


Factors Affecting Satisfaction with the Decision-Making Process and Decision Regret for Men with a New Diagnosis of Prostate Cancer

American Journal of Men's Health
July-August 1–11
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DOI: 10.1177/15579883211026812
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Abstract

For men with newly diagnosed prostate cancer the decisions about treatment options are complex and difficult. The aim of this study was to investigate any association between the extent to which men wanted to be involved in the decision making process, their satisfaction with that process, and their levels of decision regret after treatment. The study population consisted of men diagnosed with prostate cancer at a regional center in Australia. Men ($n = 324$) were invited to complete a mail out survey which included demographic questions, the treatment chosen, and three validated tools: The Control Preference Scale to measure the degree of control assumed when making decisions about medical interventions; the Treatment Decision-Making Satisfaction Scale (TDM- SAT) to assess satisfaction with the treatment decision making process; and the Decision Regret Scale to assess the level of regret after treatment. The majority of the 151 respondents (47% response rate) expressed an active decision control preference. There was no correlation between age and the treatment chosen or the degree of control men exerted over the decision-making process. Men who preferred a passive role were less satisfied with the decision-making process than were those who took an active or collaborative approach. A strong inverse correlation was demonstrated between regret experienced and satisfaction with the decision-making process. In conclusion, for men newly diagnosed with prostate cancer, taking an active role in the treatment decision making process led to greater satisfaction with that process, which in turn reduced their chances of experiencing regret following treatment.

Keywords

prostatic neoplasms, decision making, personal satisfaction, patient participation, emotions

Received July 7, 2020; revised May 16, 2021; accepted May 31, 2021

Prostate cancer has a high incidence and remains the most common solid organ cancer diagnosed in Australian men, with an incidence rate of 129 cases per 100,000 persons (Australian Institute of Health and Welfare, 2017). This rate is similar to the incidence rate of 104 cases per 100,000 persons among American men (American Cancer Society, 2020). Based on these estimates, approximately 17,000 Australian men (Australian Institute of Health and Welfare, 2017) and 192,000 American men (American Cancer Society, 2020) will have been diagnosed with prostate cancer in 2020. Although prostate cancer is a commonly diagnosed cancer, the mortality rate is low such that there is a 95% 5-year survival (Cancer Australia, 2020). The high incidence and low mortality contribute to a high prevalence of prostate cancer in the male population. Ninety percent of these cases

are diagnosed when the cancer is clinically confined to the prostate, such that decisions need to be made about treatment with curative intent (radical prostatectomy or radiation therapy) (Hamdy et al., 2016; Siegel et al., 2017) or conservative management (active surveillance or watchful waiting).

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For all men with a new diagnosis of prostate cancer, the decision to undergo active treatment is difficult because of the potential for treatment-related side effects that can interfere with physical, psychological and sexual well-being (Punnen et al., 2015; Tombal et al., 2013). This difficulty is compounded by the lack of proven efficacy of prostate cancer treatments in improving survival (Hamdy et al., 2016; Wilt et al., 2017). The decision as to what treatment to pursue following a diagnosis of prostate cancer should be made collaboratively by the treating physician and the patient. Ideally, a patient would make their treatment decision based on a good understanding of their condition and treatment outcomes; however, many patients do not have a good understanding of their treatment choices and are frequently not well informed. In addition patients often make decisions ruled by emotion and intuition rather than reason and fact (Blumenthal-Barby et al., 2015). The patients' decision may be impacted upon by psychological distress, anxiety and fear often experienced after a cancer diagnosis (Orom et al., 2016; Tombal et al., 2013). Physicians should actively involve the patient in the decision making process by ensuring that they are well informed and providing them with advice about: the need for treatment (based on the risk of the cancer progressing within the patient's life expectancy); the risks associated with treatment choices; and the possible benefits in terms of longer survival (Becerra Perez et al., 2016; Bisson et al., 2002; Boorjian et al., 2008; D'Amico et al., 2000; Hall et al., 2005; Steginga et al., 2008). Physicians need to be careful not to unduly influence patient decisions and ensure that men are presented with all available treatment options in a neutral and unpressured way (Blumenthal-Barby et al., 2015). The patient should then consider this advice in light of their personal values and preferences, and their preparedness to trade-off the risk of potential treatment-related side effects for a possible longer survival (Fischer et al., 2006; Sepucha et al., 2006).

Following treatment, there may be a good or bad outcome for the patient which is essentially defined by their consequent "level of health" (Clark et al., 2001). A good outcome entails a low level of side effects associated with treatment and continued good health without any impact on quality of life. A poor outcome will be experienced as lower scores on a cancer focused quality of life scale, poor functional status eg long term side effects of treatment including adverse bladder, bowel and sexual side effects, failure of the treatment to provide cure or poor emotional well-being (Berry et al., 2012). Although a patient may suffer from significant side effects post treatment their response to that outcome can be ameliorated by their satisfaction with, and involvement in, the decision making process (Elwyn & Miron-Shatz, 2010; Ent & Gerend, 2016).

