

When is choice a good thing?:

An experimental study of the impact of choice on patient outcomes

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Abstract

Although policy emphasises the benefits of choice, an increasing body of work points to times when choice may not always have positive consequences. The present experimental study aimed to explore the impact of choice on a number of patient outcomes in the health care setting. The study also explored the extent to which the influence of choice was affected by patient uncertainty and anticipated regret. Choice was conceptualized as consisting of two dimensions: ‘having choice’ which reflects the availability of a number of options and ‘making choice’ reflecting resolution and a desire for a choice to be made. Consecutive patients (n=427) from 4 General Practices in Surrey were asked to read one of 16 vignettes which varied in terms of 4 independent variables (having choice, making choice, uncertainty, anticipated regret) and to rate items relating to 4 outcome variables (patient satisfaction, perceived control, negative emotions, information seeking). The results showed that having more choice was consistently associated with more positive patient outcomes than having no choice. Having no choice was particularly detrimental for those experiencing anticipated regret and uncertainty. In contrast, whether or not a choice was made had no impact upon any of the outcome measures. In line with current policy having choice in the health care setting is related to improved patient outcomes. The results provide some insights into the factors which influence the direction of the impact of choice. They also indicate the importance of differentiating between ‘having choice’ and ‘making choice’.

Key words: choice, patient outcomes, satisfaction, perceived control

Introduction

In 2001 Tony Blair said that choice ‘should be a central principle for reform’. In line with this, choice has become a central component of modernization (Schwartz, 2004). As part of this it has penetrated the world of health care provision with patients being referred to as ‘consumers’, the emphasis on patient centredness, patient participation and shared decision making and the production of the Patients’ Charter which emphasized the patient’s right to choose how their health is managed (Guadagnoli and Ward, 1998; Coulter, 1999). Central to this shift in perspective is the belief that choice is valued. Economists and policy makers have conceptualised choice as ‘something that one can’t have too much of like clean air or beauty’ (Loewenstein, 1999). Researchers have also argued that individuals systematically prefer to take the choice rather than the no choice option which has been analysed as a need to keep options open and has been labeled ‘the lure of choice’ (Bown, Read and Summers, 2003). In line with this, some research has directly explored the positive consequences of choice. For example, the psychological literature indicates that greater choice improves a number of outcomes including intrinsic motivation, task performance, life skills and higher outcome evaluations (Botti and Iyengar, 2006; Deci, 1975, 1981; Deci and Ryan, 1985; Glass and Singer, 1972; Taylor, 1989). Such benefits seem to occur regardless of whether choice is actual, trivial or illusory (Iyengar and Lepper, 2000). Likewise, in the health context, consulting styles which involve increased patient choice such as patient centredness or shared decision making are considered to improve a number of patient outcomes including patient satisfaction, adherence to medical recommendations and patient health status (Henbest and Stewart, 1990; Winefield and Murrell, 1991; Stewart, 1995; Williams and Ogden, 2004). Research also indicates that choice influences an individual’s perception of control which is related to a number of health related constructs including health locus of control (Wallston and Wallston, 1982), power and empowerment (Lukes, 1974; Oakley, 1980), perceived personal control over health and perceived treatment control (Moss Morris et al, 2002). Central to this literature is

the assumption that increasing choice results in an increased sense of control. Greater choice is thus deemed beneficial to a number of patient outcomes.

