Emotional talk of patients with breast cancer during review appointments with Therapeutic Radiographers: effects on fears of cancer recurrence

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Abstract

Fears of cancer recurrence (FCR) in patients with breast cancer may develop during radiotherapy. Radiographer communication with their patients may influence early survivorship FCR level.

Aim

To investigate the management of emotional talk in patients with breast cancer attending their initial review appointments during radiotherapy and predict FCR at 6-8 weeks follow-up.

Methods

A mixed methods observational study was conducted. Patients (consecutive sample, n = 60) with breast cancer, attending a major Scottish cancer centre, had their first two review appointments with their therapeutic radiographer (TR) audio-recorded. In addition, FCR was assessed (FCR7) at baseline and at 6-8 weeks following their final radiotherapy visit. Two TRs participated. Audio-files were coded by the VR-CoDES system to identify emotional cues and therapeutic radiographer (TR) responses. Linear regression models were tested for fit and to identify factors associated with follow-up FCR, i.e. patient cues, responses by TR.

Results

Follow-up FCR was predicted negatively (robust estimator, p = .01) by level of patient emotional talk at the second review session. The provision of space by the TR, at the second session, to enable patients to expand their emotional utterances was also associated, but negatively (p = .01), with follow-up FCR. These effects were maintained after inclusion of covariates: age, treatment received and living conditions.

Conclusions

Patient's emotional expression and TR responses at the second review meeting predicted follow-up FCR. The study shows the effect of communication processes on this specific distress component of the patient's survivorship experience.

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Background

Patients with breast cancer may experience distress in the form of fears of cancer recurrence (FCR) during their recovery from primary treatment [6]. The proportion who report moderate to severe FCR varies from 30 to 70% [23]. These levels are unpleasant for patients, and have negative consequences including propensity to depression, sleeplessness, reduced quality of life, requests for more checks and increased health service utilisation [18]. One report has shown that FCR may be present as early as the diagnostic stage of cancer [12]. Systematic review methodology has shown that treatments, such as chemotherapy [31] and radiotherapy [30], on average, have been associated significantly with FCR increases. Admittedly, correlational investigations are of limited value especially with high heterogeneity in time locations of FCR assessments. However the psycho-oncology literature has recognised that the way clinicians communicate to their patients is a vital aid to patient recovery [7]. A detailed model has been developed to assist researchers investigate these processes [26]. Our research focus is radiotherapy treatment [28]. This complex and technically demanding intervention requires substantial resources from the health care providers including the patient, e.g. multiple regular visits requiring frequent travel. It is also, very often, the final recommended treatment prior to discharge and patients may remember clearly how staff managed them.

The field of health care communication is advancing in oncology with many recommendations for good practice and training programmes [13]. In summary, the clinician is expected to deliver comprehensible descriptions of the disease and treatment, to listen to patients' concerns and acknowledge their concerns in an empathic and considerate manner. The exact combination of these behaviours that may be favourable will vary between clinicians, patients and the treatment context. A qualitative study has reported patients' and oncologists' preferences on how to approach emotional talk [29]. Direct observations, however, may further assist our understanding. Research tools are available to test best evidence for clinicians to ease treatment acceptability and manage

patient distress. One tool is the VR-CoDES system for coding emotional concerns and cues [4, 32].

We have reported on the sequence of emotional cues that patients express and the type of response

from Therapeutic Radiographers [16]. In addition, in a mixed-methods study we found that the

expression of certain emotional content was linked to the FCR trajectory over radiotherapy

treatment using a daily diary record [1]. Our interest was to explore the specific effects of patients

raising emotional issues in appointments with their TR during their treatment. Furthermore, how

TRs responded to this emotional content raised by patients might have an influence on FCR

development. For example, the patient who expresses some form of distress about their experience

of a symptom indicator (e.g. skin inflammation) may react negatively to the TR who distracts them,

or moves immediately onto another issue, such as medication. The TR who enables the patient to

expand or 'provide space' to talk through their concern might confer a lasting psychological benefit

and prevent the patient dwelling or ruminating about the topic [5]. The manner of how these

processes may influence outcomes have been outlined [9]. In summary, the patient who is enabled

to express distressing content in their review consultation by the clinician may assist the patient in

their regulation of emotional processing in the brain. The adoption of such a self-regulation model

has been presented in the FCR field. [19] Our choice of outcome was FCR some weeks following

treatment when patients had a period of time to recover and adapt to a life without intensive

treatment, sometimes referred to as 'early survivorship' [2]. Previous research is lacking on

predicting distress following diagnosis [3] and has tended to concentrate on baseline variables such

as clinical and socio-economic factors. Very few studies have focused on how patients are managed

and their anxieties recognised or acknowledged during treatment. Hence the focus of our research is

to investigate an aspect of this patient management and establish if there is a link between the

communication of TR and patient, during the radiotherapy treatment phase, and FCR approximately

2 months after discharge.

