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Keywords

cancer, patients', construction, advanced, self, analysis, during, oncology, consultations:, transitivity, concordance

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RESEARCH

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Advanced cancer patients' construction of self during oncology consultations: a transitivity concordance analysis

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Abstract: This paper explores advanced cancer patients' self-identification from a grammatical-concordance perspective. It combines corpus linguistics tool of concordance and transitivity analysis to investigate the grammatical choices that advanced cancer patients make to identify and construct themselves during an oncology consultation. The data comprises 69 oncology consultations between advanced cancer patients (and in some consultations a companion or companions) and their oncologist. Findings reveal that these advanced cancer patients identified themselves with an active and informed role in terms of self-care, decision-making and other administrative activities; they identified their everyday life as an indispensable part of the domain of medicine; and they did not associate themselves with emotive mental processes during the consultation.

Keywords: Systemic functional linguistics, Transitivity-concordance analysis, Health communication, Patient-centred communication, Advanced cancer patient

...[W]hen the focus of attention shifted from the illness to the accompanying suffering and its transformation in divers social contexts, the foundation was laid for conceiving the patient's speech acts as a voice that was strong enough to stand up against the voice of medicine. – (Hydén 1997, 49)

Introduction

Patient-centred communication (PCC) is a term now used widely to refer to care that is in line with patients' values, needs and preferences, and that enables patients to be more agentive and active in decision-making about their health and health care (Epstein et al. 2005; Balint et al. 1969). An important aspect of PCC is understanding patients within their unique context. This paper aims to contribute to such understanding. The focus of the paper is on one particular context: advanced cancer care and palliative oncology. It provides a description of how advanced cancer patients depict themselves during an oncology consultation, with the aim of enhancing our understanding of what it means to be an advanced cancer patient and the kinds of roles these patients associate with this experience. More precisely, the paper investigates how a patient who has a life-limiting illness and has lost a part of her or his agency in the face of death construes him- or herself by reference to the grammatical roles that English offers.

To do this, a ‘transitivity concordance’ (Thompson 2008) approach was taken to analyse the sense of identity of our 69 terminal cancer patients as reflected in their conversations with their oncologist in a consultation. More precisely, methodological tools from corpus linguistics and theoretical tools from systemic functional linguistics were applied to analyse our corpus of 69 transcribed oncology consultations with advanced cancer patients.

Transitivity is a grammatical system within the experiential metafunction of language, which concerns those language resources that humans use to construe their experience of the world. It is, in Halliday’s (2002[1971], 119) terms, “really the cornerstone of the semantic organization of experience”. For example, in his detailed account of the grammatical construal of pain, Halliday (2005[1998]) shows how the experience of pain transforms into meaning via the transitivity resources of English language and how the investigation of such features in the grammar of daily life helps the understanding of the underlying construction of human experience. Thompson (2008, 17) argues that the analysis of the transitivity choices of language users “is one of the most effective ways of exploring the ideological assumptions that inform and are construed by the texts” and further suggests a ‘transitivity concordance’ approach to the analysis of transitivity as an approach that “highlight[s] the key patterns” and “make[s] the movement from the identification of these patterns to interpretation of their significance in ideological terms more transparent”. The transitivity concordance approach, according to Thompson (2008, 18), involves the gathering together of “all the clauses in which each entity or group of entities in the text is represented in a particular participant role”.

Drawing on Thompson’s ‘transitivity concordance’ approach, this study provides a transitivity concordance profile for the ‘patient’ as a participant in the oncology consultation. The profile was built through performing a transitivity analysis of the clauses in which the patient was a grammatical participant in order to examine the patients’ sense of self as terminal cancer patients and the construal of their outer world and inner world experiences. If palliative care “should be provided through person-centred and integrated health services that pay special attention to the specific needs and preferences of individuals” (World Health Organization 2015), detailed analysis of how patients make sense of themselves as individuals and their experience of having an incurable disease can inform palliative and oncology institutions about what it means to be an advanced cancer patient and help them tailor their service to meet the needs of these patients. The specific contribution made by the present paper is to analyse the grammatical representation of self in the actual day to day interactive practice of being a palliative care patient, rather than in self-report on such experience on which there is an existing literature (e.g., Broom 2015; Mahon, Cella, and Donovan 1990).

Modelling experience

In the systemic functional linguistics model of language, the clause as the basic unit of analysis symbolizes three types of option or three types of meaning that are mapped onto each other: experiential, interpersonal and textual. The experiential options construe the speaker’s experience of the inner and outer world, the interpersonal options enact the relations among the participants as defined by their roles in the speech event, and the textual options manage the flow of information. The focus of this paper is the experiential options of patients with terminal cancer. The system related to the experiential options at

the level of grammar is the transitivity system. Accordingly, in the process of transforming experience into meaning, a flow of events is chunked into some quanta of change by the grammar of the clause. The clause construes a quantum of change or a 'figure' (Halliday and Matthiessen 2014). A figure is, technically, a configuration of three basic semantic components: a process unfolding through time, the participants involved in the process, and the circumstances associated with the process.

The process element of the clause is the most central component in the configuration, and divides into three main types in the grammar of English: material, mental, and relational (Halliday and Matthiessen 2014). Material processes construe doings and are [transitive]¹ (e.g., 'I take one Nexium in the morning') or [intransitive] (e.g., 'I'll just ring up'). Mental processes are processes of consciousness and construe sensing of perception (e.g., 'I couldn't feel the sensation'), cognition (e.g., 'I understand that'), desideration (e.g., 'I just need this one year'), or emotion (e.g., 'I love my job'). Relational processes construe the experiences of being and relate one fragment of experience to another through attribution (e.g., 'I'm okay') or identification (e.g., 'I'm that odd person') and are divided into three types of relation: intensive, possessive, and circumstantial.

There are also another three types of processes located on the three boundaries of the main process types. These categories are not always clearly distinct as they share some features of the two adjacent main process types. Nevertheless, as Halliday and Matthiessen (2014, 215) point out, they have a "character of their own" and are "recognizable in the grammar as intermediate between the different pairs". Behavioural processes are on the borderline of material and mental processes and represent the outer manifestation of processes of consciousness (e.g., 'I occasionally cough'). Verbal processes are on the borderline of mental and relational processes and represent symbolizations constructed in human consciousness and enacted in the form of language (e.g., 'They told me it was food poisoning'). Finally, existential processes are on the borderline of material and relational processes and represent that something exists or happens (e.g., 'There is nothing wrong with me').

The participants involved in the processes take on different roles according to the process type. In material clauses, Actor is an inherent participant role and participant roles of Goal, Initiator, Scope, Recipient, Client, and Attribute may be involved in the process. Actor is the doer of the material process (e.g., 'you' in 'You normally give me a script for Oxynorm'). Goal in material clauses receives the impact of the action (e.g., 'a script' in 'You normally give me a script for Oxynorm'). Recipient occurs in [transitive] and [transformative: extending] clauses where a transfer of the possession of goods is taking place (e.g., 'me' in 'You normally give me a script for Oxynorm'). Client is similar to Recipient in the sense that they both represent a benefactive role. However, while a Recipient benefits from goods, a Client benefits from services (e.g., 'me' in 'They took the stitches out for me'). Scope either construes the material action (e.g., 'chemo' in 'I had chemo two weeks ago') or the domain over which the material action takes place (e.g., 'the nurse' in 'I can contact the nurse'). It is different from Goal in the sense that it is not affected by the material action. Attribute may be used in a material clause 'to construe the resultant qualitative state of the Actor or Goal after the process has been completed' (e.g., 'beautiful' in 'And the scones came out beautiful') or 'to specify the state in which the Actor or Goal is when it takes part in the process' (Halliday and Matthiessen 2014).