In contrast, other research has highlighted how choice can have negative consequences. In his book 'The paradox of choice' Schwartz (2004) described how the proliferation of goods has resulted in people feeling anxious and overwhelmed when making daily choices. Using an experimental design Iyengar and Lepper (2000) explored the impact of manipulating the degree of choice and concluded that participants' motivation and satisfaction were lower following extensive rather than limited choices. Further, Iyengar and Lepper (1999) argued that the benefits of choice are not universal and that within some cultures choice is only seen as beneficial if the person determining the degree of choice is respected and deemed trustworthy. Within the health care context there is also some evidence for choice having detrimental consequences. For example, Savage and Armstrong (1990) explored the impact of consulting styles in a General Practice setting and reported higher satisfaction after directive consultations when patients were given no choice. Furthermore, research exploring obese patients' experiences of obesity surgery suggests that choice and perceived control may be inversely related (Ogden, 2005; Ogden et al, 2005; 2006). In particular, although obesity surgery imposes limited choice upon the individual, both qualitative and quantitative studies indicated that whilst reducing their choices over eating, surgery seemed to paradoxically increase their sense of control over their food intake. This inverse relationship between choice and perceived control is echoed in therapeutic work in the area of eating disorders which suggests that by relinquishing choices over food to parents and / or a health professional, patients with eating disorders may find that they feel more in control over how and what they eat (Dare and Eisler, 1995). In sum, some research suggests that increased choices are not always linked with positive outcomes.

So what factors influence when and why the consequences of choice vary? To date no research has addressed this question within the health care setting. Research in analogous areas, however, highlights some psychological variables which may explain this variation. The first potential variable is uncertainty. Within the health care context much research has addressed the issue of uncertainty from the perspective of the health professional. For example, research has explored how medical training makes medical uncertainty difficult to acknowledge (Katz, 1984; Atkinson, 1984), how doctors can be trained to express their uncertainty (Fox 1980; Hewson et al, 1996) and the impact of doctors expressing their uncertainty upon their patients (Johnson et al, 1988; Ogden et al, 2000). Patients, however, may also experience uncertainty about how they would like their problem to be managed. In particular, whilst the contemporary access to medical information through resources such as the internet and media may provide patients with sufficient information to create a sense of certainty, it may also result in information overload and uncertainty about the best way to proceed. This finds reflection on work on coping and the distinction between ‘monitors’ and ‘blunters’ (Miller, 1987). In line with this approach ‘monitors’ were described as those who wanted information prior to decision making whereas ‘blunters’ were those who found too much information upsetting. This context for a consultation may influence the potential consequences of choice; offering several choices to a patient who is uncertain about the way forward may exacerbate their state of confusion, whereas for a patient who knows what they want such choice may be welcomed.

The second variable hypothesised to influence the potential impact of choice is anticipated regret which is often considered central to decision making concerning health related behaviours (Richard and van der Pligt 1991; Abraham and Sheeran, 2004). For example, research may explore whether condom use is related to anticipated regret operationalised as ‘If I do not use a condom I will feel guilty’ or whether healthy eating is related to the cognition ‘If I eat chocolate I will feel bad about myself’. Anticipated regret may influence the impact of choice in the following ways. If an

individual shows high anticipated regret (eg. ‘If the outcome of my decision is wrong then I will regret it’) then they may welcome having their choices constrained as this may afford a diminished sense of responsibility should the outcomes of their choice be negative. Therefore if their choice turns out to have been the wrong one, they do not need to take the blame for the consequences. In contrast, if an individual shows low anticipated regret (eg. ‘If I make then wrong decision then it doesn’t really matter’) about the outcome of a decision then higher choice may be associated with improved outcomes as the possibility of making the wrong choice will not seem to be as potentially worrying.

In sum, although much research and policy assumes that greater choice is beneficial, a growing body of work points to times when choice can have negative consequences. To date, however, the factors influencing whether choice is regarded as positive or negative remain unclear. The present study aimed to explore the impact of choice on a number of patient outcomes using patient based vignettes. Such a methodology has its limitations in that it requires a patient to imagine that they have a health related condition and to describe their responses to this condition. This hypothetical approach to research can be criticized for accessing those patient cognitions and behaviour which are unrelated to those which would result from a real life illness or a real life consultation. Further it can be argued that this method is more likely to be influenced by issues of social desirability. However, the use of vignettes does enable variables to be manipulated in a controlled experiment thus allowing the impact of individual variables and the interactions between them to be explored in ways that would not be possible if real life consultations were used. Furthermore, in the case of the present study, it enables choice to be added or taken away in ways that would not always be feasible in real life. Therefore, given these limitations, the present study used a vignette based experimental design to manipulated aspects of choice and to assess the impact of this manipulation on a number of patient outcomes including perceived control, patient satisfaction, emotional responses and information seeking within the context of patient uncertainty and anticipated regret. Recent