When a decision about a treatment option is made under conditions of uncertainty, and the patient later considers that there were alternatives, a sense of loss or regret can occur (Joseph-Williams et al., 2011). Decision regret has been defined as a negative emotion involving distress or remorse following a decision (Becerra Perez et al., 2016) and can result when the outcome of a decision is compared with the likely outcome of an unchosen alternative (Connolly & Reb, 2011). Decision regret is characterized by self-blame and a wish to undo the situation which has led to a poor outcome (Zeelenberg & Pieters, 2007, p. 10). In a range of health care settings, both cancer and non-cancer related, lower involvement in the decision making process has been associated with increased decision regret (Brehaut et al., 2003; Clark et al., 2001; Hurwitz et al., 2017). Other factors that may exacerbate decision regret for patients diagnosed with prostate cancer include: pretreatment anxiety; post-treatment side effects (for example reduction in sexual, bladder and bowel function); higher levels of decisional conflict before choosing the treatment and lower satisfaction with the information provided by the physician (Becerra Perez et al., 2016; Christie et al., 2015; Diefenbach & Mohamed, 2009; Hoffman et al., 2003). A 15 year post-treatment study on men with localized prostate cancer found that decision regret was lower among men who had made informed decisions and who were older at the time of diagnosis (Hoffman et al., 2003). These findings are in contrast, to those of a small Taiwanese study which highlighted that there was no association between decision regret and the involvement of men in the decision making process (Chien et al., 2014). Increased levels of decision regret are associated with significant health impacts including lower health related quality of life, poor self-image, negative appraisal of masculinity, increased cancer related distress, overall worse health outcomes and subsequent negative experiences with the health system (Becerra Perez et al., 2016; Clark et al., 2001).

As described above, there is some evidence that increased control over the decision making process leads to increased satisfaction with that process and that a passive role in decision making is associated with increased decisional regret (Orom et al., 2016). However, there is a gap in the literature examining the links between involvement in the decision making process, satisfaction with that decision making process and subsequent regret in the same patient population. Therefore, the aim of the current study was to investigate if there was an association between the extent to which men, with a new diagnosis of prostate cancer, had wanted to be involved in the decision making process, their satisfaction with that process, and their levels of decision regret after treatment.

Table 1. Individual Items that Make up the Survey Tools.

Tool	Items	Response options
Control Preference Scale	<p><i>Item 1:</i> I made the final treatment decision.</p> <p><i>Item 2:</i> I made the final treatment decision after seriously considering my doctors opinion.</p> <p><i>Item 3:</i> My doctor and I shared responsibility for deciding which treatment was best.</p> <p><i>Item 4:</i> My doctor made the final treatment decision after seriously considering my opinion.</p> <p><i>Item 5:</i> I left all the treatment decisions to my doctor.</p>	<p>(1) I made the final treatment decision.</p> <p>(2) I made the final treatment decision after seriously considering my doctor’s opinion.</p> <p>(3) My doctor and I shared responsibility for deciding which treatment was best.</p> <p>(4) My doctor made the final treatment decision but seriously considered my opinion.</p> <p>(5) I left all treatment decisions to my doctor.</p>
Treatment Decision- Making Satisfaction Scale (TDM-SAT)	<p><i>Item 1:</i> My treatment decision making options were clear to me.</p> <p><i>Item 2:</i> It was easy for me to decide on the treatment I chose.</p> <p><i>Item 3:</i> I am satisfied with the level of communication I had with my physician about treatment options.</p> <p><i>Item 4:</i> Overall, I am satisfied with my treatment decision making experience.</p> <p><i>Item 5:</i> Overall, I am satisfied with the treatment I chose.</p>	<p>(1) not at all</p> <p>(2) a little bit</p> <p>(3) somewhat</p> <p>(4) quite a bit</p> <p>(5) to a very great extent</p>
Decision Regret Scale	<p><i>Item 1:</i> It was the right decision.</p> <p><i>Item 2:</i> I regret the choice that was made.</p> <p><i>Item 3:</i> I would go for the same choice if I had to do it over again.</p> <p><i>Item 4:</i> The choice did me a lot of harm.</p> <p><i>Item 5:</i> The decision was a wise one.</p>	<p>(1) strongly disagree</p> <p>(2) disagree</p> <p>(3) neither agree not disagree</p> <p>(4) agree</p> <p>(5) strongly agree</p>

Methods

Study Population

The study population consisted of men, with a new diagnosis of prostate cancer, under the care of physicians at a regional center in Australia, between January 2015 and January 2017. There were no specific exclusion criteria and the study was approved by the Human Research Ethics Committee of the University of Wollongong, NSW, Australia [HREC2016/955].