Aim

To investigate the management of emotional talk in patients with breast cancer attending their initial review appointments during radiotherapy and assess the influence on fears of recurrence at 6-8 weeks follow-up from end of treatment. Our objectives were to test the effects on follow-up FCR of: (1) patients disclosing emotional cues in routine review appointments, and (2) clinicians responding to emotional cues with reducing space.

Methods

Sample

Consecutive patients attending the specialist cancer unit in a major hospital in Scotland were
recruited over January to May 2016. Psychiatric disorder, non-English speaking, metastatic disease
or consultant withdrawal were exclusion variables. Detailed sampling has been reported elsewhere
[1]. See Appendix 1 for flow chart. Two TRs were recruited from the cancer unit. They had no prior
training in the management of FCR.

Design

A consecutive mixed-methods approach was employed [17]. That is, self-report ratings of FCR were
collected at baseline and at 6-8 weeks follow-up from radiotherapy treatment discharge. Codes of
patient emotional talk and TR immediate responses were applied to the digital audio files of the first
two review appointments. Hence, this was an observational study without randomisation.

Measures

A study-specific demographic self-report questionnaire was administered to participants to assess:
age in years, treatment regimen (regular *vs* +/- boost, i.e. regular treatment is 15 sessions, whereas,
boost is given for positive margins and under 50 years of age), received chemotherapy or not, living
alone vs living with others. Fears of cancer recurrence were assessed using the FCR7 which has been
previously used with patients with breast, colorectal or head/neck cancer [15]. Reliability is good
(Cronbach's alpha in reference breast cancer group: 0.92), and there is evidence of validity.

The emotional content of the patient's interaction with the TR was assessed using the Verona CoDES
system that recognises emotional 'hints' or cues including frankly expressed concerns of the patient.
The system has been endorsed by over 60 scientific articles since publication of manuals in 2011 [5].

Specifically, the coding of the audio files was performed by one of the authors (LB) under the supervision of the study PI who is one of the VR-CoDES originators. The system comprises of two major components. First, the identification of all emotional concerns or more subtle hints, referred to as cues in the consultation. Second, the immediate response in the next utterance by the health provider. The cues are classified into 7 defined meaningful categories (CueA to CueG) and the responses by the TR are split into two major types, namely: 'providing space' or 'reducing space'. In other words the TR could deliver a response to the patient to provide more detail through remaining silent, or inviting and encouraging the patient to expand their comments, or alternatively reduce space for the patient to elaborate by use of distraction, changing topic or blocking [20]. The distinction is important as the relatively rare occasions where reducing space has been identified following cancer treatment is associated with subsequent mental distress. [8, 22] Coder training consisted of detailed reading of the coding manual and completion of the on-line exercise material available. In addition, the first five consultations were double coded and discrepancies discussed with GH and precision enhanced. When certain utterances were highlighted by the coder as being difficult to identify the following procedure was followed. Consensus was achieved after detailed discussion concentrating, first on the list of extensive examples supplied within the manual, and second, an inspection of the current context of the consultation topic. A reliability check of eight randomly chosen audio files was completed by two researchers and achieved a kappa of 0.85 (95% CI = 0.84, 0.86), Spearman's Rho = 0.96 [11].

Procedure

The Research Assistant (YY) approached all potential participants and invited written consent following reading of the patient information sheet a minimum of 24 hours prior to cancer centre attendance. The baseline questionnaire was administered prior to first radiotherapy treatment and review appointment with their TR. The review appointments were digitally recorded within the clinical setting with an unobtrusive digital studio-quality recorder with SD card unit storage that was

transferred on the same day of recording to the 'safe haven' constructed at the Medical School for confidential storage on a non-networked PC. The audio files were transformed by a propriety software package to be imported into the event logging software Observer XT™v12 for VR-CoDES coding. The eventual files were exported into an Excel spreadsheet with identifiers removed. The TRs were instructed to conduct their review sessions as usual. If the TR became aware of a highly distressed patient then this individual was referred to the centre's psychological services as per usual protocol of the cancer centre.