Finally, Initiator construes a participant who brings about the material action performed by the Actor (e.g., 'I' in 'Can I get this stuff shipped out?').

In mental clauses, *Senser* is an inherent participant role and *Phenomenon* and *Inducer* may get involved in the mental process. The role of *Senser* construes a participant as animate, being one that 'senses' (e.g., 'I' in 'I remember the first chemotherapy'). *Phenomenon* is the other element in a mental clause and is the thing, act, or fact that is 'sensed' (e.g., 'the needle' in 'I didn't feel the needle'). There can be another participant involved in a mental clause, that of the *Inducer*. The inducer gives rise to the process of 'sensing' (e.g., 'that news' in 'that news has relieved me').

In relational clauses, *Carrier* and *Attribute* or *Token* and *Value* are the two inherent participants (the two 'be-ers' in Halliday and Matthiessen's (2014) term) and *Assigner* may get involved in the relational processes. In attributive clauses, the *Carrier* is or has the *Attribute* (e.g., 'I'm very lucky') and in identifying clauses the *Token* is the *Value* (e.g., 'I'm that odd person').

In behavioural clauses, *Behavior* is the inherent participant (e.g., 'I' in 'I almost choked') and there may be a grammatical participant that represents the *Behaviour* involved. In verbal clauses, *Sayer* is the inherent participant (e.g., 'we' in 'But most of the issues we've already discussed anyway') and *Verbiage*, *Receiver* and *Target* can be involved in the verbal process. *Receiver* is at the other end of the verbal process and *Verbiage* construes what is said (represented as a thing rather than a report or quote). *Target* is present in verbal clauses in which the *Sayer* verbally acts on another party. Finally, in existential clauses, *Existent* is the inherent participant (e.g., 'a lot of information' in 'there's a lot of information on me on those things').

Typically, texts that construe a person or a group as *Actor/Agent* tend to position them as active social entities with control over and/or responsibility for events or other people. In contrast, being assigned the grammatical roles of *Goal/Target*, *Range*, or *Attribute* typically means that the participant/s is/are construed rather passively (Hasan 1989). Other grammatical roles fall in between of these two endpoints to create a continuum which Hasan (1989) refers to as the 'cline of dynamism'. However, it is important to consider grammatical patterns in context as the value of grammatical features can vary depending on the social and situational context in which those features are used, and the construal of degrees and types of agency in medical consultations can be complex and contested (e.g. Moore 2005).

Method

Background

This paper is part of a linguistic sub-study at Macquarie University to a randomised control trial (RCT) of an intervention called the Communication Support Program (CSP) that was designed and conducted by researchers at the Centre for Medical Psychology and Evidence-based Decision-making (CeMPED) (University of Sydney) at medical oncology clinics based at or affiliated with major hospitals in Sydney, Australia. The aim of the RCT was to improve the communication between patients with advanced cancer with a prognosis of 1 year or less, their carer and their oncologist. The CSP involved nurse-facilitated use of a question prompt list (QPL), a booklet containing questions that patients/caregivers can ask the oncologist, that had a focus

on end-of-life topics including the patient's current condition, what the patient can expect in the future (prognosis); the available treatments, their likelihood of success in controlling the cancer and their advantages and disadvantages in terms of more time to live versus side-effects; palliative care decisions about stopping anticancer treatments; patient's lifestyle during the illness; support for the patient when anticancer treatments are stopped; support for the family and advance care directives (more information on the RCT is available in Walczak et al. (2014)).

Data

Sixty Nine transcribed oncology consultations and associated demographic information -including the patients' age, sex, marital status, highest educational qualification, occupation (or previous occupation if unemployed during illness), their oncologist, their randomisation group, their primary site of cancer and whether they have received chemotherapy, radiotherapy or surgery before- was sourced through CeMPED and formed the corpus used and analysed in the linguistic project.² The consultations range between less than 3 minutes to about 48 min long with the average consultation length being 21 min.

Since the focus of analysis in this paper was on how patients modelled their experience of being a terminal cancer patient through using the transitivity resources, a sub-corpus including the patients' contribution to the conversations in the 69 consultation was created and used for the purpose of the present paper. We called this sub-corpus 'Oncology Consultation Corpus-Patient contribution' (OCC-P). OCC-P is a searchable corpus of more than 85,000 words with each text tagged for all the extra-linguistic variables in the metadata.

Approach

A 'transitivity concordance' approach (Thompson 2008) was adopted to pursue the objective of exploring how the patients enacted their role/s in oncology consultation. Transitivity concordance assembles all the clauses in which an entity is present and presents a transitivity profile of that entity including information on the grammatical roles that the entity takes as well as the process type and other participants involved in the process. Taking this approach, the present paper not only looks at the frequencies of the lexicogrammatical features across the whole corpus but also investigates the instantiation of each feature and provides qualitative and functional interpretations of the quantitative patterns. Such an approach, according to Thompson (2008, 19), "allow[s] generalisations to be drawn about the ways in which significant entities are represented in a particular register or genre".

Procedure

With this introduction on the general approach, let us move to the details of the data analysis procedure. The key entity, as was mentioned, was the patient and the main question was how the patient construes themselves and their role/s in the events that they are experiencing. More precisely, those processes in the patients' turns, as well as other entities involved in those processes were of interest in this study. The method involved the application of the concordance tool WordSmith, with the transitivity

analysis conducted in an SPSS environment. The details of how these tools were applied in the analysis of the corpus consisted of two steps.

The initial step involved tagging every text with all the extra-linguistic information. Second, all first person pronouns (*I, me, we* and *us*) along with the co-text that accompany these instances were identified from the corpus. Concord from the Wordsmith Package was used for this purpose. Concord is a program that allows the user to search for a word in a corpus and presents a concordance display that gives access to the co-text of the searched word. In Concord, each chunk of discourse in which the patient is talking about themselves is shown in a separate line called a 'concordance line' along with information about the name of the text file from which each instance is extracted.