research has indicated that choice is not a uni dimensional construct, rather that it is best conceptualised as consisting of two different dimensions namely ‘having choice’ and ‘making choice’ (Ogden, Daniells and Barnett, in press; submitted). Specifically, whilst ‘having choice’ relates to the availability of a number of options from which an individual can chose, ‘making choice’ relates to resolution and the desire for the choice to be made. Therefore, the present study used an expanded model consisting of these two facets of choice.

Methodology

Design

The present study involved a 2X2X2X2 factorial design with four independent variables each with two conditions (having choice (present vs absent), making choice (present vs absent), uncertainty (high vs low), anticipated regret (high vs low)). This resulted in 16 vignettes.

Participants

Following NHS ethical committee approval, questionnaires were handed out to consecutive patients attending four General Practices in Surrey which were selected to provide a sample varying according to age and social class. Patients were excluded if they were under 18 or did not speak adequate English. Of the 516 patients asked to complete the questionnaire, 453 agreed of which 427 questionnaires were returned, and of these 9 were discarded due to being incomplete (response rate=81%). The sample size was set to enable 25 participants for each vignette and 50 for each level of each independent variable. This was achieved across the study.

Measures

Participants were randomly presented with one of sixteen vignettes, each of which differed in terms of the four independent variables: having choice, making choice, uncertainty and anticipated regret. The vignette included information about kidney stones and asked the patient to imagine that they

visit their GP with symptoms of this condition. Kidney stones was selected as the case condition as it was acute, required medical intervention, was relatively familiar, not life threatening and offered the opportunity to vary the content of the consultation. Participants were asked to read the following:

‘Imagine that you visit your doctor with a serious pain in your side which you believe may be kidney stones. Kidney stones are crystals that form in the kidney and get stuck in the tubes leading to the bladder. When they get stuck it can be extremely painful and is described as a very sharp constant pain or a very tight band around your waist. Some people describe it as worse than childbirth or the worse pain you have ever had. It can be treated by either blasting them to break them up into very small pieces that can be passed out with urine or in rare occasions with surgery. This can be either at a local or specialist hospital and can involve either a general or local anaesthetic. Sometimes there can be waiting lists.’

The vignette then varied in the following ways:

Having choice: Choice: You are presented with a range of options for the management of your condition; **No choice:** You are presented with one option for the management of your condition.

Making choice: Choice made: Your treatment is then organised and you have agreed to attend a hospital appointment in 2 weeks; **Choice not made:** You agree to go home to think about it for a seven day period and then will need to return to your GP to discuss things further.

Uncertainty: High uncertainty: You have read all the information about your problem but are not sure which treatment you want. **Low uncertainty:** You have read all of the information about your problem and have a clear idea about what treatment you want.

Anticipated regret: High regret: You are concerned that if you make the wrong choice about your treatment that you will feel guilty and upset. **Low regret:** You feel that whatever way you are managed at the end of the day it will be fine.

Outcome variables

Participants were then asked to ‘Think about how you would feel in this situation. Now rate the following statements from your point of view as the patient’. The statements were rated using 5 point Likert scales ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (5). The reliability of these scales was assessed using Cronbach’s alpha.

Negative emotions: Tension, depression and anger were assessed using three items each from the Profile of Mood States (POMS; McNair, Lorr and Droppleman, 1982). These were summated to create total scores (tension $\alpha=0.84$, depression $\alpha=0.793$, anger $\alpha=0.85$) and an overall total negative emotion score ($\alpha=0.9$).