The study was approved by East of Scotland Research Ethics Service (NRES reference number: 13/ES/0015) and registered with ClinicalTrials.gov, ID number: NCT02599506.

Statistical analysis

Linear regression with a robust maximum likelihood estimator (STATA™v15) was applied [25]. After controlling for baseline FCR (R^2 of 0.38 obtained from previous study [14]) with four test and four further control covariates, the sample size required to detect a 0.1 R^2 increase was 56 (*power squared* routine [25]). Two nested models were fitted to explain the dependent variable: FCR at follow up, controlling for baseline FCR level. The first tested simultaneously the effects of number of cues in the two consecutive sessions and the frequency that patients were not provided space to expand on these emotional cues. The second model added control covariates, namely: age in years, treatment regimen (regular *vs* boost), received chemotherapy or not, living alone *vs* living with others such as partner or spouse, to determine if the model one effects were maintained. A likelihood ratio test assessed model improvement. Alpha level of 0.05 used for all tests (2-sided).

Results

The demographic breakdown, clinical intervention and mode of radiotherapy treatment are presented for the sample (Table 1). The mean total number of cues and concerns identified per patient was about 20. The mean number of cues and concerns for each consultation (first and second) and the frequency of reducing space when this emotional talk was coded was calculated (Table 1). The TR reduced space following an instance of emotional talk on about 9% of occasions. Appendix 2 shows examples of patient emotional talk and provider responses. Drop-out analysis of those patients without complete data on the demographic, and treatment variables compared with those entered into the regression revealed no differences ($p > 0.05$). The nearest discrepancy was the proportion who received chemotherapy. Patients who were not followed tended to be less likely to have received this additional treatment ($X^2(1) = 2.45$, $p = 0.12$).

Follow-up FCR7 was regressed on baseline FCR7 and explained 47% of the variance. Appendix 3 shows the raw correlation matrix. The *a priori* linear model demonstrated reasonable fit (Model 1) with the raw data ($R^2 = 0.54$; $F = 35.45$; df5, 54; $p < 0.001$). The number of cues and the frequency of reducing space by the health provider in the second consultation were associated with the dependent variable (both p levels < 0.05, Table 2). Model 2 included additional covariates to adjust for potential bias and explained approximately 2 percent extra variance of follow-up FCR. The likelihood ratio (*LR*) test showed that there was no improvement in Model 1 variance explained by the additional four covariates, i.e. Model 1 nested in Model 2; $X^2(4) = 2.15$, $p > 0.7$.

A supplementary set of models was run that included not only the number of emotional hints (i.e. cues) but also the less frequent concerns. These regressions varied very little and failed to improve dependent variable explanation. Furthermore, separate models of first and second consultation variables were fitted and gave similar p levels. The addition of the TR identity into all regression models revealed trivial explanation of FRC follow-up values and communication behaviour.

Discussion

The main overall aim of the study was achieved by collecting a substantial set of 120 consultation recordings for detailed coding with accompanying patient completed FCR ratings and background variables. The first objective was to describe the level of emotional talk in both of the review appointments with the patient's TR. The level of cues and concerns identified was relatively high compared with other samples of patients with cancer, especially when the length of the appointments was no greater than 15 minutes. [10] For example, in a study of follow-up appointments with the oncologist and adolescent patients the average number of cues and concerns expressed was 3.6 per consultation that averaged 24 minutes in duration. [21] The association of cues, in the current study, with the follow-up FCR rating was positive and significant for the second session only. The strength of the effect was within the *a priori* significance level.

The second related objective was to examine the aggregate responses by the TR to patient emotional talk exhibited in both sessions and inspect the association with follow-up FCR. Again this association was significant only for the second session but negative. Hence, the first session expression of emotions and their management by the TRs was not important in understanding the patients' FCR level at follow up.

