metaphors for care at the end of life in the US: A corpus-based comparison with the UK

Abstract

The use of Violence metaphors in healthcare has long been criticised as detrimental to patients. Recent work (Demmen et al., 2015; Semino et al., 2015) has combined qualitative analysis with corpus-based quantitative methods to analyse the frequency and variety of Violence metaphors in the language of UK-based patients, family carers, and healthcare professionals talking about cancer and/or end-of-life care. A new, 250,324-word corpus of US health professionals' online discourse has been collected to add a contrastive, cross-cultural element to the study of metaphors in end-of-life care. In this work, we move towards a replicable method for comparing frequency and type of Violence metaphors in UK and US contexts by making use of both search-and-recall and key semantic tag analysis in the corpus query tool Wmatrix. First, we discuss the most overused and underused semantic domains in the US corpus as compared with the pre-existing UK corpus of online healthcare professional discourse. Second, we show that there are no notable frequency differences in the occurrence of Violence metaphors in the two corpora, but we point out some differences in the topics that these metaphors are used to discuss. Third, we introduce a novel framework for analysing agency in Violence metaphors and apply it to the US corpus. This reveals the variety of relationships, concerns and challenges that these metaphors can express. Throughout, we relate our findings to the different US and UK cultural and institutional contexts, and reflect on the methodological implications of our approach for corpus-based metaphor analysis.

Key words: metaphor, corpus linguistics, semantic annotation, end-of-life care, palliative care, hospice care, computer-mediated communication

1 Introduction

In this paper we present a quantitative and qualitative analysis of the 'Violence' metaphors used by US-based healthcare professionals writing online about palliative and hospice care at the end of life. We apply an innovative corpus-aided approach to the identification of open-ended sets of Violence metaphors (e.g. *aggressive palliative care*), and compare the frequencies, forms and functions of these metaphors to those found in a comparable corpus from the UK (Demmen et al., 2015; Semino et al., 2015). We also introduce and demonstrate a new approach to 'agency' in the analysis of metaphorical expressions. This is particularly relevant to a context in which power imbalances exist between different stakeholder groups (notably patients and healthcare professionals), and where care is often provided in challenging interpersonal and institutional circumstances.

This study originated as the US counterpart of part of the project 'Metaphor in End-of-Life Care' (MELC) – a corpus-based investigation of metaphors for end-of-life care in the UK setting, particularly in the context of cancer care.¹ Amongst other things, the MELC project

¹ The MELC project was funded by the UK's Economic and Social Research Council from 2012 to 2014 (grant number: ES/J007927/1; website: <http://ucrel.lancs.ac.uk/melc/>). The current study was also supported by the

investigated the use of Violence metaphors in a quarter-of-a-million-word corpus of online writing by UK-based healthcare professionals. From a methodological point of view, MELC combined ‘manual’ qualitative analysis with the exploitation of corpus tools for the systematic identification of metaphorical expressions in large quantities of data (Demmen et al. 2015; Semino et al. 2015). Metaphor was chosen as the focus of the MELC project because it is well-known to be an important tool in talking and thinking about subjective, complex and sensitive experiences such as illness and death (Lakoff and Johnson, 1980; Gibbs and Franks 2002; Semino, 2008). Violence metaphors for cancer in particular are of interest because:

- a) They have been widely criticised as being detrimental to patients, especially for framing the disease as an enemy and lack of recovery as *losing one’s battle* (Sontag, 1979; Miller, 2010; Granger 2014);
- b) They were found to be the most frequent metaphorical pattern in the MELC corpus, and
- c) They were found to vary considerably in their use in the MELC corpus, especially in terms of the ‘empowerment’ and ‘disempowerment’ of patients (Semino et al., 2015).

In particular, UK-based healthcare professionals were found to use Violence metaphors less frequently than patients. When professionals did make use of Violence metaphors, they were employed for a variety of purposes, such as describing their professional roles and their relationship with the health system (e.g. “it’s a constant battle to get the funding”), as well as conveying their difficulties (e.g. “fighting for patient survival”).

The MELC project also raised some questions concerning the applicability of its methods and the generalizability of its findings to data from other countries. In particular, metaphor use has been shown to vary across languages, cultures, and discourse communities (Kövecses, 2005, Deignan et al., 2013). The US was chosen in the present study because data could be collected in the same language (English) but would reflect a different healthcare system, i.e. one based on privatised medical insurance as opposed to the UK’s National Health System (NHS), which is nationalised and free at the point of use.² There are also differences in the nature and length of ‘hospice’ care between the two countries: in the US, hospice services are primarily provided in the person’s home, and people tend to spend a shorter period of time receiving hospice care than in the UK (Chapman and Bass 2000). The present study began by addressing two main questions, respectively to do with methodology and data:

1. To what extent can the partially automated methods established in MELC be exploited to facilitate the identification of Violence metaphors in a comparable corpus from the US?
2. What differences and similarities in the use of Violence metaphors by US and UK healthcare professionals can be identified by means of this methodology?

ESRC Centre for Corpus Approaches to Social Science (grant number: ES/K002155/1; website: <http://cass.lancs.ac.uk>).

² The contrast between the two countries in terms of the predominant mode of healthcare provision remains marked in spite of the 2010 Affordable Care Act in the US and the increasing marketization and privatisation of healthcare in the UK.

In addition, the MELC analysis of (dis-)empowerment in relation to metaphor (Semino et al., 2015) led us to refine the MELC methodology by addressing the following additional questions:

3. How can the notion of ‘agency’ be operationalized in relation to Violence metaphors?
4. What patterns can be observed in the construction of agency in US healthcare professionals’ use of Violence metaphors when writing online?

In section 2 we describe our data in more detail, and in section 3 we introduce our method. We then present our analysis in section 4, including: a general comparison between the US and UK healthcare professional corpora; a discussion of the frequencies and kinds of Violence metaphors used in the two corpora, and of the usefulness of the MELC corpus-aided approach to the analysis of US data; and a discussion of our approach to agency and of the results of its application to the US data. In section 5 we provide some conclusions.

2 Data

The section of the MELC corpus featuring healthcare professionals writing online contains 253,168 words (hereafter the MELC-UK corpus). Most of this data was mass-downloaded from a publicly-accessible online forum for medical professionals. Relevant posts around end-of-life care were extracted manually by searching for posts that contained words relevant to the topic of the project (e.g. *dying*, *hospice*, *palliative*). This data was supplemented with relevant posts from UK-based doctors’ blogs, and online comments from medical professionals on *British Medical Journal* articles addressing end-of-life/palliative care issues (Demmen et al., 2015). Overall, the MELC-UK corpus spanned the period 2008-2013, was primarily concerned with cancer, and included contributions from 307 health professionals, most of whom identified themselves as physicians.