Study Measures

The 324 men in the study population were mailed an 18-item written survey and tacit consent was assumed for surveys that were completed and returned via reply paid envelopes. Non-responders were not reminded or contacted further and there were no inducements, financial or otherwise offered. The survey included demographic questions (e.g., age, marital (partner) status, employment status, education level, country of birth, as well as a question about the treatment option chosen. The survey also included three reliable and validated tools: The Control Preference Scale (Degner et al., 1997), the Treatment Decision-Making Satisfaction Scale (Victorson et al.,

2016) and the Decision Regret Scale (Brehaut et al., 2003) (Table 1).

The Control Preference Scale consists of 5 items designed to measure the degree of control an individual wants to assume when decisions are being made about medical treatment (Degner et al., 1997). It is a graded, agree-disagree response tool in which a respondent endorses an attitude stated to the extent that it matches their own opinions (Roberts & Donoghue, 2000). As part of this scale, we adopted the modification used by Davison et al. (2007) in that response statements were in the past tense and respondents were asked to select the response option that reflects best the role they took in the decision (Table 1). Respondents who chose options 1 or 2 were categorized as having an Active role, those that chose option 3 were categorized as having a Collaborative approach, and those that selected options 4 or 5 were categorized as having a Passive role in the decision making process (Degner et al., 1997; Fischer et al., 2006; Orom et al., 2016). This scale was chosen because its reliability has been established with 80% of the decisional preferences of men with newly diagnosed prostate cancer falling into the “dimension” of the preference scale (Degner et al., 1997).

A modification of the Treatment Decision-Making Satisfaction Scale (TDM-SAT) (Victorson et al., 2016)

was used to measure satisfaction with the decision making process. The TDM-SAT contains 5 items on a 5-point Likert scale (Table 1) with higher scores, out of a possible 25, indicating greater satisfaction with the decision making process. The tool has been validated with item total correlations ranging from 0.85 to 0.91 and internal consistency reliability was 0.96 (Victorson et al., 2016).

The final validated and reliable tool included in the survey, was the Decision Regret Scale (Brehaut et al., 2003). This tool asks respondents to reflect on their treatment decision by providing 5 statements requiring responses on a 5-point Likert about the degree to which they agree with the statement (Table 1). This scale provides a score out of 100 (0 = no regret; 100 = extreme regret), with a score greater than 25 indicating significant regret (Hurwitz et al., 2017). The scale has high internal consistency with Cronbach's Alpha ranging from 0.81 to 0.92. The item total correlations range (for a group of prostate cancer patients) was between 0.50 and 0.67 (Brehaut et al., 2003).

Statistical Analysis

Descriptive statistics were used to provide an overview of respondents' sociodemographic characteristics, primary treatment option chosen and degree of control they exerted over the decision making process. Continuous data with two numerical variables were analyzed using linear regression with p values indicating the extent to which the deviation of the slope from zero was significant (p values $< .05$ were taken as significant) and r^2 indicating the "goodness of fit." To determine whether the difference between values was significant, when one value was numerical (and normally distributed) and the other categorical, an unpaired t test was performed if there were two categorical groups and an ANOVA if multiple categorical groups. However, when the numerical values were non-parametric, to determine if the difference between the values was significant, the Kruskal-Wallis test was used if there were multiple groups and the Mann-Whitney test if only two groups. Analysis to determine correlation between the responses from individual tools or items was performed using Prism 7 for MacOSX (GraphPad Software Inc.).

Results

Participant Demographics

In total, 151 men responded to the survey representing a response rate of 47% (151/324). The time since diagnosis of prostate cancer ranged from 70 to 783 days. There was no significant difference between the clinical characteristics of the group that responded to the survey and those that did not (Table 2). The median age of the two groups

(responders, non-responders) was similar, as was the proportion of participants who had undertaken surgical treatments, as compared to non-surgical treatments (Table 2). The mean PSA, % high Grade Gleason score and D'Amico scores (identifying the risk of metastases) was also similar in the two groups (Table 2) and all but three of the respondents had clinically localized prostate cancer. Many of the respondents (56%, 84/150) underwent surgery as the primary treatment for their prostate cancer and no association was found between age and the choice of either surgical or non-surgical treatment (p 0.93, Mann-Whitney). The majority (87%, 130/151) of the respondents had a partner and just over half (55%, 83/151) described themselves as being retired. Almost one third of respondents were not born in Australia (26%, 40/151) which is representative of the general population of Australia of whom 30% were born overseas (Australian Bureau of Statistics, 2018) and 9% (14/151) spoke English as a second language. Three quarters of the study respondents had finished high school (75%, 113/151) and one quarter had a university degree (25.2%, 38/151); however, one third (32%, 48/151) of the respondents left school at less than 16 years of age.