The introduction of the number of concerns, as part of the emotional talk identified, into the analysis did not improve explanation, hence we excluded the addition of concerns into the emotional talk quotients and simply used the number of cues (for both sessions). This selection, admittedly *post hoc*, could be of theoretical significance. Paradoxically, it may be the somewhat more hidden emotional issues that are embedded in the interactions with patients undergoing radiotherapy that may be the most important for the TR to recognise. Therefore, it is not simply the most obviously signalled concerns ("I am worried the treatment isn't working") that are relatively easy to recognise by the health provider that need appropriate responses, but rather the more subtle indicators of emotion, e.g. "I am wondering what these 'electric' twitches I feel now really mean". Likewise the frequency of closing down of patients was relatively low (9% of all TR

responses) but potentially important. This phenomena has been identified as a critical moment in many clinical interviews. [5] Patients' presentation of emotional speech following the first session review meeting, that is during the second and subsequent sessions, may be especially sensitive to being closed down by the TR. As raised previously in the literature, once baseline distress levels are controlled for, additional predictors of distress outcomes are often 'masked' out [3]. Our data would partially support this, except we have identified some processes occurring during treatment to relate to follow-up FCR. The importance of the patient cues presented and TR closing down on occasion at the second review appointment may be interpreted as follows. The initial review may be simply functioning as an information exchange, and emotional expression may assume little significance. The second appointment however, after the patient has received some active radiotherapy treatment, experienced some side-effects and have the desire to share their anxieties. These anxieties, if not expanded upon or shared with the current health care provider , may suppress these potential concerns and generate ruminative processes responsible for FCR development [19]. A recent article that is consistent with this formulation has demonstrated the process of patients experiencing 'symptoms' potentially triggering FCR development and consequent behavioural responses [24]. An accessible model that links these events to FCR has been explicated by Lee-Jones *et al.* [19] It states that certain antecedents in a cognitive-behavioural framework operate to raise FCR which can be reinforced through positive or negative consequences. The attendance by the patient to their radiotherapy treatment session may sensitize these patients and raise associated anxiety about cancer risk, success of treatment and possible recurrence. The experience of the patient who expresses these cues or concerns and then not have them attended to by the clinician, may as a consequence, reinforce psychological avoidance by the patient to subsume the emotional experience. Alternatively, the experience may simply provide an indicator to the patient that these issues are not regarded as important and are better discarded if possible. The longer term psychological consequence of these processes, according to the illness representation model of Lee-Jones *et al.* is an exacerbation of FCR. The clinical implication of this study would be for therapeutic

radiographers to enable their patients to express their concerns whether they are specific to experienced symptoms and side effects, or considerations of cancer recurring.

Limitations

A modest sample size restricted our ability to test the expression of specific types of emotional cue on FCR development. It would have been interesting to be guided as to whether, for example, the expressed hints to an emotion were focused on issues about external stresses outside the clinic environment (i.e. CueD in the VR-CoDES system). Two members of the therapeutic radiographer staff participated, hence it is recognised that this cannot be generalised across radiography services. The baseline FCR assessment was conducted prior to the initial consultation by the TR and the first radiotherapy treatment session in an attempt to standardise the measurement process. All other ratings were assessed after the review appointments lending a possible complexity to interpretation. We conducted some checks for representativeness of the patient sample and showed that the participants retained are not substantially different from the total collected, however the baseline variables were not comprehensive and there is still potential for systematic bias. Furthermore, we expected patients to have no further treatment from the cancer centre following their final radiotherapy session. They may have been in contact with the centre for advice but this was not recorded. Replication is advisable and these results should be treated with caution. Future work should include a more comprehensive inclusion of both patients and staff, include additional potential confounds including: severity of illness and staff variables such as seniority and level of training. In addition, we concentrated on the first two review consultations and there is scope to include all four review appointments in the recordings to assess a more extensive longitudinal panel of data.

Conclusions

The management of emotional talk in patients with breast cancer during their early weekly review appointments with their TR predicts eventual FCR level some 6-8 weeks post discharge from primary treatment. Additional training to increase awareness of these features on the consultations of these patients may be of benefit. Studies need to be conducted to examine the generalisability of these findings and pinpoint whether there are particular emotional issues that may warrant close attention to prevent the development of disabling FCR levels. A new study protocol to develop a training programme for TRs has been reported.[27]

Table 1 Descriptive aggregate data for variables in statistical models (1 and 2)