The new US counterpart corpus contains 250,324 words.³ Data are drawn from a large variety of publicly accessible sources, all originating from the USA as far as could be reasonably ascertained. A total of 36,038 words were sampled from two fora: one tailored to medical professionals specialising in palliative care; the other a sub-forum for student doctors (or more precisely ‘Residents’) currently working in hospice and palliative medicine. The majority of the data—214,286 words—was sampled from 15 blog sites written by palliative and end-of-life-care professionals (doctors, nurses, spiritual consultants, and practitioners). Most of these featured multiple (or guest) authors, ensuring diversity of ‘voice’, though a minority were solo-authored, and were therefore sampled to a lesser extent (by including 1,000 – 27,000 words of the newest available posts). We have made all attempts to balance the corpus to be fairly representative of a range of professionals working in palliative and end-of-life-care in different capacities, which has led to more in-depth sampling of single sources representing ‘rare’ public voices than might be preferred. However, the discourse of doctors in particular does make up the majority of the data, followed by nurses, and to a far lesser extent, spiritual consultants and practitioners. Though a comparison of the discourses of various *types* of palliative care professionals would no doubt be a fruitful avenue for

³ We are grateful to Sheila Payne (Lancaster University) and Sean Morrison MD (US National Palliative Care Research Center) for guidance on the construction of the US corpus and for comments on an earlier version of this paper.

further research, due to the inequality of publically available data (which is identifiably American and falls within the correct date range of publication) and the relatively small size of the corpus overall, we are unable to consider these distinctions here, but rather, analyse the collection of texts as a single unit. A range of topics of interest in the provision of palliative care appear in the corpus, though as with the MELC-UK corpus, cancer was the illness that was most frequently talked about by the healthcare professionals included in the US corpus. To distinguish the two corpora, we refer to the current, custom-collected corpus as the MELC-US corpus, in contrast with the MELC-UK corpus.

3 Tools and Methods

The analysis we present in this paper is both quantitative and qualitative in nature, and has therefore necessitated use of a variety of tools and methods. These mixed methods are drawn predominantly from corpus linguistics (McEnery and Hardie, 2012) and discourse-based research on metaphor (particularly, Pragglejaz Group, 2007 and Semino, 2008).

As far as corpus linguistic methods are concerned, we follow the MELC project in making use of the online corpus comparison tool Wmatrix (Rayson, 2008). This tool allows users to upload their own data and automatically add additional information, notably part-of-speech tags and semantic field (domain) tags. Making use of the USAS tagger (<http://ucrel.lancs.ac.uk/usas/>), Wmatrix assigns semantic tags (semtags) to each word or multi-word-unit in a corpus, drawing upon a large lexicon arranged into 21 major discourse fields (e.g. GOVERNMENT AND THE PUBLIC DOMAIN) and over 230 subdivisions (e.g. WARFARE, DEFENCE AND THE ARMY; WEAPONS). We make direct use of automated semantic tagging of the corpus in two ways.

The first, top-down, method is measuring key semantic tags. In corpus linguistics, key items in a corpus are normally calculated by comparing wordlists from one ('target') corpus to another ('reference') corpus:

[e]ach word [...] is compared with its equivalent in the reference text and the program makes a judgement as to whether or not there is a statistically significant difference between the frequencies of the word in the different corpora (Rayson, 2008: 523)

The measure of statistical significance that is most often applied is the log likelihood procedure (Dunning 1993). This is the measure available in Wmatrix.

In Wmatrix, the USAS semantic tagger has been used to extend the keyness principle beyond the word level, allowing users to consider overuse and underuse of certain areas of meaning in a given corpus as compared to another. When analysing a relatively small corpus such as MELC-US (250,324 words total), it is necessary to bear in mind that key word analysis may necessarily be restricted by the nature of confidence measures. Key semantic tag analysis has two immediate benefits: 1) it considers together words which are related at the semantic level, thereby eliminating much of the problem of low frequency (Rayson and Garside, 2000); and 2) it reveals analyst-independent semantic categorisations of items that might not have been cognitively available to the researcher, but prove fruitful for analysis.

The second way that we make use of semantic tags is a bottom-up method of search-and-recall, which we apply to metaphor analysis in particular. While some progress is being made in the automatic annotation of metaphorical expressions (e.g. Mason 2004, Berber-Sardinha 2010, Neuman et al. 2013), most corpus-based studies of metaphor involve the use of lexical concordances. Search strings may be: expressions that are likely to be used metaphorically in the data (e.g. *healthy* in a corpus of articles about the economy); expressions referring to concepts that are likely to be talked about metaphorically (e.g. *love* or *death*); or expressions that may indicate the presence of figurative language in the co-text (e.g. *as it were*, *like* as a preposition). The MELC project built on earlier work at Lancaster University (Koller et al. 2008) in exploiting the USAS semantic annotation tool to identify open-ended sets of likely candidates for metaphoricity in the UK corpus.

The first step of the MELC-UK analysis involved the manual identification of metaphorical expressions relevant to the project's topic in a 15,000-word sample of the corpus. Metaphorical expressions were identified following the procedure proposed in Pragglejazz Group (2007) and allocated to semantic groupings that were derived from the data in a bottom-up fashion. For example, metaphorical uses of the words *fight*, *beat* and *weapon* were allocated to the semantic grouping Violence⁴. The second step exploited a bespoke tool that made it possible to see the USAS tag associated with each of the tokens that were identified as metaphorically used in the sample data. For example, the metaphorical expressions that were manually tagged as Violence metaphors in the sample data were found to be placed by the USAS tagger under the following main tags (NB: below we include each semtag's alphanumeric USAS identifier, USAS semantic domain name in small capitals and examples of the violence-related metaphorical expressions each contains in MELC-UK):

A1.1.2: DAMAGING AND DESTROYING (e.g. *destroy*, *shatter*)

A1.1.1: GENERAL ACTIONS, MAKING (e.g. *blast*, *confront*)

E3-: VIOLENT/ANGRY (e.g. *hit*, *attack*)

G3: WARFARE (e.g. *fight* as a verb, *battle*)

S8+: HELPING (e.g. *defend*, *protect*)

S8-: HINDERING (e.g. *fight* as a noun)

X8+: TRYING HARD (e.g. *struggle*)

In the third step of the analysis, each relevant USAS tag was concordanced in each section of the complete corpus, and concordance lines were manually checked for metaphoricity.⁵ In the current study, we take these tags as our starting point for the analysis of Violence metaphors in the MELC-US corpus, and for our comparison with the MELC-UK corpus (see Research Question 2). This considerably speeds up the process, but also raises the question of how useful this set of tags is for the purposes of identifying Violence metaphors in the MELC-US data (see Research Question 1).

⁴ As has been pointed out in earlier studies (e.g. Ritchie 2003), there is a fuzzy boundary between war-related and sports-related metaphors (e.g. metaphorical uses of *win* and *lose*). In our analysis, we relied on co-text, wherever possible, to distinguish between what we call Violence metaphors and Sports & Games metaphors.

⁵ We are grateful to Veronika Koller (Lancaster University) for her contribution to this part of the analysis.

The final part of the present analysis involves the notion of agency, which was identified as important in the MELC analysis of the UK data (see Semino et al., 2015). We manually analysed the concordance lines from each USAS tag that contained Violence metaphorical expressions and described the roles of the various social actors construed as being engaged in acts of metaphorical violence (see Research Questions 3 and 4). The patterns we identified are then interpreted against the context of palliative and hospice care in the US.

4 Analysis

We begin our analysis by comparing MELC-US and MELC-UK at the level of semantic domains by means of the USAS tool in Wmatrix (section 4.1). This provides the background for the following quantitative and qualitative comparison of the use of Violence metaphors in the two corpora (section 4.2).