Degree of Control on the Decision-Making Process

The majority of men who responded to the survey perceived that they had taken an active role in the decision making process (65%, 97/151), based on their responses to the Control Preference Scale. There was no association between the degree of control men exerted over the decision making process and age (p 0.57, ANOVA), achieving a university degree (p 0.23, Mann-Whitney) or having a partner (p 0.55, Mann-Whitney). Participants who opted for a passive role in decision making were more likely to have left school at a younger age compared to those who opted for an active role (Figure 1, p 0.0170, ANOVA).

Factors that Influence Patient Satisfaction with the Decision-Making Process

Overall, a high proportion of respondents were satisfied with the decision making process, with an average TDM-SAT score of 20.8 out of 25. However, one third of respondents did not find it easy to make a decision, as highlighted by their response to TDM-SAT Item 2 (33% scored 3 or less). No correlations were found between the primary treatment and satisfaction with the decision making process (p 0.61, Kruskal-Wallis). Respondents who had surgical treatment (radical prostatectomy) were just as satisfied as were those who had opted for a non-surgical treatment (Figure 2A). No correlation was found between

Table 2. Participant Characteristics.

	Participants	Non-responders
Age median mean (range)	66.5 (47–84)	65.6 (50–90)
Cancer related factors		
PSA	8.3 (6.1–11)	7.6 (5.2–13)
% Gleason High Grade	20 (5–70%)	30 (1–80%)
D’Amico Score ^a		
Low	12%	23%
Intermediate	62%	49%
High	26%	28%
Primary treatment		
Surgical	56% (84/150)	44% (91/206)
Non-surgical		
Radiation	20% (30/150)	19% (40/206)
Androgen deprivation therapy	5% (7/150)	9% (18/206)
No therapy	19% (29/150)	28% (57/206)

Note. ^aThe D’Amico score predicts the 5 year risk of development of metastases post treatment from pretreatment clinical data [10]. Patients are divided into three groups. Low Risk cancer is defined as a PSA <10 AND a highest Gleason biopsy score of ≤6 AND clinical stage T1/2a, Intermediate Risk cancer is defined as a PSA of ≥ 10 and <20 OR a highest Gleason score of 7 or clinical stage T2b and High Risk cancer is defined as a PSA of ≥20 OR a Gleason score of ≥ 8 OR clinical stage T2c/ T3.

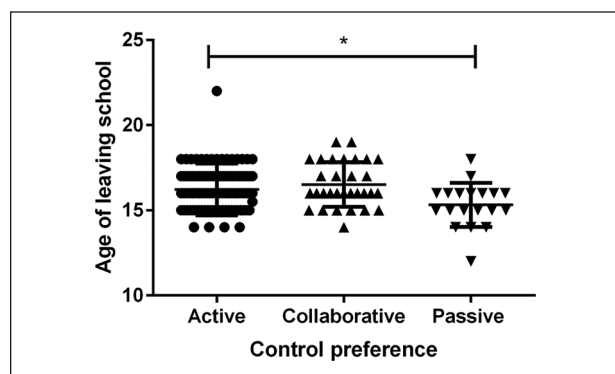


Figure 1. Effect of age leaving school on control preference. Participants who opted for a passive control preference were more likely to have left school at a younger age than those who opted for an active control preference (p 0.017, ANOVA).

age and satisfaction with decision making (p 0.57, r^2 0.002, linear regression).

An association was found between the respondents’ decisional control preference (either active, collaborative or passive) and their satisfaction with the decision-making process. Respondents who had taken a passive role were less satisfied with the decision making process, as compared to those who had taken an active role (p 0.005, Kruskal-Wallis using Dunn’s multiple comparison test) or a collaborative role (p 0.02, Figure 2B). These results were confirmed by the responses to TDM-SAT Item 5, which indicated that those who took an active role in the decision making process showed greater “satisfaction with the treatment chosen,” compared to those that opted for a passive role (p 0.0115, Figure 2C).