Variables	Mean	Std. Deviation	Range: min-max
FCR7 Follow-up	14.88	8.61	6 – 40
FCR7 Baseline	17.21	7.52	6 - 39
Number of pt. cues: Session 1	5.33	7.89	0 - 43
Number of pt. cues: Session 2	5.03	6.42	0 - 23
Reducing space TR responses: Session1	0.63	0.88	0 - 3
Reducing space TR responses: Session2	1.08	1.47	0 - 7
Patient age (in years)	57.92	11.26	35 – 85
Radiotherapy			
Regular †	44 (73%)		
Regular + Boost	16 (27%)		
Treatment received			
No chemotherapy †	29 (48%)		
Chemotherapy	31 (52%)		
Social living condition			
With another †	48 (80%)		
Alone	12 (20%)		

† Reference category (0) in dummy variable assignment

Table 2 Multiple linear regression (robust estimator) to predict Follow-up FCR7

		Model 1			**Model 2**		
		Beta	95% CI	p	Beta	95% CI	p
	FCR7 Baseline	0.716	0.48, 0.94	0.0001	0.685	0.47, 0.89	0.0001
Session 1	Cues	0.106	-0.11, 0.12	0.32	0.047	-0.19, 0.28	0.69
	Reduce space	0.749	-1.25, 2.74	0.46	1.053	-1.06, 3.16	0.32
Session 2	Cues	-0.514	-0.90, -0.12	0.011	-0.468	-0.91, -0.03	0.037
	Reduce Space	1.934	0.45, 3.41	0.011	1.994	0.48, 3.51	0.011
	Age				0.046	-0.15, 0.24	0.64
	Chemotherapy †				-2.447	-6.26, 1.37	0.20
	Treatment †				-0.256	-5.75, 5.24	0.93
	Live alone †				0.912	-3.33, 5.16	0.63
	Constant	1.814	-1.81, 5.52	0.33	3.06	-9.77, 15.9	0.63
	R^2	0.54			0.56		
	LR test					$X^2 (4) = 2.15$	0.71

FCR7   Fears of Cancer Recurrence 7-item scale
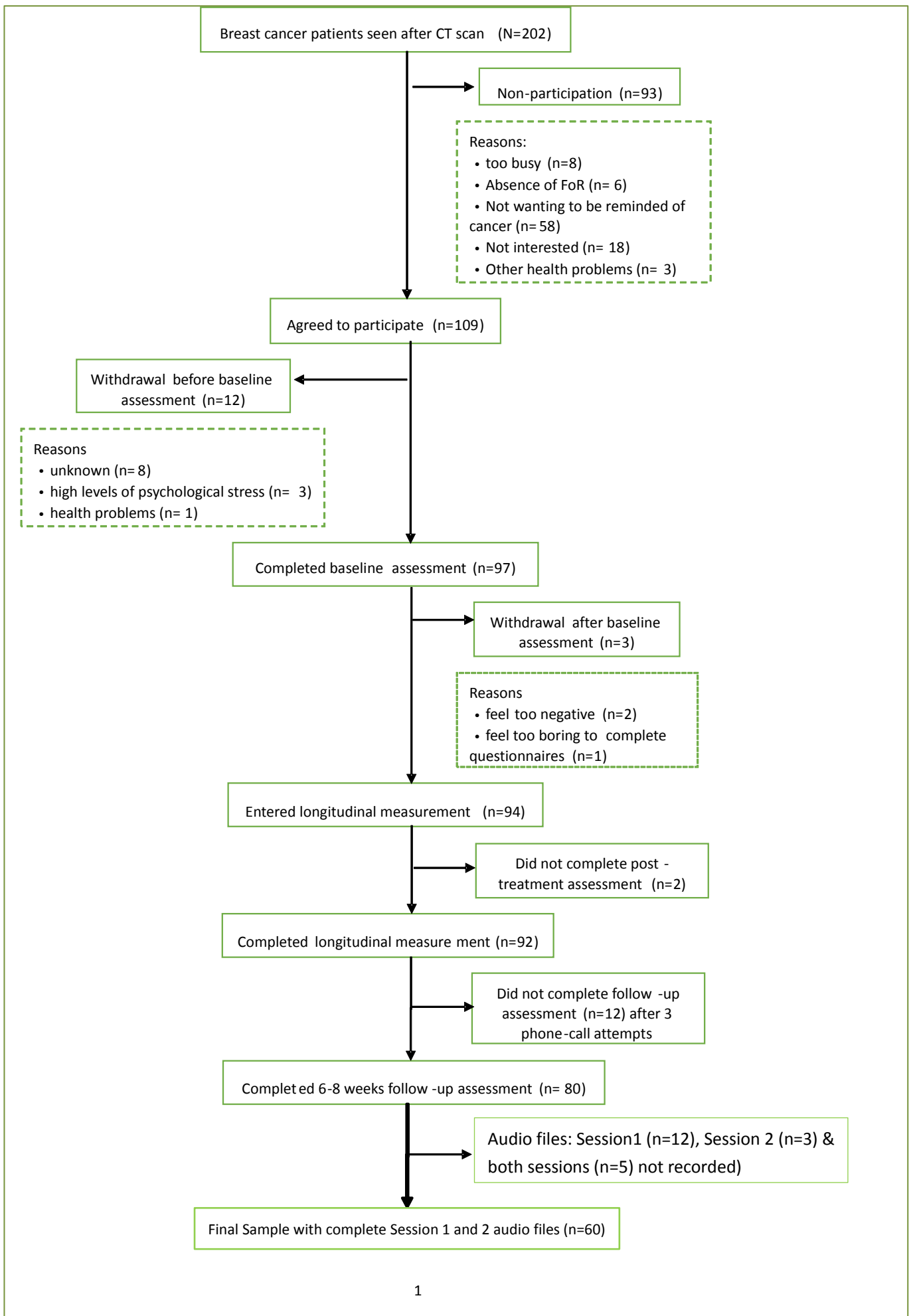
† Specified as dummy variable 0,1 (see Table 1)