4.1 Key semantic tags

The keyness tool in Wmatrix makes it possible to compare a ‘target’ corpus (in our case, MELC-US) with a ‘reference’ corpus (in our case, MELC UK) at the level of semantic domains. The output of the tool is a rank-ordered list of semantic domains in descending order of statistical ‘overuse’, according to the log likelihood measure of statistical significance. The three semantic tags with the highest log likelihood keyness measures in MELC-US as opposed to MELC-UK are listed in Table 1.

INSERT TABLE 1 ABOUT HERE

The keyness of the Y2: INFORMATION TECHNOLOGY AND COMPUTING semtag is not directly relevant to the topic of our study.⁶ The other two overused semtags in Table 1 deserve detailed consideration, however. Given the nature of both MELC-US and MELC-UK, the appearance of B3: MEDICINES AND MEDICAL TREATMENT as a key semtag in MELC-US is surprising. A closer look at the items making up the tag reveals some possible reasons. The ten most frequent words in MELC-US in the B3 tag are: *palliative* (1506), *hospice* (1054), *medical* (380), *medicine* (349), *hospital* (244), *physicians* (244), *physician* (239), *health_care* (202), *nurse* (179), and *treatment* (168). In MELC-UK, the most frequent B3 items are: *doctors* (501), *doctor* (363), *medical* (332), *palliative* (326), *hospital* (223), *treatment* (222), *medicine* (204), *clinical* (103), *ward* (85), and *gp* (81). In MELC-US, it seems, B3 items are much more regularly used to index the topic of talk. This may be due in part to the source of the data: MELC-US is made up proportionally more of blogs, whereas MELC-UK is made up more of forum posts, where a topic may be taken up and carried throughout a thread with less need to repeat words to do with healthcare roles, institutions and practices. However, a more likely explanation for this indexing of topic might be provided in the lexical items themselves: MELC-US shows a preference for more specialised, medicalised terminology than MELC-UK (e.g. *physician* vs. *doctor*), which in turn lend themselves to multi-word noun phrases where each item is allocated to the same semtag, such as *palliative medicine*

⁶ The overuse of Y2 in MELC-US is likely to be due to a combination of (a) a tendency for American English to make greater use than British English of the Science and Technology USAS broad domain (Potts and Baker, 2012: 315-6), (b) the British English basis of USAS, which allocates the American English use of *program* to Y2, even when it does not refer to a computer program, and (c) the composition of MELC-US, which contains more references to keeping a *blog*.

physician. As a result, the overuse of B3 in MELC-US is primarily due to B3 expressions being combined into strings of relatively specialised medical terms.

The second key semtag in MELC-US (S8+: HELPING) is similarly surprising. Given the nature of the healthcare professional role, one would expect this area of meaning to feature equally prominently in both corpora. In fact, the keyness of the tag in MELC-US is largely due to the overuse of a single word, *care*, which occurs 2296 times in MELC-US and 753 times in MELC-UK (log-likelihood value: +863.07). This indicates a tendency by American professionals to explicitly discursively label (and therefore, likely conceive of) their work as *care* designed to *benefit* human stakeholders. There is a tension evident in this conception, as American professionals are also more likely to refer to palliative practices as a *service*, or a provision on the basis of financial exchange, than their British counterparts. This seeming contradiction can be tied to lack of a social health service defining the landscape of American care in a way that it may not in Britain. As S8+ has been previously identified as a source of metaphorical expressions, this will be further explored in Section 4.2 below.

The USAS tool also makes it possible to compute a list of statistically ‘underused’ semtags in a target corpus as opposed to a reference corpus. As our target and reference corpora are well-matched for size, source, and overarching topic, underused semtags can reveal salient areas of underrepresentation. The three semantic tags with the highest negative log likelihood values in the MELC-US vs. MELC-UK comparison appear in Table .

INSERT TABLE 2 ABOUT HERE

The underuse of Z6: NEGATIVE in MELC-US is due to the overuse of items such as *not*, *n’t* and *no* in MELC-UK. This difference is not, however, limited to our data, as other studies have found that British English is generally characterised by a greater use of words expressing negativity and uncertainty than American English (Leech and Fallon, 1992; Potts and Baker, 2012).

The presence of the semtag L1-: DEAD at the top of the list in Table 2 is worth discussing. The most frequent words contributing to the keyness of this tag in MELC-UK are those directly related to the head word or the word family, e.g. *death* (946), *dying* (495), *die* (384), *dead* (154), *died* (146), and *deaths* (112). These words are half to a third less frequent in MELC-US—*death* (283), *dying* (225), *die* (111), *died* (79), and *deaths* (31). A further number of L1- items contributing to overall keyness in MELC-UK deal with taboo topics around cause of death, e.g. *suicide(s)* (139) and *euthanasia* (101). By contrast, in MELC-US *suicide(s)* occurs only 17 times, and *euthanasia* only 4. This relative underuse in MELC-US indicates reluctance on the part of American end-of-life-care professionals to directly discuss the end state. This is particularly striking over 20 years after the start of the ‘Project on Death in America’, which ‘aimed to understand and transform the culture and experience of dying’ (Aulino and Foley 2001: 492). This reluctance, at least as compared with the UK data, applies particularly to taboo and/or controversial causes of death, in spite of the fact that assisted suicide and euthanasia are not legal in the UK, but assisted suicide is legal in four US states (Gamondi et al., 2014). It is possible that such deaths are particularly at odds with the consideration of ‘good’ or ‘noble’ deaths by those belonging to America’s large religious (Christian) population.

The position of S2: PEOPLE as the third most underused semtag in MELC-US is due to the fact that MELC-UK contains many more frequent generic or plural references such as: *people*

(792 UK, 324 US), *person* (210 UK, 95 US), *human* (97 UK, 26 US), and *humans* (27 UK, 2 US). *People* is often accompanied by statistics accounting for group size, disease rates, and opinion polls, and may be grouped together by a common attributive, e.g. *famous*, *vulnerable*, or *dead*.

Overall, therefore, MELC-US contains many more references than MELC-UK to roles, practices, provisions and institutions in healthcare, often as a result of specialised multi-word expressions. On the other hand, it includes fewer references to people and to death, dying and causes of death. These general observations provide the background for our discussion of Violence metaphors in the next sub-section.

4.2 Violence metaphors in selected semantic tags

As explained above, previous research on the MELC-UK corpus involved a combination of lexical and semantic concordances to identify different kinds of metaphorical expressions and patterns, which were then analysed both quantitatively and qualitatively (Demmen et al., 2015; Semino et al., 2015; see also Demjén et al. forthcoming). The focus so far has been primarily on Journey and Violence metaphors, and it is the latter that we are concerned with here. An analysis of the complete UK data revealed that Violence metaphors were used differently by the different stakeholder groups represented in the corpus, and that healthcare professionals used them less frequently than patients. It was suggested that this may be partly because healthcare professionals talk about different kinds of topics and experiences from patients, and partly because there is considerable awareness among healthcare professionals in the UK that Violence metaphors are problematic and may be inappropriate for many people with cancer. Among other things, this raises the question of whether Violence metaphors are used differently by US healthcare professionals (whether in terms of frequency, kind and/or function), given the different institutional system they operate in.