The next step was to export the concordance lines and their metadata into SPSS, the environment in which the transitivity analysis was done. Each concordance line formed a record for which the information about consultation ID, the randomised group, oncologist, age, sex, education, occupation and type of primary cancer was provided as separate variables. To do transitivity analysis, other variables including the process, the patient's grammatical role, process type, agency, Phenomenon, Attribute, Animate Goal, Inanimate Goal, and Scope were created, and values for categorical variables were defined. Categorical variables take on a number of possible values. For example, the process type can be material, mental-perceptive, mental-cognitive, mental-desiderative, mental-emotive, relational-attributive, relational-identifying, behavioural, existential or verbal. Screenshots of the different aspects the analysis in SPSS are provided in the Additional file 1. This approach is particularly useful for the analysis of the effect of extra-textual variables on how the patients construe their experience linguistically. For example, the analyst can show how male and female patients talk to their oncologist and determine whether there was a statistically significant difference between the ways they utilised the grammar to express their experience of being a terminal cancer patient. A total number of 5559 concordance lines (an average of 80 concordance lines per consultation) were analysed by the first author in terms of the process type, the grammatical roles that patients see themselves playing and roles of other participants involved in the process. Each concordance line included one clause. Concordance lines which showed repetitions or lacked a process were omitted from the analysis ($n = 319$). When the concordance line did not include the whole clause, the rest of the clause was retrieved manually from the original text. Finite rankshifted (embedded) clauses were also included in the analysis. To ensure the reliability of the analysis in this project, approximately 4% of the concordance lines were independently analysed by the second author. The inter-coder agreement calculated using Cohen's kappa was 87.50%.

Results

The remainder of the paper will be dedicated to the discussion of the general patterns across the whole corpus as well as a short note on the intra-registerial variations.

The transitivity landscape of terminal patient's self-image

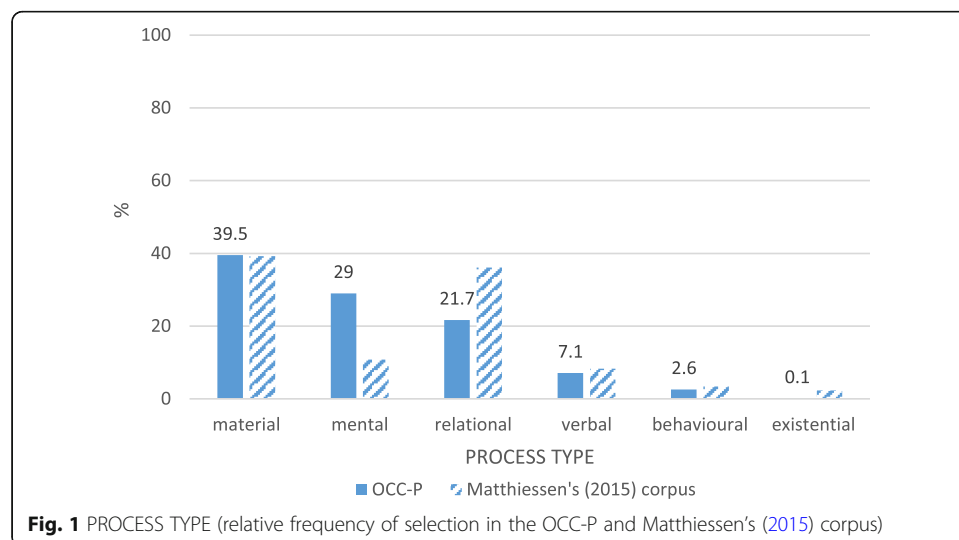
Process type was analysed for 5239 instances (clauses). The relative frequencies of the systemic options (material, behavioural, mental, relational, existential, and verbal) were calculated and compared with the relative frequencies of the systemic options reported

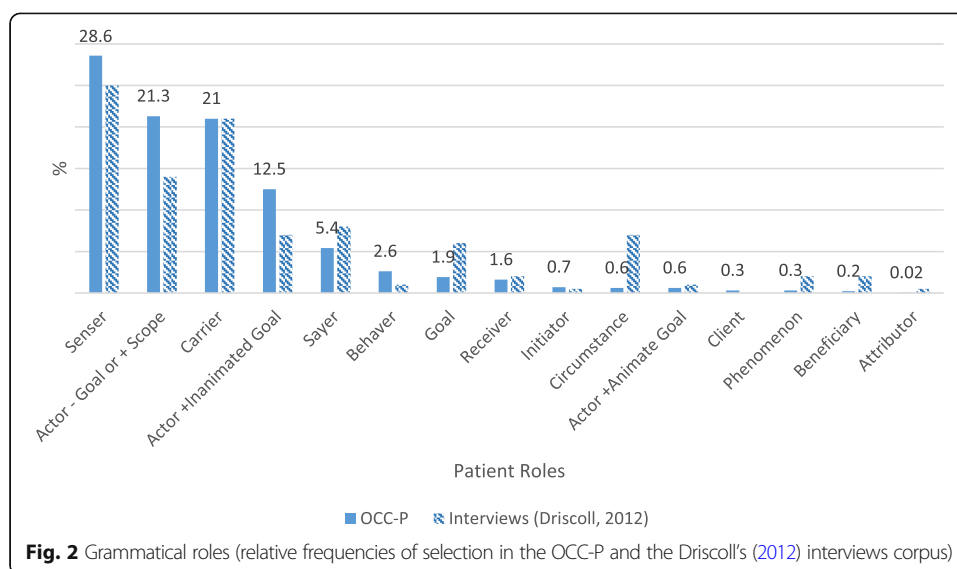
by Matthiessen (Matthiessen 1999, 2006, 2015; Halliday and Mathiessen 2014). Matthiessen reports a ‘probability profile’ (Matthiessen 1999, 2006, 2015) for the systemic options in the system of process type in the English transitivity system based on the analysis of a corpus of texts from a varied range of registers ($n \approx 8700$ clauses in Matthiessen (2015)). This comparison is not unproblematic, though, as Matthiessen reports the frequency of instantiation of process types associated with all the clauses in a multigeneric corpus, whereas this study only selects those processes that involve the patient in a generically homogenous corpus. What arguably justifies such a comparison, though, is the absence of a transitivity corpus study of the experience of a social actor other than the terminal patient that could be used as a criterion based on which the results of this study could be judged.

McDonald and Woodward-Kron (2016) also take a corpus-based approach to the study of the experiential meanings made by veteran and new members in online posts in a bipolar disorder online support group. However, presumably because of the size of their corpus (8.4 million words) and subsequently the need to perform a more focused analysis of the grammatical choices of these veteran and new members, a description of all their process type choices which could serve as a basis for comparison in this paper is not provided by the researchers.

The only other transitivity corpus study available is Driscoll (2012) which also looks at the experience of the terminal patient using texts from a register distinct from oncology consultation: interviews with terminal cancer patients. Driscoll’s (2012) results will also be used throughout the paper to compare terminal patients’ self-image across different registers. However, comparing the results of the instantiation of the process types as selected by patients construing themselves with that reported by Matthiessen (2015) still seems worthwhile. The comparison reveals striking inter-registerial variations. Figure 1 illustrates this comparison.

As the figure shows, there is a substantial difference between the two corpora in terms of the percentage of mental and relational processes. The transitivity profile of the OCC-P, shown in Fig. 1, is similar to the transitivity profile of the interviews reported in Driscoll (2012) in terms of the share of mental and relational processes.





Further analysis of the range of roles that the patients in the OCC-P envisaged themselves to be taking and the relative frequency of these roles was done. This is shown in Fig. 2. The figure also compares these relative frequencies with the corresponding values reported in Driscoll (2012). It shows that *Senser* is the most frequent role in both corpora and that mental processes comprise about a quarter of patient's activity in both registers. The figure also shows that there seems to be a divergence between the two corpora in terms of the share of the material processes. Detailed analyses of the three process types of material, mental, and relational are discussed in the following sections of the paper.