Patient satisfaction: This was assessed in terms of satisfaction with the process of the consultation (3 items; e.g. ‘I was happy with how my time was spent with the doctor’ $\alpha= 0.94$) and satisfaction with the outcome of the consultation (3 items; e.g. ‘I was happy with the way the consultation ended’ $\alpha=0.91$). These were also summated to create a total satisfaction score ($\alpha= 0.95$). These were adapted from the Medical Interview Satisfaction Scale (Wolf et al, 1978) .

Perceived control: This was measured in terms of personal control (3 items: e.g. ‘I can behave in ways to help my illness’ $\alpha= 0.78$) and treatment control (3 items: e.g. ‘My treatment can help my condition’ $\alpha= 0.75$). These were selected on the basis that they were those with the highest factor loadings from the Revised Illness Perception Questionnaire (IPQ-R; Moss Morris et al, 2002).

Information seeking: Three items were designed to measure whether the patient would be likely to seek further information after the consultation (3 items e.g. 'I would try to seek a second opinion' $\alpha = 0.660$).

Demographic factors

In addition, all participants were asked to record their age, gender, ethnicity (White / Black / Asian / Other), educational level (None / GCSEs / A levels / Degree +) and how many times they had visited their doctor in the past year (0 / 1-3 / 4-8 / 9-12). They were also asked to rate their self-reported current health using two scales ranging from: 'worst possible' (1) to 'best possible' (5) and poor / good / very good / excellent. These two items were summated to create a mean self reported health score. For descriptive purposes this was categorised into low (1-2), medium (3) and high (4-5).

Participants also completed four manipulation check questions to establish their understanding of the manipulation of the four independent variables. These were also rated on 5 point Likert scales ranging from 'strongly disagree' (1) to 'strongly agree' (5):

Having choice: I was offered a range of options for my treatment.

Making choice: A final treatment approach was organised.

Uncertainty: Before I went to the doctors I was clear about my preferred treatment.

Anticipated regret: I was worried about making the wrong choice.

Results

Data analysis

The data were analysed to describe the participants' demographic factors and the effectiveness of the manipulation was assessed using t tests. In order to evaluate the impact of the four independent

variables (having choice, making choice, uncertainty, anticipated regret) on the outcome variables a 4 way ANOVA was used to assess main effects and interactions.

i) Participants' demographic factors.

Participants' demographic factors are shown in table 1.

-insert table 1 about here -

The results showed that the majority of participants were female, white, educated up to A level standard, rated their own health as high and had visited the GP between 1 and 3 times in the past year. Their ages ranged across the spectrum.

2. Manipulation check.

The results from the manipulation check are shown in table 2.

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The results showed that the manipulations for all four independent variables were effective as assessed by the manipulation check items.

3. Impact of the experimental manipulation on the outcome variables.

The results were then assessed to evaluate the impact of the four independent variables (having choice, making choice, uncertainty and anticipated regret) on the outcome variables (negative emotions, patient satisfaction, perceived control, information seeking). The results from this analysis are shown in tables 3 and 4.

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i) Having choice

The results showed significant main effects of having choice on all outcome variables. The results showed that being offered a series of options was associated with lower tension, lower depression, lower anxiety, higher satisfaction with both the process and outcome of the consultation, higher personal and treatment control and a lower need to seek further information. Having choice was

also related to lower negative emotion and satisfaction in terms of the total scores. Therefore having choice consistently had a more positive impact upon patient outcomes when compared to not having choice. It must be noted however, that although these effects were consistently significant in absolute terms they remain small.

ii) Making choice

The results showed no significant main effects for making choice for any of the outcome variables. Therefore whether the choice was made or did not impact upon the participants' rating of their negative emotions, satisfaction, perceived control or information seeking.

iii) Uncertainty

The results showed no significant main effects for uncertainty on any of the outcome variables.

iv) Anticipated regret

The results showed significant main effects of anticipated regret for negative emotions, depression, anger and information seeking. No significant effects were found for tension or any measure of either satisfaction or perceived control. Higher anticipated regret was associated with higher negative emotion (total score, depression, anger) and a greater desire to seek further information.