In this section, we therefore use the USAS system to investigate in the MELC-US corpus the seven semtags that were found to contain Violence metaphors in MELC-UK (see section 3). In so doing, we aim to (a) test the effectiveness of this approach as a method of identifying Violence metaphors in a different data set (Research Question 1) and (b) compare the use of Violence metaphors in the MELC-US and MELC-UK corpora (Research Question 2).

The first step was to export concordance lines of all items semtagged into the relevant seven categories, and to analyse each occurrence for metaphoricity following the identification procedure proposed by Pragglejaz Group (2007). This process was completed iteratively by both authors. When an item was identified as metaphorically used, the second step was to decide whether it counted as a Violence metaphor. For this purpose we followed the criteria adopted for MELC-UK:

we regarded as Violence metaphors any metaphorical expressions or similes whose literal meanings suggest scenarios in which, prototypically, a human agent intentionally causes physical harm to another human, with or without weapons. Less prototypical scenarios involve non-human agents, the threat or consequences of violence, or non-physical harm. (Demmen et al., 2015: 211-12)

We first present the overall quantitative results of our analysis and their implications for the efficiency and effectiveness of our methodology. We then focus on specific semtags and

carry out a more qualitative comparison of the use of Violence metaphors in MELC-US and MELC-UK.

4.2.1 Overall quantitative results and methodological implications

As table 3 shows, the MELC-US corpus has a higher number of items which were semtagged with one of the codes of interest (8,233 vs 6,442 in MELC-UK), even though it is very slightly smaller than its counterpart (by 2,844 words). MELC-US also has a slightly higher number of instances of tokens that were identified as Violence metaphors: 386 vs. 337 in MELC-UK, corresponding to 1.54 vs. 1.33 instances per 1,000 words. The latter higher frequency is not, however, significant with a high level of statistical confidence (log likelihood: 2.25). In other words, in our data, US and UK healthcare professionals writing online use Violence metaphors with similar frequencies when talking about (serious or terminal) illness and care at the end of life.

INSERT TABLE 3 ABOUT HERE

Table 3 also shows that, as a result of the raw frequencies mentioned above, the proportion of Violence metaphors out of all occurrences of the seven semtags is slightly lower in MELC-US than MELC-UK (4.69% vs. 5.23%). This difference is also not statistically significant (log likelihood: -2.15), but it raises the question as to whether there are differences in the proportion of Violence metaphors within each semtag, both in each corpus and across the two corpora, that might have been flattened by the overall percentage results presented in Table 3.

Table 4 provides an overview of all seven semtags in the two corpora in terms of overall number of tokens, instances of Violence metaphors, and percentage of the latter out the former. In the final column, differences between MELC-US and MELC-UK are shown both in terms of raw frequency of Violence metaphors in each semtag and in terms of percentage of Violence metaphors within each semtag.

INSERT TABLE 4 ABOUT HERE

From a methodological point of view, the focus on the seven semtags found to be relevant for Violence metaphors in MELC-UK not only allowed a comparison between the two corpora, but also sped up the process of analysis, as we did not start from scratch by manually identifying lexical and semantic metaphor candidates in a sample of MELC-US. We cannot of course exclude that other semantic domains in MELC-US would also have been relevant to the identification of Violence metaphors, but we were able to identify enough instances to make the process worthwhile. However, table 4 shows that the seven semtags are not equally fruitful in the search for relevant Violence metaphors in our kind of data.

Semtags A1.1.1 GENERAL ACTIONS, MAKING, ETC. and S8+: HELPING show particularly low proportions of Violence metaphors out of all tokens in MELC-US (2.6% and 0.7% respectively). In the case of A1.1.1, this can be attributed to the very general nature of the tag itself, although it did contain a variety of relevant metaphors (e.g. *confront* and *task force*). The low proportion of Violence metaphors in S8+ can be linked more clearly to the very high frequency of this semtag overall; in order to locate the 29 Violence metaphors in S8+ in MELC-US, for example, it was necessary to consider 4,210 concordance lines individually

(and sometimes in extended contexts). Most often, items tagged S8+—such as *care* (appearing in MELC-US 2296 times), *help* (213), *services* (159) and *service* (138)—appear exclusively nonmetaphorically, or, in the case of *support* (198), metaphorically but involving a different source domain. As the proportions in MELC-UK are similar, we would suggest that it is not efficient to include A1.1.1 or S8+ in a large-scale investigation of Violence metaphors, although relevant metaphors do occur in these semtags. The other five semtags have higher proportions of Violence metaphors in both corpora, and can therefore be seen as a more efficient means to the identification of Violence metaphors in our kind of data. The proportions for X8+ are still relatively low, but, for the other four semtags, at least one in five occurrences in both corpora was found to be a Violence metaphor.

In particular, two semtags—S8- and G3—are relatively stable for the purposes of identifying Violence metaphors, with 18-23% of all items being identified as instances of Violence metaphors in both corpora. Differences in frequency between the two varieties are negligible; MELC-US has only 12 fewer metaphorical instances of G3 (-3.9%) and a mere 8 more of S8- (+3.3%). The differences in number of occurrences for the remaining semtags (A1.1.2, E3-, and X8+) are slightly larger but still not substantial enough to make an argument about a contrast in frequency of use of Violence metaphors between the two corpora. In the next section we therefore explore potential differences in terms of what aspects of the UK and US health professionals' experiences are expressed by means of Violence metaphors.

4.2.2 Comparative analysis of top Violence metaphors in the most productive semtags

In this sub-section we focus on the five semtags that have the highest proportions of Violence metaphors in our two corpora: A1.1.2: DAMAGING AND DESTROYING, E3-: VIOLENT/ANGRY, G3: WARFARE, S8-: HINDERING, X8+: TRYING HARD.

For each semtag, we select the top most frequent Violence metaphors overall in our data and analyse the concordance lines for similarities and differences in terms of what that particular metaphor is used to express. For the purposes of this analysis, we consider inflectionally related words together: e.g. the verb forms *fight* and *fighting* are considered together and referred to as “fight” metaphors (see also Demmen et al., 2015). For the most part, however, we keep derivationally related word forms separate where these might key different functional meanings (e.g. the verb *resist* and the noun *resistance*). The metaphor groupings we consider are: “fight”, “battle”, “war”, “victim” and “aggressive” (which were semtagged respectively under S8-, X8+, G3, A1.1.2 and E3-).

“Fight” metaphors are similarly frequent in both corpora: 22 instances in MELC-US and 24 in MELC-UK. They are also used in both corpora for a variety of difficult activities and processes that may involve healthcare professionals or patients. In both corpora, however, the majority of instances are applied to patients with cancer, whether in relation to their general attempt to stay alive (example 1) or to demands for effective treatment (example 2):

1. slowly the message sinks in and they are ready to *fight* this dreadful disease much more bravely. (MELC-UK)
2. They come on still *fighting* for a cure (MELC-US)

Similarly, “battle” metaphors (X8+) are used in both corpora for a variety of challenges, but mostly for patients’ attempts to get better or cope with illness, especially when they are unsuccessful:

3. As Daniel Shaine approaches the end of his *battle* with terminal cancer [...] (MELC-US)

However, “battle” metaphors are more frequent in MELC-US (14 instances) than MELC-UK (6 instances). Both corpora also include instances of “fight” and “battle” metaphors that question either the use of these terms or the approach to illness they are used to describe, especially when dealing with incurable illness.