Conflict of Interest

All authors declare that they do not have an actual or potential conflict of interest.

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Appendix 1

Breast cancer patients seen after CT scan   (N=202)

Non-participation (n=93)

Reasons:
• too busy (n=8)
• Absence of FoR (n= 6)
• Not wanting to be reminded of cancer (n= 58)
• Not interested (n= 18)
• Other health problems (n= 3)

Agreed to participate   (n=109)

Withdrawal before baseline assessment (n=12)

Reasons
• unknown (n= 8)
• high levels of psychological stress (n= 3)
• health problems (n= 1)

Completed baseline assessment (n=97)

Withdrawal after baseline assessment (n=3)

Reasons
• feel too negative (n=2)
• feel too boring to complete questionnaires (n=1)

Entered longitudinal measurement   (n=94)

Did not complete post - treatment assessment (n=2)

Completed longitudinal measure ment (n=92)

Did not complete follow -up assessment (n=12) after 3 phone-call attempts

Complet ed 6-8 weeks follow -up assessment (n= 80)

Audio files: Session1 (n=12), Session 2 (n=3) & both sessions (n=5) not recorded)

Final Sample with complete Session 1 and 2 audio files (n=60)

1

Appendix 2 Examples of Patient Utterances and Provider Responses (Using VR-CoDES System)

Patient Utterances			
Code	**Example**	**Pat. no.**	**Sess. no.**
Concern	"I'm terrified; what kind of scan this is"	5	2
	"But it's him I'm more concerned about, I'm not interested in myself"	6	1
	"I hate being ill! I'm not a person that likes being ill"	6	2
	"I feel very stressed out and depressed and worried"	23	1
Cue A	"It's just been a bit full on"	97	1
	"It's getting to the stage where don-, I honestly don't think I can do it much longer"	9	2
	"...if I feel a bit uuohh"	72	1
Cue B	"It feels like a needle is pinning me"	58	2
	"What's the point of taking an antidepressant?!"	38	2
	"The chemo was for me the killer"	26	1
Cue C	"Last night I had very little sleep…, so today I'm tired"	32	2
	"Most of my pain, in fact probably all of my pain is coming from the fissure"	17	2
	"Man, I woke up with a massive hot flush"	1	1
Cue D	"We haven't told the boys because we thought we were going to have to cancel everything when I got diagnosed"	94	2
	"My husband's not well, and he won't take responsibility but, he's never come with me to an appointment"	9	2
	"I try not to bother my younger sister, she's seven years younger than me, because she's recovering from cancer and she doesn't keep very well"	23	1
Cue E	"It's only when I've had the radio that it does it"; "And it only happens when I've had the radio"	49	2
	"What should I look out for?"; "It's just nice to sort of know what to look out for"	24	1
	"Apart from the... time for the bus again!"; "Just...come in...get off, get on, go!"	2	1
	"Feel slightly more tired on a Monday"; "I was probably a wee bit more tired Monday"	83	2
Cue F	*Inapplicable to audiotapes*	-	-
Cue G	"I was more angry..."	47	1
	"I was really, really frightened"	19	1
	"Panicky, like a panic attack...anxious, anxiety, erm, lack of confidence"	32	1
	"I was a bit concerned I would react"	8	2