Factors that Influenced Decision Regret

According to the decision regret scale, approximately 30% of respondents had scores greater than 25 indicating significant regret. This decision regret is indicated in multiple aspects of the decision regret scale with 30% of respondents indicated that they would not make the same choice if they had to do it over again (Decision Regret Scale, item 3); similarly 30% indicated that they felt that their choice did them a lot of harm (Decision Regret Scale, item 4). Decision regret was the same regardless of the treatment undertaken (p 0.62, Kruskal-Wallis), with no difference in decision regret among respondents who chose surgical treatment (radical prostatectomy), compared to those who chose non-surgical treatment (p 0.57, Figure 3A). The results indicate that decision regret did not vary with age (p 0.49, r^2 0.003, linear regression) or with length of time since diagnosis (p 0.115, r^2 0.02).

There was a strong negative correlation between decision regret and the total score relating to satisfaction with the decision-making process (TDM-SAT) (p < 0.0001, r^2 0.3176, linear regression, Figure 4A). This result suggests that men who were satisfied with the decision making process were less likely to experience decision regret. A similar strong negative correlation was demonstrated for all five components that make up the TDM-SAT scale (Figure 4B-F) suggesting that men who were more satisfied with the level of communication with their physician (p < 0.0001) and who felt that their options were clear (p < 0.0001) had lower levels of decision regret. Although there was a trend for men with a passive role in the decision-making process to have higher decision regret

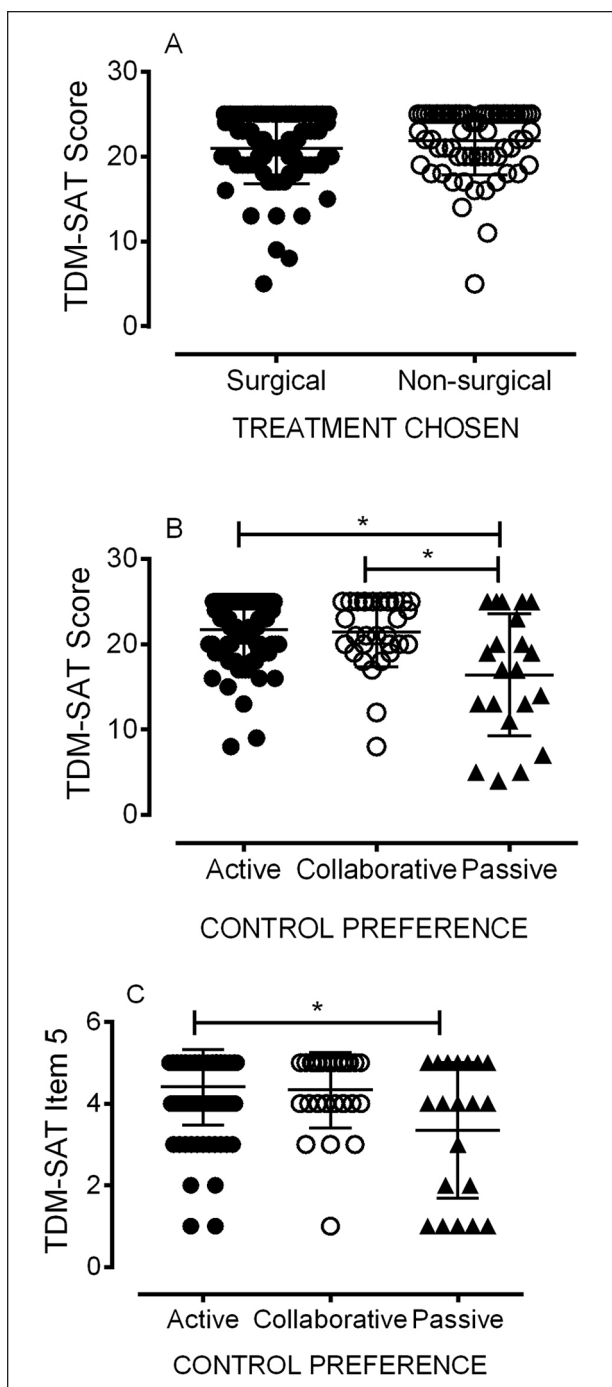


Figure 2. Determinants of decision making satisfaction (TDM-SAT). (* $p < .05$) Figure 2A shows the relationship between the treatment chosen and satisfaction with the decision making process (non-surgical treatment includes radiation therapy, androgen deprivation therapy and conservative management). Figure 2B shows the influence of the degree of control the patient exerted in the decision making process and satisfaction with the decision making process as measured by TDM-SAT [21]. Figure 2C shows the relationship between control preference and satisfaction with the particular treatment chosen (TDM-SAT item 5).

which did not reach statistical significance ($p = 0.27$, Kruskal-Wallis test, Figure 3B).

Discussion

Treatment decisions following a diagnosis of prostate cancer are complex and difficult for men (Tombal et al., 2013). This study aimed to better understand three factors that influence this decision making process: the patient involvement in the decision making process, the patient satisfaction with the decision making process, and their level of decision regret following their treatment. The major findings of this study are that increased involvement in the decision making process correlates with increased satisfaction with that process and that increased satisfaction with the decision making process then correlates with lower decision regret.