“War” metaphors occur twice in MELC-US and four times in MELC-UK. Both instances in MELC-US are used in relation to professional difficulties and challenges caused by the healthcare system:

4. It is often tempting to tell *war* stories about how badly our health care system is functioning (MELC-US)

In MELC-UK, on the other hand, “war” metaphors are used to refer to the collective professional effort to treat patients:

5. We are a company of soldiers, with losses and triumphs but the *war* never ceases. (MELC-UK)

This difference can also be observed in other G3 Violence metaphors, as in the two metaphorical uses of *troops* below:

6. Maybe we need to gather the *troops* and see what we want to push for? (MELC-US)
7. You are now the general and you see your *troops* killed in battle. (MELC-UK)

In the MELC-US example, the writer uses *troops* to refer to medical colleagues who need to become involved in arguing for a better approach to dealing with professional credentials in the healthcare system. In the MELC-UK example, *troops* is being used to refer to patients who are dying as a consequence of disease.

“Victim” metaphors occur three times in MELC-US and six in MELC-UK. In the UK data, they are used to describe patients in relation to disease:

8. rasing the profile of the typical cancer *victim* (MELC-UK)

In MELC-US, in contrast, two out of three instances describe patients who are harmed by medical processes:

9. I see transplant *victims* begging for death and being ignored. (MELC-US)
10. these patients walk a fine line between being the beneficiary of modern medicine to becoming its *victim*. (MELC-US)

Finally, the Violence metaphor that shows the biggest difference in both frequency and function between the two corpora is “aggressive”. It occurs 38 times in MELC-US and 8 in MELC-UK. In MELC-US *aggressive* and *aggressively* are overwhelmingly used as conventionalised metaphors for an approach to treatment/care:

11. We can and should continue to use *aggressive* therapies where appropriate. (MELC-US)
12. A parallel system of care that focuses on line-prolonging therapy as well as *aggressive* palliative care [...] (MELC-US)

In MELC-UK this use of *aggressive* is limited to a few instances. Moreover, in MELC-UK palliative care is never itself described as *aggressive*, in contrast to examples such as 12 from MELC-US. Rather, in MELC-UK *aggressive treatment* is always presented as an alternative to palliative care. This difference reflects a contrast in the structure of palliative and end-of-life care in the two countries (Chapman and Bass 2000). In the UK, hospice care is part of specialised palliative care, and most people access this care in one of the country’s over 200 hospices. In the US, palliative care is clearly separate from ‘hospice’, in that it can be provided alongside any other treatment and is based on need rather than prognosis. In contrast, hospice care only applies to people expected to live less than six months, is provided at home and requires the person to give up hospital care and all life-prolonging and curative treatments that might be described as *aggressive*. In this context, the description of palliative care as *aggressive* emphasizes that distinction, and prevents the potential suspicion that it is sub-optimal care or that it marks the failure or withdrawal of all other treatments. Nonetheless, the MELC-US corpus also includes some instances where the term is used as part of a critical assessment of the types of care that it describes:

13. But rather palliative care involvement was important in preventing (and protecting) patients from *aggressive* (and often harmful) care at the end of life when there is likely little benefit.

Overall, our comparative analysis of Violence metaphors in the two corpora has not identified the kinds of quantitative and qualitative differences that might have been expected given broad cultural differences between UK and US culture (e.g. an American tendency to talk about the military, weaponry and technology, contrasted to a British focus on time and modality; see Potts and Baker, 2012). Nor has the analysis revealed dramatic contrasts reflecting differences in healthcare systems. Rather, a conventional tendency to talk about a variety of aspects of healthcare in terms of metaphorical violence seems to be shared by healthcare professionals in both countries. Nonetheless, we have noted a greater tendency in MELC-US to use Violence metaphors for actions, practices and outcomes that relate to the healthcare system itself, rather than more generally to illness and end-of-life care. This tendency is particularly clear in relation to metaphorical uses of *aggressive* to describe a particular approach to care, including palliative care. More tentative evidence for this tendency is also provided by the use of *war* for healthcare professionals’ difficulties within the health system, and of *victim* for patients who are harmed by medical processes. These observations lead to the final part of the analysis, which focuses on patterns of agency in Violence metaphors in MELC-US only.

4.3 Metaphorical agency and Violence metaphors in MELC-US

In this section we propose an innovative approach to the analysis of agency in relation to metaphor, and apply it to Violence metaphors in MELC-US. We reconsider all 386 instances of Violence metaphors we identified in MELC-US, and determine in each case who is presented as perpetrating the metaphorical violent act and who is being subjected to or engaged with it. The reasons for this analysis are two-fold. At a general level, agency (and lack of it) is an aspect of the ‘framing’ imposed on the topic by a particular choice of metaphor that is not always sufficiently taken into account. Semino et al. (2015) considered agency as an important part of the ‘empowering’ or ‘disempowering’ implications of Violence metaphors used by patients in the UK larger MELC corpus. At a more specific level, the differences we have tentatively pointed out in the previous section raise the question of to what extent and how Violence metaphors in MELC-US are used to describe practices, processes and outcomes that are part of the healthcare system itself, rather than the well-known clichéd *battle/fight* of patients against illness and impending death.

Our approach to categorising agency in Violence metaphors follows van Leeuwen’s (2008) assertion that:

sociological agency is not always realized by linguistic agency, by the grammatical role of “agent”: it can also be realized in many other ways, for instance, by possessive pronouns (as in “our intake of migrants”) or by a prepositional phrase with “from”, [...] in which the grammatical agent is sociologically “patient” (van Leeuwen, 2008: 23).

Accordingly, in our analysis of Violence metaphors in the MELC-US corpus, we consider the social actors who are constructed as enacting or receiving violence in the scenario suggested by metaphorical expressions in the data. This may be encoded in a number of grammatical/syntactical ways, depending on the grammatical category to which the metaphorical expression belongs:

- a. **Metaphorically used verbs:** This is the most straightforward type of metaphorical activity to code. The social agent constructed as initiating or undertaking the violent metaphorical process (e.g. *fight*, *battle*, *protect*) is considered to be the ‘violent agent’. If another social actor is explicitly named or is strongly implied in the surrounding context as being the metaphorical opponent/object/recipient of violence, this is considered to be the ‘object of violence’. This is applied in both active and passive voice constructions, which means that either the violent agent or the object of violence may be omitted.

- *Example A:*

| | | | | |
|---|--|--------------------------|---------------------------|----------------------|
| Dad didn’t want to admit he was dying because | he | was fighting | the cancer | as hard as he could. |
| <i>Left co-text</i> | <i>Violent agent (anaphoric reference)</i> | <i>Violence metaphor</i> | <i>Object of violence</i> | <i>Right co-text</i> |

- b. **Metaphorically used nouns:** Where Violence metaphors are nouns or noun phrases, they may either indicate a violent act through nominalization (e.g. *battle cry*,

resistance) or a social agent who is involved in violence through a nomination strategy (e.g. *troops* or *victim*). In the former case, the agents involved may be explicitly or implicitly suggested by the co-text. In the latter case, the relevant social agent may be coded as the ‘violent agent’ (e.g. *task force, troops, veterans*) or the ‘object of violence’ (e.g. *victim, opposition*).

