

## Background

In addition to survival, quality of life is an important treatment outcome for older cancer patients.<sup>1</sup> There is evidence that active involvement in treatment decisions increases patient satisfaction and post treatment Health Related Quality of Life (HRQoL).<sup>2</sup> Along with ethical, legal and social issues in health care, this has led to patients being encouraged to be more active in making treatment decisions.<sup>3</sup> However, reviews of the literature indicate that older patients may prefer to be passive in treatment decisions.<sup>4</sup> In our nested qualitative study some patients expressed distress at being required to be more active in the treatment decision than they preferred. The benefits of active involvement may be limited if the patient prefers not to be involved. If so soliciting, then meeting, patients' preferred decision making style should be recommended rather than encouraging active involvement indiscriminately. Studies investigating the impact of congruence, (i.e. getting the treatment decision making style you prefer) on HRQoL, are limited. Hack et al found no association amongst 205 Canadian breast cancer patients.<sup>1</sup> However both HRQoL and decisional preferences were measured at 3 years post surgery when the impact of both surgery/decisional role would be considerably diluted. Moreover no baseline data on pre- surgical HRQoL were available. Thus it is still an open issue as to whether there is a relationship between congruence and HRQoL when these are more proximally measured around the time of surgery. The aims of this study were thus:

1. To investigate the impact of older patients getting or not getting the treatment decision making style they prefer on post-surgical HRQoL.
2. To investigate the impact of surgery on HRQoL for older patients.

## Methods

The Control Preference Scale (CPS) is a widely used and validated scale measuring the degree to which patients **prefer** to be and perceive they **actually are** involved in specific treatment decisions.<sup>5</sup> Patients are asked to choose between five options from 'I prefer to make the final decision about which treatment I will receive' to 'I prefer to leave all decisions regarding my treatment to my doctor' and then identify the role they actually played in the treatment decision (Table 1).

We have recruited a cohort of women aged  $\geq 65$  years diagnosed with early stage invasive breast cancer.<sup>6</sup> In our current dataset of 943 women aged  $\geq 65$  years diagnosed in Northwest England (01/07/2010 to 31/03/2013) with early stage invasive breast cancer CPS scales were completed on both preferred and actual role for 673 of the 801 patients who had surgery. This measure was taken at a face to face interview within 30 days of diagnosis and before surgery. We also took a self reported measure of HRQoL (EORTC- C30)<sup>7</sup> at this interview and repeated the measure in a postal survey sent 30 days after surgery. EORTC-C30 is scored on a 1-100 scale, in which a higher score indicates a better quality of life. EORTC-C30 was returned by 625 of the 801 surgical patients (78%). 546 of whom had also completed CPSs. EORTC-C30 completed within 2 weeks (and before the commencement of follow up adjuvant treatment - radiotherapy and/or chemotherapy) by 434 participants (380 of whom also had completed CPSs).

The above data collection only included surgical patients. This was extended by including non-surgical patients to investigate the impact of surgery on HRQoL for older patients. A time frame to be equivalent to 30 days post-surgery for non-surgical patients was set at 60 days post diagnosis and the survey sent out at 54 days to allow for postage/ participant delay. However the follow up HRQoL survey was only sent out to non-surgical patients in a subsample of sites which recruited women aged  $\geq 70$  years only ( $n = 462$ ). The follow up HRQoL survey was returned by 338 (73%) (309 of whom also had completed CPSs) and completed within 2 weeks by 246 participants (225 of whom also had completed CPSs).

## Analyses

Univariable analysis investigated the association between achieving the congruence (i.e. the patient actually playing the decisional role they prefer) and difference in quality of life pre vs. post-surgery (paired t-tests).

Multiple linear regression investigated the effect of role congruence (i.e. achieved vs. not achieved) on the outcome of difference in HRQoL pre vs. post surgery. Patient age, social class and pre- treatment measures of health are also adjusted for. According to Tabachnick & Fidell's guidelines, the sample size for multiple linear regression should be at least  $\geq 50 + 8p$  and  $\geq 104 + p$  (where  $p =$  number of distinct variables).<sup>8</sup> The sample should therefore support the inclusion of up to 48 explanatory variables.