Material processes

In Fig. 1 above, we showed that terminal cancer patients used roughly the same share of material clauses to describe their experience in an oncology consultation as people use in other ordinary contexts as shown by Matthiessen (2015). The processes and the participants in the discourse of the patient in oncology are arguably different, though. In the coming parts in this section, the details of the material clauses used in the corpus are discussed.

Patient as actor (–goal / +scope)

Most of the Material clauses in the corpus included [intransitive] material processes that do not extend over a Goal. In over 20% of the total corpus, patients construed themselves as Actors of [intransitive] material processes which were [+scope] or [–scope]. From an ergative model vantage point, the patients construed themselves as Medium. Table 1 represents the most frequent processes of this type (processes with the frequency of 10 or more). A number of these processes are related to the patient's activities in the medical context. Having different treatments, making appointments, waiting and coming and going to see the clinicians are among these activities. Frequently, however, these actions are related to the realm of the mundane activities of a social human being, from the less specific act of living to the more specific activities of

Table 1 The most frequent [intransitive] processes, absolute numbers and relative frequencies

Process	Frequency	%
go	192	17.1
have (treatment)	120	10.7
do	116	10.3
get	56	5.0
see	49	4.4
come/come in/come back	45	4.1
walk	28	2.5
sit/sit down	27	2.4
drive	14	1.2
work	14	1.2
live	13	1.2
start	13	1.2
wait	13	1.2
move	12	1.1

going to different places, doing different things including exercising, moving, walking, sitting, driving and working.

Patient as actor (+ inanimate goal)

The role of the Actor + Inanimate Goal was the next most frequent role for the patients in the material clauses in the corpus. As Fig. 2 shows, in 12.5% of the occasions the patients construed themselves as Actors performing actions that extend to an inanimate second participant. Table 2 shows the different kinds of inanimate entities taking the role of Goal in these occasions along with an example from the corpus.

Table 2 Categories of inanimate Goals, absolute numbers, relative frequencies and examples

The second participant	Frequency	%	Instance
Medication, Food, Equipment, Medical procedures	357	55.7	I sometimes get a sore patch in there and I put <i>some Kenalog</i> on it.
Semiotic object (including 8 instances of ACD)	106	16.5	I've sent <i>these photos</i> to Paul. I said, "What do you think?" He hasn't answered me back.
Entities from the patient's life outside illness	59	9.2	I still do (work) two and a half days and I was wondering if I'll extend <i>it</i> to three and a half days if and when we get an all clear today.
Bodily objects, Pain, Side-effects, Symptoms	59	9.2	So I've started that and so I'm, I'm sort of getting on top of you know <i>the bowels</i> .
Treatment	44	6.9	We knocked <i>the last lot of chemo</i> on the head.
Objects in the Material Situational Setting	8	1.2	Yeah, I don't want to take <i>my shoes</i> off.
Cancer	4	0.6	So we're going, we're going to attack <i>that</i> (the primary) by just more chemo.
Help	2	0.3	... because I'm getting <i>government subsidies</i> .
Time	2	0.3	No it's okay no I, I've accepted this and time you know I don't have to wait round for particular family things that are important that I, I just manage <i>it</i> as best I can.
Total	641	99.9 ^a	

^aPercentage does not add up to 100% due to rounding

In over 55% of these clauses, patients exerted agency and control over ‘medication, food, medical or health-related equipment or medical procedures’ in their discourse and 9.2% of the Inanimate Goals were from the category of ‘pain, symptoms, side-effects or body-related objects’ such as hand, leg, immune system, phlegm and so on. On the other hand, ‘cancer’ and ‘time’ formed less than 1% of the Inanimate Goals. This suggests that patients did not identify these entities as the goals of their actions in their grammatical choices.

In 9.2% of the instances, the patients identify themselves as Actors of material actions that involved an Inanimate Goal related to the patients’ social life. A close look at the concordance lines and the texts from which these concordance lines were extracted suggests that in 34.5% of the occasions patients were engaged in history-giving or reporting on different health related social arrangements such as welfare services. The other 65.5% of the occasions (across 18 consultations) can be grouped into two broad categories in terms of actualising or conveying personal agency (empowering experiences: across 14 consultations) or on the other hand, conveying loss of personal agency (disempowering experiences: across 6 consultations). These entities range from mundane activities such as driving the car, cooking a cake, making the bed, extending work hours or wearing jewellery to more thrilling activities such as ‘remodelling the kitchen cupboards’, ‘booking flights’ or ‘buying a Kombi’ to travel around.

Another salient configuration was the occurrence of occasions in which the Inanimate Goal was some kind of a ‘semiotic object’ (Halliday and Matthiessen 1999; Moore 2005) such as test results, appointments or different documents or forms including Advance Care Directive (ACD), insurance forms and social support applications. Further analysis suggests that 44 patients out of the 69 patients in the corpus used this grammatical configuration at least once in their talk to their oncologist which is pervasive enough to suggest a managerial role on the part of the patient.³

Patient as patient

Strikingly, it is only in 1.9% of the instances where a material action was construed that patients identified themselves as grammatical Patient or Goal which shows that patienthood, in practice, does not conform to the grammatical notion of patienthood. In addition, in those few instances where the patients identified themselves as grammatical Patient, the Actors of the processes affecting the patients varied considerably. Table 3 represents the groups of Actors identified by the patients as acting on them.

The categories of ‘pain, symptoms and side-effects’, ‘cancer’, ‘treatment’, ‘medical device’ and ‘medical procedure’ formed only 14% of the Actors that the patients construed as acting upon them. This data gives little evidence that the patients identify themselves as grammatical Patients. There is also little evidence to support the hypothesis that the patients were under the influence of the ‘medical gaze’ (Foucault 2012) ideology and the idea that patients primarily saw themselves as being acted upon by the doctors and medical personnel. The number of instances in which the patient construes him/herself as the Goal of an action performed by healthcare personnel is very minimal compared to the number of instances in which the patient construes him/herself as the Actor of an action related to her or his healthcare.