- *Example B:*

| | | | |
|----------------------|---------------------|---|--|
| the patient | was | a fighter | and would want life-sustaining therapy |
| <i>Violent agent</i> | <i>Left co-text</i> | <i>Violence metaphor (and anaphoric reference to Violent agent)</i> | <i>Right co-text</i> |

- c. **Metaphorical attributes:** Finally, metaphorical violence may be realised as an attribute of a social actor or process (e.g. *aggressive, broken*). This is perhaps the most complex case to code. Decisions of agency here are made on the basis of who or what performs the metaphorical violence that causes that attribute to apply, and who or what is the object of that violence: in each case we ask ‘by whom/what or against whom/what is the violent act performed?’ Social actors with attributes such as *aggressive* are coded as ‘violent agents’ because the attribute results from an action that they perform ‘against’ another social actor. On the other hand, social actors with attributes such as *broken* are coded as the ‘objects of violence’ because their attributes result from an action that is performed ‘by’ another social actor.

- *Example C:*

| | | | | |
|---------------------------|--|--------------------------|---------------------------|-----------------------------------|
| patients in Minneapolis | were four times less likely than those in Los Angeles to receive | aggressive | life-sustaining treatment | during their last weeks on earth. |
| <i>Object of violence</i> | <i>Left co-text</i> | <i>Violence metaphor</i> | <i>Violent agent</i> | <i>Right co-text</i> |

In order to make some generalisations about who/what is perpetrating versus being subjected to metaphorical violence in our corpus, it was also necessary to categorise social actors, so that patterns might be more easily quantified. This was a process both of standardisation and of classification. Nouns such as *patient*, which occurs regularly in our data, explicitly refer to a relevant social actor for our purposes. However, references to the same social actors can come in a multitude of other forms: in *Example A* above, both *dad* and *he* refer to a patient, even though the word *patient* is not the chosen nomination strategy. In classifying social actors, we had to find a middle ground between being too fine in our distinctions (resulting in nearly as many categories as named social actors) and being too broad (resulting in a small number of categories that blurred interesting distinctions).

Rather than imposing a set of preconceived categories upon the data, one author analysed the social actors in the concordance lines identified as containing Violence metaphors, creating categories in a top-down fashion as they seemed warranted. This allowed the corpus to drive

the categorisation process. After an initial coding, the same author re-coded all cases, disambiguating early cases which were resolved by creation or conflation of categories later on in the process. The second author then coded social actors into categories, and the two raters resolved any disagreements in coding.

Six major categories emerged, with three (1-3 below) referring largely to human social actors, and the remaining three (4-6 below) denoting more abstract social systems or processes. Each of these categories occurs within Violence metaphors 20 times or more in the MELC-US corpus:⁷

1. PROFESSIONALS (Freq. 163): References to end-of-life care professionals, e.g. doctors, nurses, chaplains, and use of *I* or inclusive *we* where the co-text shows that the writer is positioning him- or herself as a palliative care professional.
2. PATIENTS (Freq. 159): References to medical patients; in nearly all cases, those in palliative care settings.
3. SELF (Freq. 20): Applied where metaphorical violence is self-inflicted.
4. CARE/TREATMENT (Freq. 86): A group of abstract social actors comprising forms of care and treatment. These include both broad, generic labels (e.g. *drug prescriptions, care, therapy*) and references to specific procedures (e.g. *rehydration*).
5. HEALTHCARE SYSTEM (Freq. 65): References to different components and institutions within the broad organisational system in which healthcare professionals operate, e.g.: *the palliative medical sector, our program, all such organisations, hospices, and the hospital setting..*
6. DISEASE/INJURY/DEATH (Freq. 50): References to medical problems, symptoms or conditions that require medical assistance, and their consequences, including death, e.g. *pain, cancer, or death*.

All concordance lines identified as containing Violence metaphors were coded, then, not only for agency but for category of agent. For instance, in Example D, *he* (a PATIENT) is positioned as the Violent agent in a battle against the Object of violence, cancer (an example of DISEASE/INJURY/DEATH).

- *Example D:*

| | | | | |
|--|------------------------------------|--------------------------|--|---------------------------------|
| She talked about her journey with her husband as | he | battled | cancer | over a prolonged period of time |
| <i>Left co-text</i> | <i>Violent agent: PATIENTS</i> | <i>Violence metaphor</i> | <i>Object of violence: DISEASE/INJURY/ DEATH</i> | <i>Right co-text</i> |

In Table 5 and Table 6 below, we list the most frequent social actor groups in the ‘violent agent’ and ‘object of violence’ positions. More specifically, Table 5 provides a quantitative

⁷ A number of further categories were also created, but they are not included in our analysis as they occur too infrequently to allow for generalisations to be made: CAREGIVERS/FAMILY (frequency: 18), GUIDELINES/PROTOCOL (16), DATA (7), DISCOURSE (7), PUBLIC (5), FINANCE (4), WORLD (4), EDUCATION (3), MEDIA (3), NEWS (3), GOVERNMENT (2), POSITION (2), MILITARY (1), SOMEONE (1), TIME (1).

overview of the people or entities that are presented as agents of metaphorical violence. For each type of person or entity, the table also provides a quantitative overview of who or what is placed in the ‘object’ position of being subjected to metaphorical violence, where specified and strongly inferred.

As our corpus is a sample of online discourse by palliative care professionals, it is perhaps unsurprising that the writers most frequently place themselves in role of agents. However, when we recall that this is agency in metaphorical violence, this pattern is less assuring. The most dominant pattern is of palliative care professionals enacting violence with no explicit target, e.g. describing themselves as being *a front-line palliative care physician* (with the ‘opposing army’ omitted from the surrounding co-text). The most frequent named opponent is CARE/TREATMENT itself; palliative care professionals frequently write of resistance to providing or advancing care, and conceive of their work as a struggle, e.g. “We *struggle* with providing helpful and accurate estimates of prognosis for many reasons”. This is further apparent in relatively high instances of professionals being positioned against one another, or against themselves:

14. I can’t speak for others, but as an oncologist, I’m often *confronted* by other docs and allied health professionals who wonder “why we don’t stop chemo?”

PATIENTS themselves appear relatively infrequently as the ‘targets’ of PROFESSIONALS’ metaphorical violence, though some might problematize the fact that they appear in this position with any regularity at all. Some of these are routinized phrases, such as bearing in mind the *impact* of health professionals’ decisions on patients’ lives. Others are more negative, with PATIENTS being described as being metaphorically *tortured* by healthcare professionals providing treatment. Less obviously aggressive Violence metaphors also function as negative descriptions of how PROFESSIONALS affect PATIENTS. For instance, in the following extract, they are being described as being *disarmed* by information:

15. The more we make [end of life discussions] standard practice, the more we *disarm* patients, the less they worry...

INSERT TABLE 5 ABOUT HERE

PATIENTS are also frequently placed in the role of agent in Violence metaphors, second only to PROFESSIONALS in professional discourse. Many of these processes and attributes involve only the one party, e.g. when patients are described as being *combative* or *struggling*. They are also in some cases positively appraised as being a *fighter* or a *warrior*. This is consistent with Demmen et al.’s (2015) findings for this kind of metaphorical expressions in patients’ language, although this kind of metaphor can imply that not recovering is a personal defeat. In Violence scenarios where co-combatants are named, it is the DISEASE/INJURY/DEATH that PATIENTS most often encounter:

16. My patient ... a woman I have helped *fight* back pain for 4 years, who has survived 10 years after a diagnosis of end stage colon cancer [...]
 17. [...] our tragically ill relative will pull through the 50 or so illnesses that they are *battling*.