v) Interactions

As a means to explore the contexts in which having choice and making choice may impact upon patient outcomes, interactions between these independent variables and uncertainty and anticipated regret were then examined. The results showed a significant having choice by uncertainty interaction for information seeking and significant having choice by anticipated regret interactions for depression, anger, total satisfaction and satisfaction with the process. Having less choice promoted greater information seeking particularly when the individual was uncertain about their

desired outcome at the onset of the consultation. Furthermore, having less choice resulted in more negative emotions and lower satisfaction if the participant was experiencing anticipated regret. In addition the results showed a significant making choice by anticipated regret interaction for treatment control indicating that making a choice resulted in a belief that the condition was more controllable by treatment if the participant had been experiencing anticipated regret.

Discussion

The present study aimed to explore the impact of having choice and making choice upon a number of patient outcomes within the context of uncertainty and anticipated regret.

In terms of the impact of having choice the results showed that the availability of several choices consistently resulted in more positive outcomes compared to when participants were only offered one choice. In particular, having more choice was associated with improved mood, greater satisfaction with both the process and outcome of the consultation, higher levels of both personal and treatment control and a lower desire to seek further information. These results are in line with current health policy which emphasises the benefits of choice (Guadagnoli and Ward, 1998; Coulter, 1999) and support research indicating that having choice can have positive consequences (eg. Botti and Iyengar, 2004; Deci and Ryan, 1985; Taylor, 1989; Bown, Read and Summers, 2003; Henbest and Stewart, 1991). The results also provide some insights into how the context may influence the impact of having choice and indicate that having only a limited choice may be most detrimental on some aspects of outcome for those experiencing anticipated regret. Accordingly, if a person is worried about the possible consequences of their decision having only limited choice may be detrimental to their experience of the consultation and their subsequent mood. This role of anticipated regret, however, was not found for all variables. Furthermore, uncertainty appeared only to have a minimal effect.

In contrast, the variable ‘making choice’ had no impact upon any of the selected patient outcomes. Whether a choice was made or not, did not seem to influence the participants’ reported beliefs or experiences of the consultation. Previous research indicates that choice is not a uni dimensional construct and is best conceptualized as consisting of two dimensions: having choice and making choice (Ogden, Barnett and Daniells, submitted). The results from the present study support this distinction as whilst ‘having choice’ was a powerful predictor of patient outcomes, ‘making choice’ was not. Furthermore, the results indicate that the benefits of choice described by both policy and research (Coulter, 1999; Bown et al, 2003) are probably confined to the benefits of having a number of options made available rather than whether or not a choice is made.

There are some problems with the current study that need to be considered. First, the study involved the use of hypothetical case scenarios rather than a real consultation. Although such an approach can be criticised for limiting the generalisability of the results to real life, it enabled the experimental manipulation of the specific independent variables whilst controlling other extraneous factors. Second the study focused on one clinical problem namely kidney stones. This was selected as it provided the opportunity to manipulate aspects of the consultation and was relatively common. It is possible, however, that the results may only have limited generalisability to other conditions. In particular, the positive impact of ‘having choice’ may not be so consistent for other problems and may be influenced by problem related factors such as perceptions of severity, personal experience and knowledge and beliefs about the impact of symptoms and longer term consequences. Future research could address this issue by manipulating the kind of problem being considered or by measuring participants’ beliefs about aspects of the problem. Third, although consistently statistically significant the positive effect of ‘having choice’ was small in absolute terms. Future research is needed to confirm these positive findings and to further explore their clinical and policy relevance. Fourth, half of the sample who took part in the study had a University degree and most reported being in good health. Beliefs about health related choices are likely to be

much influenced by social class and the health status of the person concerned and recent research indicates a strong role for educational achievement (Ogden et al, in press). Further research on less healthy, less educated populations is needed before the results can be generalized to the community population as a whole. Finally, although the study addressed some aspects of the consultation, it emphasised the role of patient variables in the form of uncertainty and anticipated regret. The health professional, however, also plays an important role in the decision making context and future research could address aspects of the health professional such as their gender, status, beliefs or own experiences of the problem being considered. Given these limitations however, the controlled experimental design enabled the evaluation of the impact of specific variables on a number of chosen outcomes.