Table 3 Categories of Actors acting on the patients, absolute numbers, relative frequencies and examples

Actor	Frequency	%	Instance
Healthcare personnel (doctors, nurses, secretary ...)	37	37.0	Would <i>you</i> then rotate me to another chemo? Yeah. Will
Carer, family and friend	17	17.0	[<i>Carer</i>] can look after me.
Actor not mentioned	10	10.0	I thought I was booked for Saturday.
Medication	10	10.0	... <i>they</i> block me up.
Pain, symptoms and side-effects	7	7.0	... <i>it</i> wakes me.
Treatment	4	4.0	<i>The chemo</i> has knocked me rotten.
Actors related to patient's social life	4	4.0	<i>It (the trolley)</i> threw me on the road backwards.
Governmental Actors	3	3.0	... because <i>they</i> want to move me out you know.
Conversation	2	2.0	I'm less confronted by <i>it</i> than I was in my first or second week here ^a .
Insurance	2	2.0	<i>My insurance</i> covers me ^b .
Cancer	1	1.0	I knew from 12 that <i>cancer</i> was going to take me.
Medical device	1	1.0	Because <i>it (the portacath)</i> didn't give me pain I'm not going to worry.
Medical procedure	1	1.0	(<i>A transfusion</i> may help) boost me up a bit for a while?
Past experiences	1	1.0	But I think <i>it</i> prepared me a lot for life.
Total	100	100.0	

^aConfront in this example may be 'mental'^bCover in this example may be 'relational', 'identifying' and 'circumstantial'**Patient as actor (+ animate goal)**

The share of instances in which the patients construed themselves as Actors performing material actions that extend to a second animate participant was 0.6% (29 instances), a very small proportion of the material clauses. As Table 4 shows, in 34.5% of the occasions the second participants were the patients themselves. Such grammatical configurations, in which the patient is a self-activating Actor and which construe the patient's material control over self, are infrequent in the corpus (only 10 instances). It is possible that this means that patients experience a low degree of power over self in the

Table 4 Categories of animate Goals, absolute numbers, relative frequencies and examples

The second participant		Frequency	%	Instance
Patient's family and friends	Carer	3	10.35	I'll make sure I can bring <i>[carer's name]</i> next time ...
	Other family/friends	9	31.00	I was supposed to pick <i>people</i> up ...
	Surrogate decision-maker	3	10.35	We're going to have a night this week when we sit down and go through the advance care directives and discuss which ones going to be <i>the main</i> that I put down or whether I put, can put <i>both of them</i> down...
Patient		10	34.50	... and then after five days I put <i>myself</i> back on the Warfarin.
Oncologist, Healthcare Personnel		4	13.80	... and then I cancelled <i>them (the nurses)</i> ...
Total		29	100.00	

face of death, but there might be other ways of interpreting such a pattern. Additionally, we still have very little reference data to compare with in terms of what patterns of agency to expect in English as a whole or by register, the main available source of such information being Matthiessen's (1999; 2006; 2015) convenience sample corpus. Thus we cannot make a strong statement on how to interpret these results but flag that they are of interest for following up in the future. Moving on to the last category of Animate Goal in the corpus, a 'surrogate decision maker', or the person that provides direction in decision-making if the patient loses decision-making capacity, as the second participant, is virtually absent in the material clauses. In only 3 instances and in just one consultation the second participants were from the category of 'surrogate decision-maker'.

Mental processes

The distribution pattern of different mental processes is slightly different across the OCC-P and Driscoll's (2012) interview corpus. As shown in Fig. 3, while the most frequent mental activity appeared to be cognition in both corpora and while there was only marginal contrast in the patients' engagement in desideration, oncology patients and interview patients appeared to be different in their activities of perception and emotion. Oncology patients engaged in more perceptive activities and interview patients appeared to be doing more emotive activities. This is arguably due to variations in the field, tenor, and mode of the two registers but it still seems significant as it suggests that while the oncology patient construes herself/himself as a reviewer of their symptoms and side-effects and engage in history-giving (Karimi, Moore, and Lukin, 2018), she/he does not appear to consider the verbal expression of emotions relevant to the business of oncology.

Patient as Senser (+ phenomenon)

Looking at the mental activity of the oncology patient in the context of other participants involved in the mental processes, the analysis showed that in about 7% of the records, the patients expressed their cognition, perception, desideration, or emotion in relation to a Phenomenon. Note that it was shown earlier, in Fig. 1, that

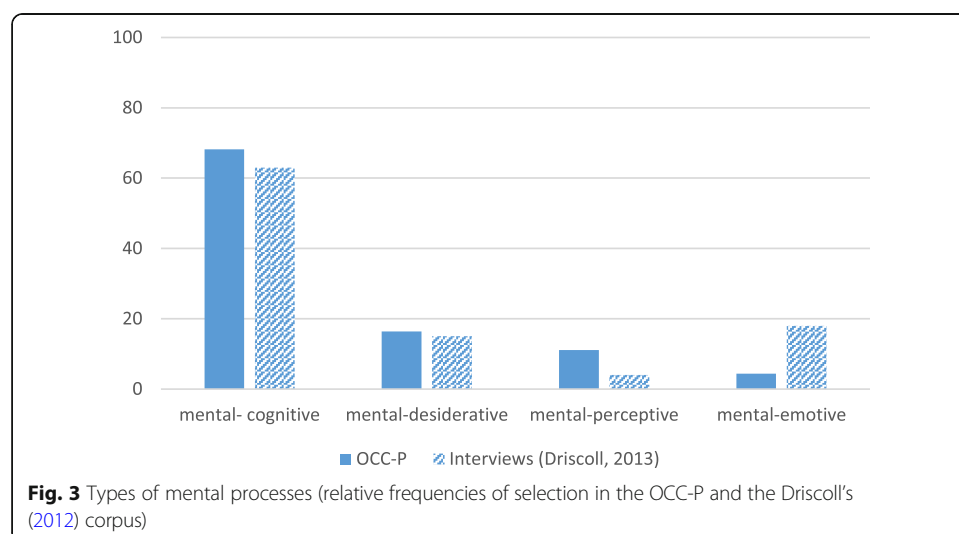


Table 5 Instantiation of the different types of mental processes that extend to a Phenomenon, absolute numbers, and relative frequencies

Process Type	Frequency	%
mental-desiderative	120	33.4
mental-cognitive	112	31.2
mental-perceptive	83	23.1
mental-emotive	44	12.3
Total	359	100.0

mental activities constitute 29% of the experience of the patients. In other words, from this 29% share, 7% involved a Phenomenon and the rest (21%) as we will see in the following section did not. Table 5 shows the distribution of different types of mental processes that involved the patient and a Phenomenon. Similar to the general pattern observed in Fig. 3, mental processes of desideration and cognition were more frequent than mental processes of perception and emotion where a Phenomenon was involved.

Now let us look at the categories of Phenomenon and their distribution in Table 6.

Looking at Table 6, the most frequently sensed Phenomena in the patient discourse included conversations or messages that were referred to anaphorically (e.g. ‘I understand that’) or through identifying relational processes (e.g. ‘what I really want to know is ...’). This includes conversations about plans, explanations, recommendations and suggestions, documents such as prescriptions, test results, records and research papers that we collectively refer to as semiotic objects. Since rankshifted clauses were also included in the analysis, a rankshifted mental clause functioning in the role of Token was still analysed as a mental clause. In 42 consultations (31.8% in the present category) patients identified themselves as the Senser of a semiotic object at least once. This relatively high frequency of semiotic object as a sensed Phenomenon in the discourse of the patients indicates that in a broad sense patients exerted significant mental agency.