Provider Responses (CD=Closing Down; PS=Providing Space; Pat=Patient; Prov=Provider)			
Code	Example	Pat. no.	Sess. no.
Ignore (CD)	**Pat:** "Yes yes, struggling a bit this week"; **Prov:** "How are you getting on with your tamoxifen, are you having any more problems with bruising?"	97	1
	Pat: "That was the worst bit"; **Prov:** "Yep, so going back to the Letrozole"	5	1
Shutting Down (CD)	**Pat:** "Sorry for…"; **Prov:** "No, don't apologise!"	34	2
	Pat: "…no, I'm getting worried"; **Prov:** "Noo, not at all!"	89	2
Acknowledgement (PS)	**Pat:** "I'm trying to figure out what normal is!"; **Prov:** "I know, uhuh, mhm"	1	1
	Pat: "I was really, really frightened"; **Prov:** "Were you, oh dear"	19	1
Implicit Empathy (PS)	**Pat:** "I didn't expect this on top of it, because it's not connected seemingly... it's not connected"; **Prov:** "I know, it's a lot. A lot for you to get your head round"	72	1
	Pat: "I just feel so tired"; **Prov:** "Sounds like you've been fighting a long time, to stay afloat"	9	2
Content Exploration (PS)	**Pat:** "I'm still sore inside eh, it's quite jagged and sore"; **Prov:** "Are you getting sharp shooting pains?"	14	1
	Pat: "I, I go to bed and I go to sleep, but I do waken up"; **Prov:** "Right, so a bit more disturbed?"	19	2
	Pat: "And it just suddenly hits you, this kind of overwhelming tiredness"; **Prov:** "Yeah, and are you sleeping alright?"	15	2
	Pat: "Under my arm's been a bit sore...a bit kinda niggly... inside...inside kinda niggly feeling, I don't know..."; **Prov:** "Sort of sharp shooting pains? Or just more a kind of pulling sensation?"	90	2
	Pat: "Maybe the co-codamol has worn off, I've got to put my other foot forward, because to put my full weight on it, it's painful"; **Prov:** "Uhuh, so that's your left hip isn't it?"	92	1
Affective Acknowledgement (PS)	**Pat:** "my biggest concern is getting here and parking and, and, getting through the traffic and and so on"; **Prov:** "It can be stressful"	21	1
Affective Exploration (PS)	**Pat:** "I've never felt as emotionally raw"; **Prov:** "How did you feel after you were told that you'd had the cancer diagnosed, did you feel upset then or, do you think this is a bit delayed?"	43	1
Affective Empathy (PS)	**Pat:** "You think for God's sake how did this happen"; **Prov:** "I think that's hard to deal with when you're doing all you can to keep yourself healthy"	97	2
	Pat: "I said I felt very lonely... I feel like everything's my responsibility, I'm the only one that's working"; **Prov:** "And that's very very hard when you're the one that's needing some support and attention yourself"	9	1

Appendix 3   Pearson Correlation Matrix

	Variable	1	2	3	4	5	6	7	8	9
1	FCR7 Follow-up	1.000								
2	FCR7 Baseline	0.686	1.000							
3	No. of pt. cues: Session 1	0.303	0.351	1.000						
4	No. of pt. cues: Session 2	0.005	0.071	0.415	1.000					
5	Reducing space TR responses: Session 1	0.271	0.237	0.385	0.318	1.000				
6	Reducing space TR responses: Session 2	0.205	0.105	0.318	0.727	0.362	1.000			
7	Age (in years)	-0.134	-0.190	0.114	-0.047	0.065	-0.175	1.000		
8	Treatment received †	-0.291	-0.298	-0.122	0.105	0.166	0.078	0.390	1.000	
9	Social Living conditions †	0.163	0.120	0.160	-0.117	0.019	0.000	0.037	-0.017	1.000
10	Radiotherapy †	0.114	0.190	-0.022	0.177	-0.006	0.249	-0.515	-0.096	0.075

† See Dummy variable key in Table 1