To conclude, the results from the present study indicate that whereas having a number of choices made available consistently results in more positive outcomes, whether or not a choice has been made had neither positive nor negative consequences. This is line with much current policy and research and supports the emphasis on patients having choices about how their clinical problems are managed. The results also provide some preliminary insights into how the context within which choice is offered may influence its impact and indicates that limited choice may be particularly detrimental if the patient is uncertain about the way forward and has higher anticipated regret. Further research is needed to extend this analysis and address a different set of contextual factors such as the nature of the condition being considered and aspects of the health professional. Finally, whilst much previous work in this area conceptualises choice as a uni dimensional construct, the results from the present study provide support for the differentiation of choice into two dimensions: having choice and making choice. These two dimensions may be important in terms of both research and clinical practice. In terms of research, patients and health professionals may hold different beliefs about these different dimensions which could impact upon their responses to questions about the costs or benefits of choice. In terms of clinical practice, whilst more choice is

generally regarded as conferring patient benefit it may be important to assess whether patients prefer more choice at the outset and whether their preferences for more choice relate to either or both of these dimensions.

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References

Abraham, C & Sheeran, P. (2004). Deciding to exercise: The role of anticipated regret. British Journal of Social Psychology, 9; 269-278.

Atkinson, P (1984). Training for certainty, Social Science and Medicine, 949-56.

Botti, S., & Iyengar, SS. (2006). The dark side of choice: when choice impairs social welfare. American Marketing Association. 25; 24-38.

Bown, NJ., Read, D & Summers, B. (2003). The lure of choice. Journal of Behavioural Decision Making. 16; 297-308.

Coulter, A. (1999). Paternalism or partnership? Patients have grown up and there's no going back. British Medical Journal, 319, 719-20.

Dare, C., & Eisler, I. (1995). Family therapy. In G. Szukler, C, Dare, and J. Treasure (eds). Handbook of eating disorders: theory, treatment and research. London: Wiley, 333-49.

Deci, EL (1975). Intrinsic motivation. New York: Plenum press.

Deci, EL (1981). The psychology of self determination. Lexington: MA: Heath.

Deci, EL & Ryan, RM (1985). Intrinsic motivation and self determination in human behaviour. New York: Plenum press.

Fox, RC (1980). The evolution of medical uncertainty. Millbank Memorial Fund Quarterly, 58, 1-49.

Glass, DC & Singer, JE. (1972). Urban stress. New York: Academic press.

Guadagnoli, E., & Ward, P. (1998). Patient participation in decision making. Social Science and Medicine, 47, 329-39.

Henbest, RJ., & Stewart, M. (1990). Patient centredness in the consultation. 2. Does it really make a difference? Family Practice, 7, 28-33.

Hewson, MG., Kindy, PJ., Van Kirk, J., Gennis, VA & Day, RP. (1996). Strategies for managing uncertainty and complexity, Journal for General Internal Medicine, 11, 481-85.

Iyengar, S.S., & Lepper, M.R. (2000). When choice is demotivating: can one desire too much of a good thing? Journal of Personality and Social Psychology, 79, 995-1006.

Iyengar, S.S., & Lepper, M.R. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. Journal of Personality and Social Psychology, 76; 349-366.

Johnson, CG., Levenkron, JC., Suchman, AL., and Manchester, R. (1988). Does physician uncertainty affect patient satisfaction? Journal of General Internal Medicine, 3, 144-49.

Katz, J. (1984). Why doctors don't disclose uncertainty. The Hastings Report, 14, 35-44.

Loewenstein, G. (1999). Is more choice always better? National Academy of Social Insurance. Social Security Brief, 7, 1-7.