Table 6 Categories of Phenomena, absolute numbers, relative frequencies and examples

Phenomenon	Frequency	%	Example
Semiotic object	106	31.8	I realise <i>that</i> (<i>that the oncologist is obliged to tell the patient about all the possible side-effects</i>) now but ...
Pain/symptoms/side-effects	64	19.2	... <i>the bleeding and the clots</i> I could put up with <i>that</i> but ...
Medication, Medical procedures (tests, scans ...)	58	17.4	I need <i>some relief</i> for my eyes ...
Medical people and places	22	6.6	... because I know <i>James</i> well. ^b
Phenomena related to the patient's life	20	6.0	And I've also planned <i>a big party</i> ...
Treatment	15	4.5	I'd rather prefer <i>the full dose</i> .
Cancer	11	3.3	On my skull, I can [<i>find lumps</i>] ...
Body related entities	10	3.0	I want <i>a new body</i> .
Food	10	3.0	I'm wanting <i>tasty things</i> ...
Support	10	3.0	I don't like <i>the nursing home</i> .
Time, prognosis and future	7	2.1	I'm still looking to <i>the future</i> .
Total	333	99.9 ^a	

^aPercentage does not add up to 100% due to rounding

^bPseudonym

Although traditional SFL descriptions do not treat Sensors as Agents in the ergative model, it may be inappropriate in contexts so deeply concerned with semiotic action to simply preserve the lexicogrammar's treatment of mental action as more passive than material agency (Moore 2005; Thibault 1993).

The next most frequent group was pain, symptoms or side-effects that the patients had felt and the medication they wanted or needed to address those problems. Life-world activities such as trips and family gatherings were less frequently referred to in the mental clauses. Only 14 patients expressed a mental act towards objects from their social and individual life (6%) which indicates the specialised sphere of action of the oncology consultation (Karimi, Moore, and Lukin, 2018). Patients' mental actions (cognition and desideration in particular) regarding different treatments seemed to be minimal in their discourse. A widely studied factor in medical communication research is patient's expression of preferences and values (e.g., Hawkins et al. 2005; Hofmann et al. 1997; Liu et al. 1997; Meropol et al. 2008). Patients' expression of preferences and values is considered as an aspect of shared decision making and patient-centred health-care (e.g., Barnsteiner, Disch, and Walton 2014), and has been used as a measure (among other measures) to evaluate the effectiveness of different medical communication interventions. The present analysis, though, shows that patients' expression of cognition and preference about treatments constituted a small part of the oncology consultations. Even CeMPED's communication support program intervention which targeted 35 patients in this corpus to empower them to express their preferences did not seem to be effective in encouraging these patients to articulate their preferences. Patients' expression of mental action on the Phenomena that we generally call 'cancer' was only confined to perception, for instance, 'feeling the tumour'. How patients made sense of 'time, prognosis and future' was articulated in only 6 consultations and 7 instances. These feelings include expressing hope about the future, expressing the need to live for one more year, expressing the acceptance of the prognosis, expressing surprise that the patient made one more Christmas, and finally enquiring about what to expect in terms of prognosis.

Patient as (Sensor)

In addition to the records in which the patient was the Sensor of a Phenomenon, in 21% of the analysed clauses patients were either only the Sensor or the Sensor in mental clauses, the linguistic content of which was another clause. In those instances, the patients either projected ideas in the form of reporting both propositions and proposals or used a mental process as a metaphor for modality or mood through which the patient was expressing uncertainty or inviting or requesting the oncologist to comment.

Table 7 represents the most frequent mental processes with which the patients had the grammatical role of Sensor.

The number of cognition processes (*think, know, mean, suppose, see, feel, remember, find, guess, understand, wonder, forget, expect, reckon* and *assume*) is substantially greater than the number of desiderative processes (*want, hope, need, decide, mind*). 'Thinking' and 'knowing' constitutes over 50% of the mental activity of the patients when they are Sensor in their discourse. Processes of cognition, however, do not always construe the inner experience of the Sensor. They can be a metaphor of modality or mood. Consider the four examples below:

Table 7 The most frequent mental processes of the 1138 mental processes associated with the patients as the Sensor, absolute numbers and relative frequencies

Process	Frequency	%	process	Frequency	%
think	390	34.3	hope	11	1.0
know	208	18.3	need	11	1.0
mean	104	9.1	forget	9	0.8
want	56	4.9	like	9	0.8
suppose	40	3.5	expect	8	0.7
see	36	3.2	reckon	7	0.6
feel	34	3.0	assume	6	0.5
remember	21	1.8	read	6	0.5
find	19	1.7	worry	6	0.5
guess	16	1.4	decide	5	0.4
understand	16	1.4	mind	5	0.4
wonder	16	1.4			

- (a) I think that's cut out in, literally in Catholic ethics and in my own conscience.
 (b) I think I've got an appointment for the 21st.
 (c) I know that my cancer wants to keep, sort of keep growing...
 (d) I don't know if I showed you the reaction that I had.

While (a) and (c) are related to the patients' experience of the world of their consciousness i.e. projection of their mental experience, (b) and (d) are arguably different in function. In (b) the patient seems to be distancing herself from her statement though using 'I think' as a metaphor of modality. In (d) the patient is asking a question in an indirect manner (mental projection as a metaphor of mood).

Earlier it was noted that Driscoll (2012, 220) found that the most frequent participant role for patients was Sensor in mental processes and that cognition was the most significant type of their mental activity. Driscoll (2012, 220) concludes that this finding "represents Patient [capitalised in the source] as a person with a noticeable measure of opinions, knowledge and beliefs". On the other hand, using two extracts of discourse between a registered nurse and patient, (Candlin 2000, 237) argues that the projecting nexuses of cognition in her texts are examples of subjective modality and demonstrate "a low affinity to the proposition, and evidence of doubt".

Table 8 Functions of using the mental processes of 'thinking' and 'knowing', absolute numbers and relative frequencies

	Frequency	% ^a
Know (cognition)	92	44.2
Know (projection)	82	39.4
(not) Know (question)	34	16.3
Think (projection)	207	53.1
Think (modality)	138	35.4
Think (cognition)	45	11.5

^aPercentages may not add up to 100% due to rounding

To investigate how mental cognitive processes of ‘knowing’ and ‘thinking’ were used in the discourse of the patients in OCC-P, further analysis was performed. Table 8 represents a summary of the results of this analysis. The table represents the frequency of different functions of using mental processes of ‘thinking’ and ‘knowing’ by the patients.

In instances where the patient had the role of Senser and the mental process was the process of ‘thinking’, 64.6% of the time patients used the mental process of ‘thinking’ to either project ideas or perform an act of cognition without the involvement of a phenomenon or a projected clause. In only 35.4% of the instances did patients use the projecting clause as a modality or probability and represent “their thinking in dialogue” in order to assess their projection (Halliday and Matthiessen 2014, 515). This suggests that the dying patient exerts mental agency and cognitive activity not only in reflecting on their care as Driscoll (2012) concludes from her interview study but also in conversation with their oncologist during consultation. The analysis of the instances in which patients engaged in the cognitive process of ‘knowing’ also confirms that patients identified themselves as cognitively active and agentive. In over 83% of these cases, patients used the process of ‘knowing’ to represent their inner world experiences.

Relational processes

Over 99% of the relational processes were attributive. Within the attributive clauses, 48.7% of the attributes were intensive, 40.5% were possessive and 10.8% were circumstantial (Table 9). In the remainder of this section, the different categories of attributes with which patients associated themselves will be discussed. The discussion of the attributes with which the patients construed a ‘class-membership’ relation will be considered irrespective of the trichotomy of intensive, possessive and circumstantial attributes due to the lack of space.

