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Introduction

A new strategy of watch-and-wait has emerged which allows patients with a clinical complete response (cCR) to avoid major surgery and instead opt for a surveillance programme (watch-and-wait). Approximately a third of patients on watch-and-wait will experience local regrowth and will require salvage surgery but the remaining patients will successfully avoid surgery and living with a stoma [1]. However, there are fears that residual cancer cells may remain untreated following a cCR if patients opt for watch-and-wait, and re-manifest later as pelvic recurrence or metastases and compromise survival [2,3].

There are potential benefits and risks associated with both surgery and watch-and-wait. Individuals with rectal cancer with a cCR need to make a decision between these alternatives. This decision is likely to be driven by the component parts (attributes) of each alternative. Patients are likely to balance (trade-off) between these attributes when they are making a decision.

Aim



To quantify the preferences of people with experience of cancer for factors influencing the decision to follow a watch-and-wait programme compared with surgery after a cCR in rectal cancer.

Methods

A discrete choice experiment (DCE) [4] was embedded into an online survey to quantify the preferences of a purposive sample of UK-based adults with experience of cancer (recruited using an online panel provider; Pureprofile). Respondents chose their preferred alternative from two labelled options of watch-and-wait and surgery (see Figure 1) described using 7 attributes (see Table 1). Attribute selection was informed by a literature review and focus groups with patients and clinicians.

Respondents were allocated to one of four versions of the DCE containing 11 choice questions. The DCE mathematical design aimed to minimise D-error and avoid illogical combinations of attribute levels [5]. Respondents were asked questions about: themselves (age, gender etc); answering the choice questions; attitude towards decision-making; health status; experience with cancer; attitude towards risk; numeracy tests.

Choice data were analysed using uncorrelated random parameters logit model [6]. Uptake probabilities were calculated for an example scenario.