The military interdiscursivity of PATIENTS being construed as *fighting* and *battling* is sometimes problematized metalinguistically in the data, e.g. “The obituary may honor the departed for a valiant battle with cancer. Left unsaid is that the battle was lost.”

In minority patterns, PATIENTS also oppose PROFESSIONALS (example 18), CARE/TREATMENT (19), and in mental constructions, even *damage* their own SELVES (20):

18. As we go to turn him, he *resists* everything we do.
19. [...] Delehantys father became *combative*, pulling out the tube and *resisting* treatment, so Delehanty called in the social worker...
20. These thoughts ... unspoken ... will fester inside and cause real *damage*, real separation, and real sadness.

Violent confrontations between PATIENTS and CARE/TREATMENT can go both ways: CARE/TREATMENT is the third most-frequent social actor given agency in metaphorical violence scenarios in the data. By a very large margin, it is PATIENTS (rather than DISEASE/INJURY/DEATH) that CARE/TREATMENT is construed as metaphorically ‘attacking’, though 30 of these 37 instances are related to *aggressive* CARE/TREATMENT, as mentioned above. Other instances of these patterns describe care as *devastating*, *impacting*, or *wrecking havoc* [sic] on PATIENTS, even presenting some types of treatment as *torture*:

21. Why put her through another operation? [...] From the beginning, there has been a quiet consensus among the nurses that Mrs. Hardy should be allowed to die without all of this *torture*.

The final frequent violent actor in Table 5 is the HEALTHCARE SYSTEM itself, who is positioned at a higher level of abstraction and is conceptualised as *threatening*, *struggling with*, or *opposing* improvements in CARE/TREATMENT. The palliative care professionals in our data also routinely refer to the healthcare system itself as *broken*, conceiving of their experiences within it as being in a war (see lines 22 and 23):

22. [...] the world of the OR, which I have never really seen before, now *invades* my room and my territory.
23. It is often tempting to tell *war* stories about how badly our health care system is functioning [...]

We turn now to the opposing side of the equation, i.e. quantitative trends for those subjected to or receiving metaphorical violence. Table 6 provides information for social actors in ‘passive’ positions in Violence metaphors over 30 times. The social actors discovered to be the most ‘passive’ in metaphorical violence scenarios were patients themselves. As above, given the nature of the data, this is perhaps not entirely surprising. However, in reviewing the perpetrators of this violence, some noteworthy patterns occur.

INSERT TABLE 6 ABOUT HERE

As described above, patients are routinely subjected to *aggressive* care/treatment, which is sometimes further negatively appraised with metaphorical reference to, for instance, *torture* (see example 21 above).

Likewise, the conceptualisation of DISEASE/INJURY as an aggressor against a patient in a corpus made up of texts dealing with palliative care is unsurprising. What might be more remarkable is how often professionals position themselves and their colleagues as aggressors against those whom they are supposed to be trying to help. This pattern continues further down the table: in professionals' own discourse, it is their colleagues (other professionals) who most often enact forms of metaphorical violence against them:

24. They [nurses] *tear* others down and cause the patient to lose confidence in another nurse in order to make themselves look like the most competent person on the staff.
25. Not surprisingly, results showed that key barriers to culture change included staff, residents, and family members *resistant* to change.

It is marked that in their own discourse, palliative care professionals represent themselves as the second most 'passive' group of social actors, which suggests that they often perceive the influence of colleagues and medical institution as an assault against them. In addition, CARE/TREATMENT is frequently placed in the position of object of Violence. Professionals describe themselves as struggling with CARE/TREATMENT, both in attempting to deliver good care and recognising that some colleagues may struggle against inclusion of certain care/treatment options:

26. [...] these are usually the physicians who *resist* allowing palliative care involvement too [...]

CARE/TREATMENT is sometimes opposed by the social actors of PATIENTS (5 times, see Table 6), but more marked is the passive status of DISEASE/INJURY/DEATH. Patients are the strong majority when considering active positions in these scenarios, which is marked: professionals do not routinely construct themselves directly as aggressors against disease. Instead, they work by proxy through the healthcare system and care/treatment, a relationship which is embattled and sometimes seen to move away from advances due to in-fighting. This indicates a separation between the patient experience of 'fighting' disease, where professionals most often 'fight' care/treatment, and one another.

Overall, our approach to agency analysis has provided further insights into the people, entities, relationships and processes that the healthcare professionals represented in our corpus described in terms of Violence metaphors. We have noted particularly how Violence metaphors are often used to place healthcare professionals in an oppositional relationship to one another and the system they operate in, and also to evaluate negatively the ways in which patients are affected by healthcare professionals and care/treatment. We will return to these points in the concluding section.

5 Conclusions

Our analysis of a corpus of online posts by US-based palliative care professionals leads to a number of conclusions, especially with respect to: methodology in corpus-based approaches to metaphor; differences and similarities between UK and US palliative care discourse, both generally and in terms of the use of Violence metaphor; and the role of Violence metaphors in the language used by US-based palliative health professionals writing online, particularly in terms of the attribution of agency in metaphorical violence.

From a methodological point of view, we have shown the advantages of applying to the US data the corpus-based approach developed for the UK study of metaphors in end-of-life care and cancer care. By focusing on the semantic tags that were shown to be relevant in the UK study, we have been able rapidly to identify a substantial number of instances of Violence metaphors in MELC-US, and to study patterns both within and across the two corpora. However, we have also pointed out that some semtags may not yield sufficient returns, in terms of proportion of Violence metaphors out of all tokens, to be included in this kind of analysis (cf. Research Question 1).

A general keyness comparison at the semantic level was carried out to contextualise the metaphor analysis, and revealed some important differences. We have shown how the healthcare professionals in MELC-US make greater use than their UK counterparts of multi-word expressions relating to their professional contexts and systems, but make fewer explicit references to death and dying. Given that our data relates to end-of-life and palliative care, this suggests a greater reluctance to acknowledge patients' deaths as part of their professional contexts, possibly because it might be perceived as constituting a professional failure, or a cultural taboo, or both.