Earlier in Fig. 1, it was shown that the percentage of relational clauses in the corpus was lower compared to the same percentage reported by Matthiessen (2015). This can be due to the comparatively bigger share of mental clauses. It supports the hypothesis that patients used fewer semiotic attributes and more mental processes to construe their mental experiences. Considering Moore’s (2005) cline of semiotic agency, we can then form this hypothesis that if patients used more mental processes and fewer semiotic attributes, then they were more agentive semiotically. According to Moore (2005, 109), a “*passivated, impassive actor*” grammatically realized as the Carrier of a semiotic Attribute (e.g., ‘I’ve got the impression that there’s a bit more there than there was’) is less agentive than an “*activated actor who is self-activated in a non-*

Table 9 Instantiation of the different types of Attributes, absolute numbers, and relative frequencies

Attribute type	Frequency	%
intensive	516	48.7
possessive	429	40.5
circumstantial	115	10.8
Total	1060	100.0

transactional action” grammatically realized as the Senser (e.g., ‘I’ll basically know what to expect in the next two weeks’).

Looking at the relational clauses from the perspective of ‘domain of attribution’ (Halliday and Matthiessen 2014), the number of relational clauses that construed the ‘outer experience’ (material domain) of the patients was over double the number of clauses that construed the ‘inner experience’ (semiotic domain) of the patients (Table 10). This observation again strengthens the hypothesis that patients used more mental processes and fewer relational processes to construe their inner world experiences and thus appeared more agentive.

Table 11 shows the distribution of mental activities that were conveyed through the use of semiotic relational processes in the patients’ discourse. Similar to what was observed in the analysis of mental clauses in Fig. 3, cognition emerged as the number one activity that the patients identified themselves with. What is different, comparing the distribution of mental activities in Fig. 3 and the distribution of mental activities in Table 11, is the emergence of emotive activities that were construed through the use of relational processes. The relational clauses with emotional overtones formed 28.1% of the semiotic relational processes (88 instances). This share, though higher than what we saw in Fig. 3, is still considerably lower than what Driscoll (2012) reports for the interview patient (75% of the states with mental overtone), which suggests that patients in oncology consultation talk less about their emotions when compared to patients reflecting on their experience of having a terminal cancer.

The Attributes were also analysed with regards to their content. Table 12 shows different content categories of Attributes.

The most common kind of Attribute for the patients was pain, symptoms or side-effects that they attributed to themselves as well as their overall health state, together accounting for nearly 50% of the entire Attributes. The next most common kind of Attribute was Attributes signifying the patients’ subjective sensations of cognition, emotion, and desideration, forming over 16% of the attributes. To be clear, this category together with the category of semiotic object and the Attributes related to pain (contentwise Attributes instantiating pain were grouped under the category of ‘pain, symptoms or side-effects’) form the Attributes that construe the semiotic domain of the patient’s experience.

Earlier it was shown that the Phenomena ‘categories of time, prognosis and future’ were very infrequent in the discourse of the patients which can be a sign of denial on the part of the patient. It was also shown that while patients exerted agency over medication, food, medical equipment and medical procedure, pain, symptoms and side-effects, they did not construe themselves as Actors acting on cancer and time. Here, Table 12 shows that Attributes instantiating treatment appeared less than those instantiating pain, symptoms or side-effects and more than those instantiating prognosis and death. A more plausible explanation for these observations is that patients did not

Table 10 Instantiation of ‘domain of attribution’ in the relational clauses, absolute numbers, and relative frequencies

	Frequency	%
Semiotic	313	29.5
Material	747	70.5
Total	1060	100.0

Table 11 Instantiation of different types of Attributes within the semiotic domain, absolute numbers, relative frequencies, and examples

	Frequency	%	Instance
cognition	118	37.7	At least I'm clear now.
emotion	88	28.1	I'd be devastated ...
perception	58	18.5	I get no pain whatsoever.
desideration	49	15.7	It's tolerable, like I'm totally okay with it.
Total	313	100.0	

seem to deny being terminal (because of the relatively fewer mentions of treatment Phenomena and Attributes), however, maintaining the quality of life and living in the moment constituted a more important part of the patients' experience. The higher proportion of Attributes instantiating patient's social and personal life compared to the ones related to cancer and treatment further strengthens this conjecture. Patients seem to focus on life despite acknowledging their terminal condition grammatically. Oliver Sacks' words "I am now face to face with dying, but I'm not finished with living" (Sacks 2015) in the beginning of his quartet of essays on his own experiences of having terminal cancer best describe this experience.

Table 12 Categories of Attributes, absolute numbers, relative frequencies and examples

Attribute	Frequency	%	Instance
Pain/symptoms/side-effects	322	30.38	I was just <i>exhausted</i> .
Health state	178	16.79	But I'm <i>fine</i> , I'm going daily.
Subjective sensations of cognition, emotion and desideration	176	16.60	And I was <i>very pleased</i> with that flow of urine.
Medication, medical procedure, diet and support	95	8.96	Yeah, well I've still got <i>the patches</i> .
General (related to patient's social and personal life)	77	7.26	... we're <i>in the middle of moving houses</i> .
Place and time	62	5.85	Well, I had <i>six weeks</i> to compile it.
Semiotic object (script, appointment, results)	60	5.66	We didn't have <i>the result</i> .
Treatment	28	2.64	... it didn't seem worth it until I got rid of <i>the radiation</i> .
Cancer	13	1.23	I've still got <i>12 lesions</i> .
Carer, family	10	0.94	It's a shame because I've got <i>this bloomin' girl</i> doing year 12.
Material	9	0.85	We're all going to die and we have <i>no control over it</i> .
Stage of illness	9	0.85	We're not <i>at that point</i> ?
Body/bodily function	8	0.75	I've never had <i>big breasts</i> .
Time (prognosis)	5	0.47	... do you think I have <i>another couple of Christmases</i> ?
Healthcare personnel	4	0.38	I already have <i>one (an endocrinologist)</i> .
Death	2	0.19	Maybe another year maybe before we're <i>history</i> , before we pass on.
Insurance cover	2	0.19	Oh look I've got <i>the really basic NIB</i> .
Total	1060	99.99 ^a	

^aPercentages does not add up to 100% due to rounding

Summary of findings and discussion

Patients in oncology consultations are semiotically powerful in general. Patients in the corpus used more mental processes and fewer relational semiotic processes to convey inner world experiences. In talking about semiotic objects, patients employed mental clause resources (39% - 106 instances) as frequently as material clause resources (39% - 106 instances) and more frequently than relational clause resources (22% - 60 instances). Examples (a) to (c), below, demonstrate how using different transitivity resources indicates differences in patients' sense of agency when they talk about semiotic objects.

- (a) We didn't have the results ...
- (b) I usually know mine (my marker).
- (c) I'd like to get one (a real definite result of the scan).