The majority of respondents in this study were men with clinically localized prostate cancer with a median age of 66 years, which is a representative age for men diagnosed with prostate cancer (Hamdy et al., 2016; Siegel et al., 2017). In addition, more than half of the study participants were in the intermediate D'Amico risk group (indicating that they had an intermediate risk of metastases in the 5 years post diagnosis) which is also typical of men newly diagnosed with prostate cancer (Steginga et al., 2008). Just over half of the respondents underwent a radical prostatectomy as their primary treatment, which is slightly lower than comparable U.S. trends, and almost 20% elected to be managed conservatively, which is higher than U.S. trends (Cooperberg & Carroll, 2015). Therefore, the population who responded to the survey are broadly representative of the population of men diagnosed with prostate cancer. One important limitation of the current study is that it was a retrospective study conducted at only a single regional urology practice. The retrospective nature of the study could not be avoided as it is ethically and practically difficult to examine the thought processes of men during the decision-making process. Their satisfaction and regret about these decisions are emotions that can really only be judged in retrospect.

Historically, the treatment decision following a diagnosis of prostate cancer has been a paternalistic "doctor knows best" decision. In the last 20 years there has been a shift in the nature of the physician-patient consultation to a more collaborative, shared decision making model in which patients are encouraged to take part in the decision regarding their treatment options (Barry & Edgman-Levitan, 2012; Doherr et al., 2017; Schmid Mast, 2004). Shared decision making has been defined as a process whereby "both parties take steps to actively participate in the process of decision making, share information and personal values, and together arrive at a treatment

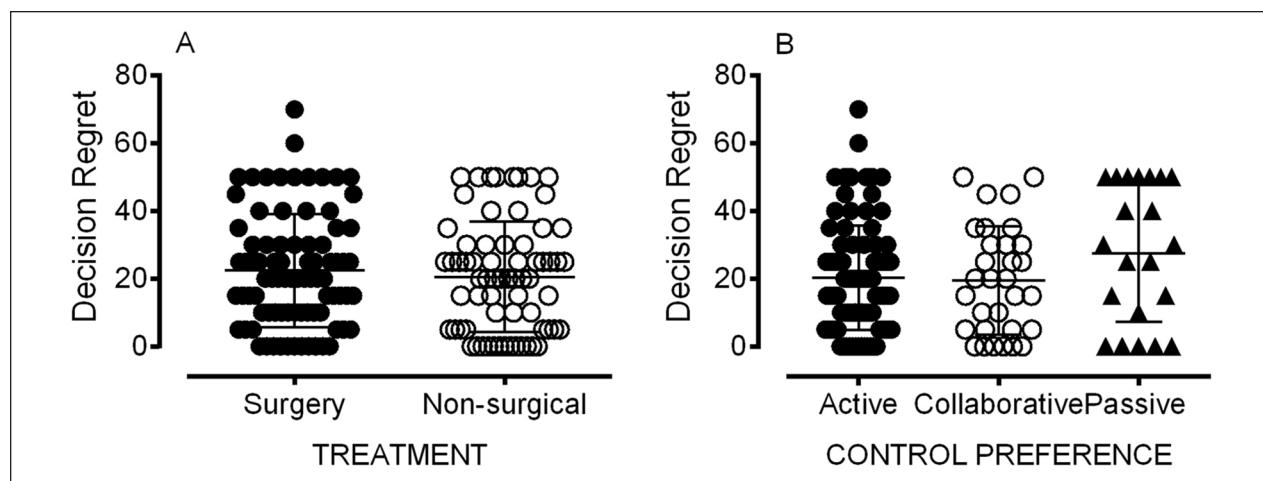


Figure 3. Figure 3A shows the relationship between decision regret and the treatment chosen. Figure 3B shows the relationship between decision regret and the degree of control the patient exercised over the decision making process.

decision with shared responsibility” (Doherr et al., 2017, p. 2). In the current study, the majority of men reported a preference to take an active role in the decision-making process, which did not differ according to their age. These results are somewhat different to the evidence in the literature which suggests that some men prefer their physician to make decisions on their behalf (Cuyper et al., 2016), especially if they are older (Chiu et al., 2016; Song et al., 2013; van Weert et al., 2016). It is possible that the high percentage of men with an active involvement in the decision making process may result from the nature of the survey method used, with men who were actively involved in the decision making process also more likely to respond to the survey.