Figure 1: Example choice question

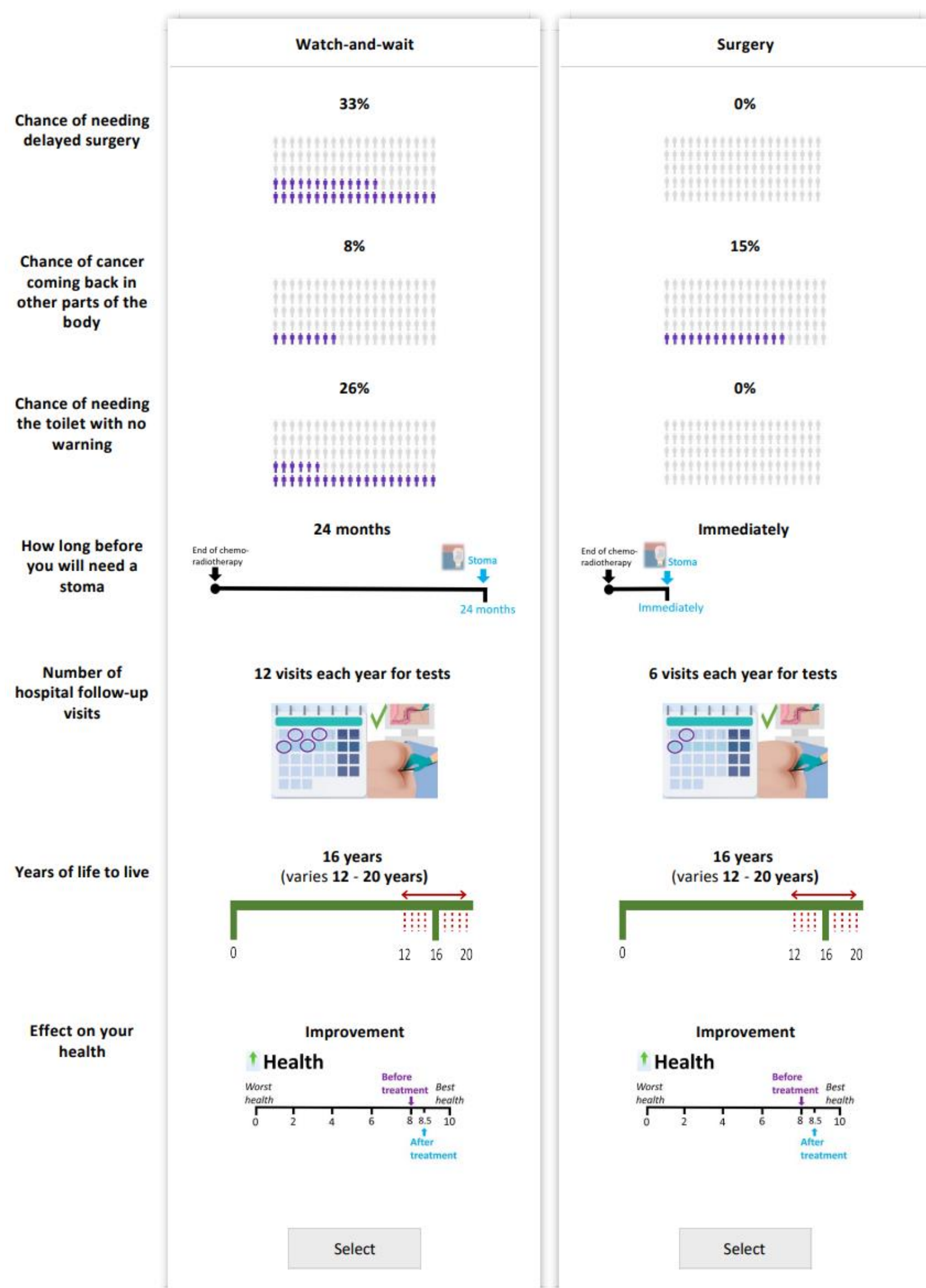


Table 1: Results from random parameters logit model

| Attribute | Description of variable in the regression model | Estimated coefficient | Standard deviation |
|----------------------------|---|-----------------------|--------------------|
| Time until stoma | How long before you will need a stoma | 0.007*** | 0.039*** |
| Delayed surgery | Chance of needing delayed surgery | -0.002 | 0.017*** |
| Cancer metastases | Chance of cancer coming back in other parts of the body | -0.038*** | -0.019 |
| Faecal urgency | Chance of needing the toilet with no warning | -0.019*** | 0.219 |
| Number of follow-up visits | 6 visits per year for tests (no camera investigations) | -0.147* | 0.053 |
| | 6 visits per year for tests | -0.106 | 0.154*** |
| | 12 visits per year for tests | -0.030 | -0.123 |
| Survival | Years of life to live | 0.160*** | -0.013 |
| | High uncertainty ^a | 0.008 | 0.764*** |
| | Interaction term for years of life to live and high uncertainty | -0.007 | -0.006** |
| Quality of life | Effect on health | 0.728*** | 0.066*** |
| | Constant for left-to-right bias ^b | 0.020 | -0.006** |
| | Alternative-specific constant ^c | -0.102 | 0.066*** |

Number of observations = 6,780

Akaike Information Criterion (AIC) = 3877.51

Bayesian Information Criterion (BIC) = 4041.23

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

^a an effects-coded variable representing the uncertainty associated with survival (-1 for low uncertainty and 1 for high uncertainty)

^b a dummy variable representing the tendency for respondents to choose the alternative on the left-hand side

(0 if the alternative on the right-hand side; 1 if the alternative on the left-hand side)

^c a dummy variable representing the tendency for respondents to choose an alternative when all attribute levels are the same for both alternatives

(0 for surgery and 1 for watch-and-wait)

Results

Choice data were available from 339 respondents (51% female; mean age 52 years). Six attributes were statistically significant predictors of choices.

Chance of having delayed surgery was not found to influence the choice between watch-and-wait and surgery. Respondents generally preferred a longer time until stoma, lower chance of cancer returning in other parts of the body or needing the toilet without warning, increased survival and health. Calculated uptake for an example scenario indicated that there was a 48% probability of a respondent choosing watch-and-wait and 52% probability of a respondent choosing surgery. This scenario assumed that both alternatives were equal in survival and quality of life.

Importantly, respondents in our sample did not show an intrinsic desire for watch-and-wait or surgery meaning they made decisions based on the attributes and were virtually indifferent between the two options. The slight balance towards surgery could be explained by individuals being more familiar with surgery than watch-and-wait as the latter is a relatively more recent treatment alternative for this population.

Conclusion

Our main results and scenario analyses consistently showed that respondents had no strong preference for surgery or watch-and-wait *per se*. The respondents had clear preferences for each attribute and were able to make tradeoffs between the attributes when making choices.

The results of this study suggest that there is a potential role for a decision-aid that explains each alternative and outlines the benefits and harms of each option to use in a clinical context to help patients and clinicians work together to reach a shared decision.

References

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