This analysis was extended by including non-surgical patients and thereby investigating the impact of surgery on HRQoL for older patients (paired t test) and adjusting for role in treatment decision making (in terms of the extent to which they achieved congruence) in multiple linear regression analyses.

## Results

Patients preferred and actual role in the surgical decision are detailed in Table 2. As can be seen there is little congruence between patients' preferred and actual roles in the treatment decision making, as revealed by their CPS scores. Only 163 of 673 patients actually received their preferred role in the decision, and the vast majority (125) of these were when they both wanted the decision to be made by the doctor and indicated this to be the case in actuality. According to Landis and Koch this represents a 'slight' level of agreement ( $\kappa = 0.039$ ).<sup>9</sup> The largest source of disagreement was amongst patients who indicated that their actual role was more passive than they would have preferred (442 patients); only 68 patients indicated their actual role to have been more involved than they would have preferred. The difference in HRQoL pre and post-surgery was not associated with congruence either in the univariate ( $P = 0.830$ , two sample t test) or multivariate analyses ( $P = 0.940$ ) adjusting for age, tumour stage, socio-economic status, co-morbidity and functional health status (Table 3).

Of the 225 patients in the sub-sample investigating the effect of surgery on HRQoL in the extended analyses, 59 (26%) achieved congruence i.e. got the treatment making decision style they preferred. Change in HRQoL was not associated with congruence ( $P = 0.133$ ) nor with receipt of primary surgery ( $P = 0.841$ ) either in the univariate analyses (t tests) or in multiple linear regression analysis adjusting for the effects of each other:  $P = 0.135$  and  $P = 0.729$  respectively.

## Conclusion

Achieving the preferred level of involvement in the surgical treatment decision, and undergoing the surgery itself, had no impact on post-surgical HRQoL, in this sample of older breast cancer patients.

**TABLE 65: Control Preferences Scale (CPS)<sup>6</sup>**

Option	Control Preference Scale <sup>6</sup>
A	I prefer to make the decision about which treatment I will receive.
B	I prefer to make the final decision about my treatment after seriously considering my doctor's opinion.
C	I prefer that my doctor and I share responsibility for deciding which treatment is best for me.
D	I prefer that my doctor make the final decision about which treatment will be used but seriously considers my opinion.
E	I prefer to leave all decisions regarding treatment to my doctor.

**TABLE 66: Preferred vs. actual role in treatment decision**

		Actual role					Total
		A	B	C	D	E	
Preferred role	A	5	5	3	1	32	46
	B	3	12	2	1	51	69
	C	11	19	15	5	230	280
	D	4	6	1	6	112	129
	E	10	6	3	5	125	149
	Total	33	48	24	18	550	673

Agreement = 24.2%, Kappa = 0.039,  $P=0001$

**TABLE 67: Multiple regression of difference in HRQoL post vs. pre surgery (n = 379)**

Variable		P Value	Coefficient†	95% CI	
				Lower	Upper
CPS Congruent	Yes: Got decision making style preferred	(ref)			
	No: Did not get decision making style preferred	0.945	0.15	-4.03	4.33
Age	Years	0.396	0.13	-0.17	0.44
Socio-economic status*	Professional/ managerial	(ref)			
	Intermediate	0.444	1.73	-2.72	6.18
	Manual	0.210	3.16	-1.79	8.10
Tumour stage	Stage 1	(ref)			
	Stage 2 &3a	0.595	-0.98	-4.61	2.64
Co-morbidity (Charlson)	0	(ref)			
	1+	0.904	-0.23	-4.01	3.54
Functional status ELPHS ADL	Scale 1-4 (increase = worse)	0.727	0.63	-2.93	4.20

†Adjusted for all other variables in the table

\* 1 missing value not included

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