Our results demonstrated that men who left school at a younger age were more likely to opt for a passive role in decision making. These findings are supported by those of a cross-sectional study of 562 men diagnosed with prostate cancer, which reported that more educated men were more likely to prefer a more active role in decision making (Cuyper et al., 2016). The association between lower education level (for which age at leaving school may be a surrogate) and inadequate health literacy is well documented (Nutbeam, 2008; van der Heide, 2013). Smith et al. (2009) have suggested that lower education and literacy levels may be associated with decreased involvement in the decision making process. Physicians need to be aware that patients taking a passive role in the decision-making process may simply reflect their lower educational attainment and an underlying (and unappreciated) low health literacy status. A shared decision-making model has been shown to help men, including those with lower education and health literacy levels, to become more actively involved in the decision-making process (Smith et al., 2009).

We have reported that men who took a more active role in decision making had higher satisfaction with the treatment decision making process and were more satisfied with the treatment chosen. High levels of satisfaction with treatment decisions are important because they are associated with higher quality of life scores and a better self-image post treatment (Clark et al., 2001; Orom et al., 2016; Sepucha et al., 2006; Victorson et al., 2016). Increased patient autonomy and collaborative involvement in the decision making process has been reported to improve satisfaction associated with the decision making process for men with prostate cancer (Fischer et al., 2006; Orom et al., 2016; Victorson et al., 2016).

The current study has established that one third of respondents experienced decision regret following their treatment irrespective of the primary treatment chosen, which is higher than the rates of 15–25% reported in the literature (Hoffman et al., 2003; Hu et al., 2003; Hurwitz et al., 2017; Ratcliff et al., 2013). However, only one of these studies (Hurwitz et al., 2017) used the Decision Regret Scale, which makes comparing the level of decision regret reported in different studies difficult. The Decision Regret Scale, used in the current study, may overestimate regret due to the nature of the Likert Scale used where a response of “neither agree nor disagree” resulted in a Likert score of 3. These indeterminate responses may have then been perceived as possible regret. If we had not included a score of 3 as an indicator of possible regret then only 17% of respondents would have been recorded as experiencing decision regret. Our results suggest that higher satisfaction with the decision-making process, including subscale factors such as satisfaction with communication from the physician and having clear treatment options, was a major factor contributing to lower decision regret following treatment. This finding supports a 2016 systematic review of