The differences between the US and the UK in terms of culture and healthcare systems could lead to the expectation that Violence metaphors may be more frequent in the discourse of US professionals, possibly as a reflection of a greater focus on treatment attempts even when a patient's outlook is poor (cf. Research Question 2). We did not, however, find any substantial differences in overall frequencies of Violence metaphors in the two corpora. This may be due to several factors, including the general pervasiveness of Violence-related metaphors across text-types and discourses, some degree of homogeneity in healthcare professional discourse across cultures and institutional contexts, and the fact that Violence metaphors can be used to capture a variety of aspects of healthcare. Indeed, a qualitative comparative analysis of the most frequent Violence metaphors in the MELC-US corpus tentatively suggests some differences in terms of what they are used to describe: US healthcare professionals seem to use some Violence metaphors to describe the challenges caused by the systems in which they operate more than is the case with UK professionals. A more distinct difference lies in a greater tendency in the US data for care to be described as *aggressive*, including palliative care. This reflects a difference in approach from the UK, where medical care is less often described as *aggressive*, and palliative care never is.

These observations, and some earlier findings from the UK study (Semino et al., 2015), motivated the development of a new approach to agency analysis in Violence metaphors in the US data. Following van Leeuwen's (2008) approach to social actors in discourse, we adopted a broad definition of agency, and classified the main types of participants in Violence metaphors in MELC-US as either violent agents or objects of metaphorical violent acts. This required the development of explicit criteria both for determining agency in metaphorical violence scenarios and for postulating a manageable but meaningful number of types of social actors in our data (cf. Research Question 3). The application of our method proved effective in revealing relevant patterns of use of Violence metaphors in the MELC-US corpus.

The US healthcare professionals in our corpus do use Violence metaphors to present patients as heroically and actively engaged in attempting to get better or live longer. However, the writers in our data mostly presented themselves as the agents in a variety of situations that are

metaphorically described in terms of violence, including particularly their relationship with patients and the healthcare system. Similarly, patients are regularly described as both agents and objects of metaphorical violence in relation not only to illness, but also to care/treatment, healthcare professionals and the healthcare system itself (cf. Research Question 4). Overall, our approach to agency in the analysis of Violence metaphors has therefore revealed the role these metaphors play in expressing US healthcare professionals' views of the difficulties they encounter in doing their job. This type of analysis—which we believe might be replicated in further studies with little difficulty—has allowed us to quantify and investigate a new layer of meaning in use of Violence metaphors. Previous work (e.g. Semino et al, 2015) analysed differences in frequency and lexical variation in use of Violence metaphors by palliative care patients, carers, and professionals. Analysis of agency brings to the fore the ways in which inclusion of actors in metaphorical scenarios conceptualises wider power structures. In particular, the use of Violence metaphors shows a widespread awareness of institutional barriers to good care and of how current systems and practices do not always benefit patients.

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TABLES

| SemTag | Description | Freq. in MELC-US | Freq. in MELC-UK | Log likelihood |
|--------|--------------------------------------|------------------|------------------|----------------|
| B3 | MEDICINES AND MEDICAL TREATMENT | 7735 | 4837 | +759.82 |
| S8+ | HELPING | 4419 | 2286 | +753.08 |
| Y2 | INFORMATION TECHNOLOGY AND COMPUTING | 847 | 151 | +555.48 |

Table 1: Key semantic tags with the highest three log likelihood values in the MELC-US corpus compared to the MELC-UK corpus.

| SemTag | Description | Freq. in MELC-US | Freq. in MELC-UK | Log likelihood |
|--------|-------------|------------------|------------------|----------------|
| L1- | Dead | 1016 | 3340 | -1240.86 |
| Z6 | Negative | 2128 | 3571 | -329.14 |
| S2 | People | 856 | 1570 | -193.29 |

Table 2: Key semantic tags with the lowest three log likelihood values in the MELC-US corpus compared to the MELC-UK corpus.

| | MELC-US | MELC-UK | Difference |
|--|---------|---------|------------|
|--|---------|---------|------------|

| | | | |
|--|---------|---------|--------|
| <i>Total words in corpus</i> | 250,324 | 253,168 | -2844 |
| <i>Tokens USAS tagged A1.1.1, A1.1.2, E3-, G3, S8-, S8+, or X8+</i> | 8233 | 6442 | +1791 |
| <i>Number of tokens identified as Violence metaphors</i> | 386 | 337 | +49 |
| <i>Percentage of identified tokens used as Violence metaphors out of all occurrences of relevant semtags</i> | 4.69% | 5.23% | -0.54% |
| <i>Frequency of Violence metaphors per 1,000 words in whole corpus</i> | 1.54 | 1.33 | |

Table 3: Overview of comparative frequency of metaphoricality in MELC-US and MELC-UK

| semtag | Description | # in MELC-US | # (%) metaphorical MELC-US | # in MELC-UK | # (%) metaphorical MELC-UK | # (%) change metaphorical US-UK |
|--------|--------------------------------------|--------------|----------------------------|--------------|----------------------------|---------------------------------|
| A1.1.1 | General actions, making, etc. | 2911 | 76 (2.6%) | 2888 | 50 (1.7%) | +26 (+0.9%) |
| A1.1.2 | Damaging and destroying | 103 | 38 (36.9%) | 258 | 60 (23.3%) | -22 (+13.6%) |
| E3- | Calm/Violent/Angry | 254 | 107 (42.1%) | 270 | 79 (29.3%) | +28 (+12.9%) |
| G3 | Warfare, defence & the army; weapons | 131 | 24 (18.3%) | 162 | 36 (22.2%) | -12 (-3.9%) |
| S8- | Hindering | 243 | 55 (22.6%) | 243 | 47 (19.3%) | +8 (+3.3%) |
| S8+ | Helping | 4210 | 29 (0.7%) | 2286 | 44 (1.9%) | -15 (-1.2%) |
| X8+ | Trying hard | 381 | 57 (15.0%) | 335 | 21 (6.3%) | +36 (+8.7%) |

Table 4: Comparative frequency of metaphoricality in MELC-US and MELC-UK, categorised by semantic tag.

| Violent agent | Object of violence | frequency |
|-----------------------|----------------------|------------|
| professionals | | 126 |
| | [none] | 35 |
| | healthcare system | 21 |
| | care/treatment | 16 |
| | patients | 15 |
| | professionals | 14 |
| | self | 12 |
| patients | | 94 |
| | [none] | 49 |
| | disease/injury/death | 26 |
| | self | 6 |
| | care/treatment | 5 |
| | professionals | 5 |
| care/treatment | | 52 |
| | patients | 36 |
| | disease/injury | 7 |
| | [none] | 5 |

| | |
|--------------------------|-----------|
| healthcare system | 38 |
| [none] | 17 |
| care/treatment | 7 |

Table 5: Most frequent 'violent agents' in metaphorical scenarios (occurring over 20 times), with associated 'objects of violence' appearing more than a minimum of five times listed below.

| Object of violence | Violent agent | frequency |
|-----------------------------|----------------------|------------------|
| patients | | 65 |
| | care/treatment | 36 |
| | professionals | 15 |
| | disease/injury/death | 9 |
| disease/injury/death | | 40 |
| | patients | 26 |
| | care/treatment | 7 |
| professionals | | 37 |
| | professionals | 14 |
| | patients | 5 |
| care/treatment | | 34 |
| | professionals | 16 |
| | healthcare system | 7 |
| | patients | 5 |
| healthcare system | | 27 |
| | professionals | 21 |

Table 6: Most frequent 'objects of violence' in metaphorical scenarios (occurring over 20 times), with associated 'violent agents' appearing more than a minimum of five times listed below.