Conversations about prognosis and time, however, were very infrequent. Patients did not use material processes to talk about prognosis. They employed mental clause resources in only 7 instances and they resorted to relational resources and more precisely possessive attributes in 5 instances to talk about prognosis and time. This avoidance did not seem to be a product of denial, however, because instances where patients performed a mental action or a material action in relation to treatment and cancer or instances in which they associated themselves with these categories through relational processes were considerably fewer than instances involving other entities such as symptoms or side-effects, patient's overall health state, medication and medical procedures, entities related to patient's social and personal life and semiotic objects. The avoidance of conversations about prognosis, thus, can be explained and understood in the light of the patients' attempt to maintain meaningfulness and agency through what la Cour, Johannessen, and Josephsson, (2009) refer to as the experience of 'being normal and healthy while sick' and through keeping 'routines and continuity'. Patients in oncology consultation identified themselves as managers who actively took part in palliating their symptoms using medication and food to exercise their 'individual agency' and 'subjectivity'. Patients' desire to retain an active role in the healing process has also been identified as one of the reasons why cancer patients utilise complementary and alternative medicine (CAM) (Broom 2015; Broom and Tovey 2008). Patients identified themselves as active agents who organised and managed the different aspects of their lives to live the remainder of their life as normally as they could. While these patients had lost a big part of their agency by becoming terminal, they were still agentive by exerting what can be called 'agency despite cancer'. In this light, everything that the patient says about their social life and the mundane activities are considered agentive. The fact that patients used fewer relational and mental clause resources (8.9% and 20.4%, respectively) than material clause resources (55.7%) to talk about medication, food, and medical procedures also shows how patients in oncology consultations attempt to maintain 'normality' while having a life-limiting illness. Finally, patients in oncology consultations do not seem to identify themselves as performing emotional processes. Emotive mental processes were the least frequent mental processes in the discourse of the patients. This observation is in

agreement with Kvåle (2007) who through an analysis of in-depth interviews with cancer patients in an oncology ward in Norway identifies that patients often preferred not to talk to the nurses about their difficult emotions regarding the future as a coping mechanism and to find meaningfulness and normalcy.

A final note on the intra-registerial variations and the limitations of a transitivity concordance account

In the previous sections, a general description of the experience of terminal cancer patients in oncology was provided. The description did not account for the variations that exist between different patients and oncologists and therefore different oncology consultations. The effect of the oncologist, the nurse-led communication support program intervention, sex, age, education, occupation are among the known factors that can affect the experience of the patient as reflected in her or his grammar. These factors among other unknown factors such as the stage of cancer and the time since the patient was first diagnosed could influence the patient's use of language as a resource in talking to the oncologist. Figure 4 shows the distribution of the three main process types (material, mental and relational) in the discourse of patients about themselves across the 69 texts that constituted the corpus for this study.

As the figure shows the share of different process types varies considerably across different consultations. The problem with the general overview resulting from concordance analysis is what Baker (2006, 27) calls the problem of “decontextualized examples of language”, meaning that the instances are detached from the context in which they were produced at the cost of achieving a largescale overview. We tried to reduce the bias associated with this problem by providing some context available at the level of the clause through doing a transitivity concordance analysis, as we saw throughout the paper, and by adding the extra-linguistic information (variables for which metadata is available). One important extra-linguistic variable was whether or not the patient was enrolled in the active arm in CeMED's randomised controlled trial. Statistical testing did not confirm the significance of an apparent effect of receiving CeMPED's communication support program on patients' use of process

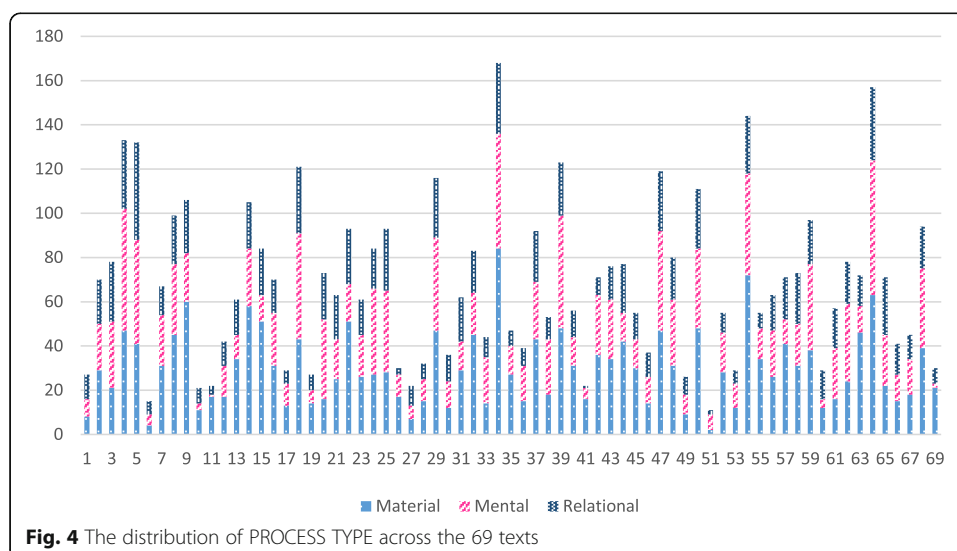


Fig. 4 The distribution of PROCESS TYPE across the 69 texts

type: the intervention and the control group were not statistically significantly different in terms of the proportions of different process types. However, to better understand the apparent variation, detailed analyses of a few texts, the selection of which is guided by the general patterns revealed by the transitivity concordance analysis, seems necessary. Pairing such analyses with a largescale concordance analysis, such as the one reported in this paper, could provide a better understanding of how individual advance cancer patients construe themselves.

Endnotes

¹The square brackets display the ‘options’ in a system network. For example, the system network of material processes preselects the options of [transitive] and [intransitive].

²The number of transcribed consultations sourced through CeMPED was 76 but 7 texts lacked metadata.

³In one of the few transitivity profiles of texts from or about healthcare, Matthiessen (1995) reports quite a different picture, but this study is based on a 1979 children’s book depicting the roles of patients, staff, and family.

Additional file

Additional file 1: Selected aspects of the transitivity-concordance analysis (DOCX 4499 kb)

Abbreviations

ACD: Advance Care Directive; CAM: complementary and alternative medicine; CeMPED: Centre for Medical Psychology & Evidence-based Decision-making; CSP: Communication Support Program; OCC-P: Oncology Consultation Corpus – Patient contribution; PCC: patient-centred communication; QPL: question prompt list; RCT: randomised control trial

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Availability of data and materials

Extended data used in this paper cannot be shared publicly because of its confidential nature and to prevent deductive disclosure of the identity of the study participants (patients, companions, and oncologists).

Authors’ contributions

The first author is the PhD student of the linguistic study from which this paper resulted. She has had the primary responsibility for data analysis and writing and preparing the manuscript. The second and the third authors contributed to this paper in the form of providing critical feedback and manuscript editing. In addition, the second author analysed a sample of the data to ensure inter-rater reliability. The fourth and the fifth authors provided the data for the study and reviewed and approved the manuscript.

Ethics approval and consent to participate

The trial protocol and the linguistic project have received the approval of the Lead Human Ethics Review Board at Royal Prince Alfred Hospital (Protocol Number: X10-0032 and Approval Number HREC/10/RPAH/51) and from the governance officers at each of the participating recruitment sites. In addition, the externally approved linguistic project received the approval of the Macquarie University Human Research Ethics Committees (HRECs) (Ref: 5201400911).

Competing interests

The authors declare that they have no competing interests.

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