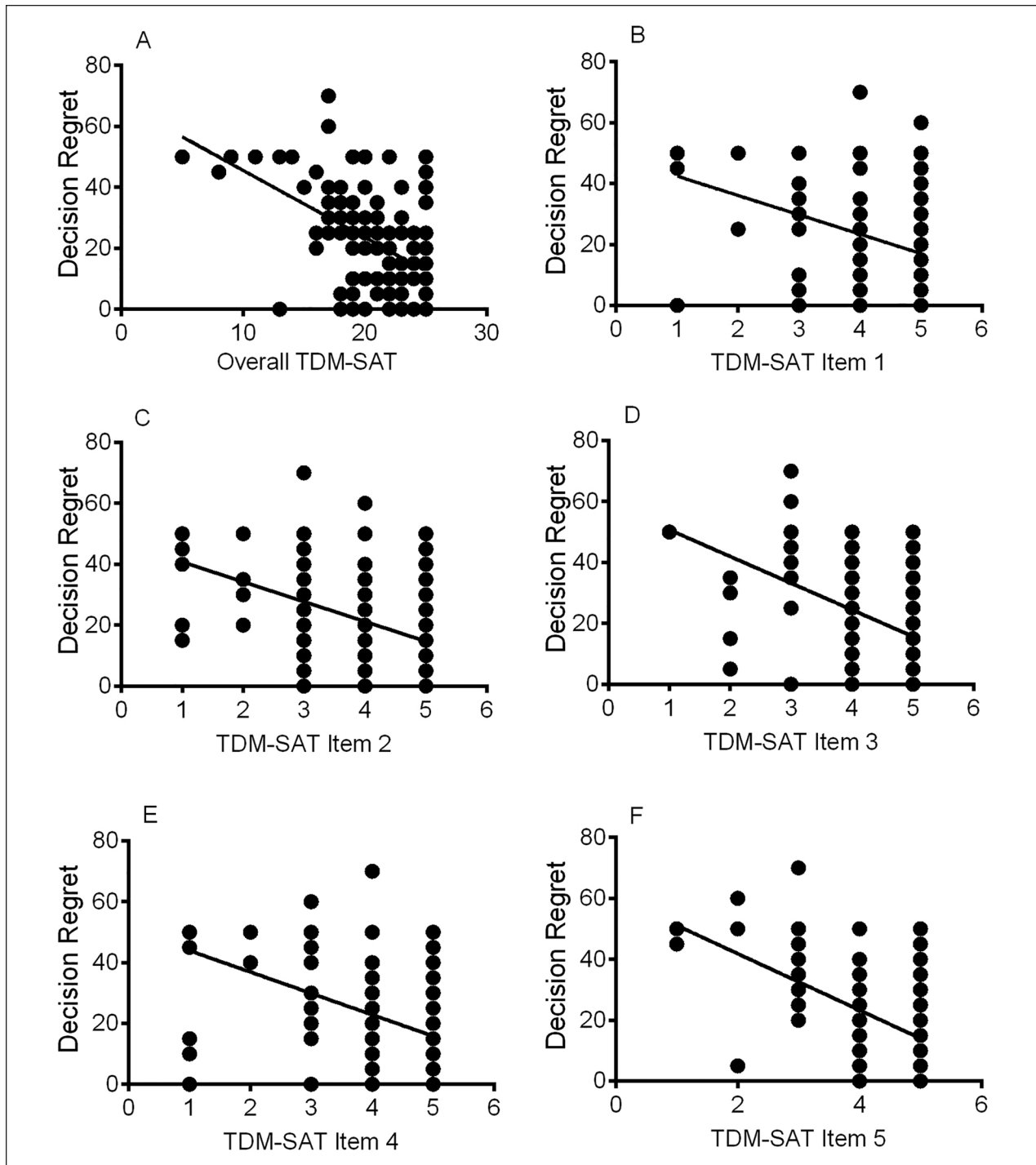


Figure 4. Figure 4A shows the inverse relationship between regret and satisfaction with the treatment decision making process (TDM-SAT). Figures 4B-F show the correlation between regret and the sub-items in the TDM-SAT scale. Item 1: "My treatment decision making options were clear to me" (Figure 4B, $p < .0001$, r^2 0.16). Item 2: "It was easy for me to decide on the treatment I chose," (Figure 4C, $p < .001$, r^2 0.24). Item 3: "I am satisfied with the level of communication I had with my physicians about treatment options" (Figure 4D, $p < .0001$, r^2 0.24). Item 4: "Overall I am satisfied with my treatment decision making experience," (Figure 4E, $p < .0001$, r^2 0.23). Item 5: "Overall I am satisfied with the treatment I chose," (Figure 4F, $p < .0001$, r^2 0.39).

general health care decisions (not specifically related to prostate cancer) which reported that higher rates of decision regret among men were associated with lower satisfaction with the decision, increased decisional conflict and less involvement in the decision making process (Becerra Perez et al., 2016). In conclusion, the current study has demonstrated an association between an active role in decision-making and increased satisfaction with the decision making process, as well as an association between increased satisfaction with the decision process and lower levels of regret. However, unlike previous research, which found a direct relationship between patient decision control preference and decision regret (Brehaut et al., 2003; Clark et al., 2001), the current study was unable to identify a direct association between these two factors.

Implications for Practice

The key finding of this study is that following a diagnosis of prostate cancer men who pursue an active role in their treatment decisions are more satisfied with the decision-making process and subsequently have lower rates of decision regret. We identified that men who took a passive role in decision making were more likely to have left school at an earlier age. Based on these findings, physicians must recognize the need to increase the active participation of men newly diagnosed with prostate cancer in the decision making process to help improve satisfaction and reduce decision regret about the treatments chosen. Active participation can be improved by communication skills training for both physicians and patients (Jenerette & Mayer, 2016). Clearly, physicians cannot force patients whose natural proclivity is to adopt a passive role into more active engagement. However, physicians have a responsibility to educate patients about the benefits of a more active involvement in making their treatment decision (Barry & Edgman-Levita, 2012) and to give patients tools to become more actively involved by providing them with key questions to ask (Trevena et al., 2017). Patient involvement in the decision making process is also dependent on physicians providing information (both verbal and written) that is within the educational and health literacy levels of their patients (Cuyppers et al., 2016). The provision of information that is understandable by the patient will empower them to become involved by increasing their knowledge and confidence. It is only by ensuring true shared decision making at the beginning of a patient's prostate cancer journey that later decision regret and its negative effects on men's health can be avoided.

While outside the scope of this study, future research could examine different approaches to physician-patient communication, in particular the initiation of conversations and the content being discussed. These studies would help to determine which communication approaches

afford optimal patient engagement and satisfaction with the decision making process; ultimately investing both the physician and patient in minimising decision regret following treatment.

Abbreviations

ADT, Androgen Deprivation Therapy; PSA, Prostate Specific Antigen; TDM-SAT, Treatment Decision-Making Scale.

Acknowledgments

The authors would like to acknowledge the contribution of Sister Julie Edwards (Research Nurse) to collating the research data.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: A small grant from the Faculty of Science, Medicine and Health at the University of Wollongong was available to support this study.

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