Lukes, S. (1974). Power: a radical view. Palgrave MacMillan: New York.

McNair, D., Lorr, M., Droppleman, L. Manual for the Profile of Mood States. San Diego: Educational and Industrial Testing Service, 1971.

Miller, S.M (1987). Monitoring and blunting: validation of a questionnaire to assess styles of information seeking under threat. Journal of Personality and Social Psychology. 52:345-53.

Moss-Morris, R., Weinman, J., Petrie, K.J., Horne, R., Cameron, L.D. & Buick, D. (2002). The revised illness perception questionnaire (IPQ-R). Psychology and Health. 17: 1-16

Oakley, A (1980). Women confined: towards a sociology of childbirth. Oxford: Martin Robertson.

Ogden, J. (2005). When psychological solutions aren't always best: obesity and the paradox of control, The Psychologist. 18, 224-6.

Ogden, J. et al. (2002). Doctors expressions of uncertainty and patient confidence. Patient Education and Counselling, 48, 171-176.

Ogden, J., Clementi, C., & Aylwin, S. (2006). Having obesity surgery: a qualitative study and the paradox of control. Psychology and Health. 21, 273-293.

Ogden, J., Clementi, C., Aylwin, S., & Patel, A. (2005) Exploring the impact of obesity surgery on patient's health status: a quantitative and qualitative study. Obesity Surgery, 15, 266-272.

Ogden, J., Daniells, E., & Barnett, J. (submitted for publication). Reconceptualising choice: having, making and role of the self.

Ogden, J., Daniells, E., & Barnett, J. (in press). The value of choice: the development and validation of a new measurement tool. The British Journal of General Practice

Richard, R. & van der Pligt, J. (1991) Factors effecting condom use among adolescents, Journal of Community and Applied Social Psychology, 1: 105–16.

Savage, R & Armstrong, D. (1990). Effect of a general practitioners consulting style of patient satisfaction: a controlled study. British Medical Journal, 301, 968-970.

Schwartz, B. (2004). The Paradox of Choice. Why more is less. Harpercollins: New York.

Stewart, MA (1995). Effective physician-patient communication and health outcomes: a review. Canadian Medical Association Journal. 152, 1423-33.

Taylor, SE (1989). Positive illusions: creative self deception and the healthy mind. New York: Basic books.

Wallston, K.A. & Wallston, B.S. (1982) Who is responsible for your health? The construct of health locus of control, in G.S. Sanders and J. Suls (eds), Social Psychology of Health and Illness, pp. 65–95. Hillsdale, NJ: Erlbaum.

Williams, N., & Ogden, J. (2004) The impact of matching the patient's language on satisfaction with the consultation: a randomised control trial. Family Practice, 21, 1-6.

Winefield, H., & Murrell, TGC (1991) Speech patterns and satisfaction in diagnostic and prescriptive stages of general practice consultations. British Journal of Medical Psychology, 64, 103-115.

Wolf M, Putnam S, James S, & Stiles W. (1978). The Medical Interview Satisfaction Scale: development of a scale to measure patient perceptions of physician behaviour. Journal of Behavioural Medicine, 1, 391-401

Table 1: Participants' demographic characteristics

Variable	Mean (SD) n(%)
Age (years)	
Overall	Mean=37.8; SD=17.77
18-24	132 (32.3)
25-34	90 (22.0)
35-44	58 (14.2)
45-54	47 (11.5)
55-64	33 (8.1)
65+	49 (12.0)
Gender	
Male	143 (44.8)
Female	268 (65.2)
Ethnicity	
White	351 (85.6)
Black	16 (3.9)
Asian	25 (6.1)
Other	18 (4.4)
Education	
None	53 (13.7)
GCSEs or equiv	45 (11.7)
A-Levels or equiv	109 (28.2)
Degree or equiv	179 (46.4)
Current Health	
Low	63 (15.8)
Medium	103 (25.8)
High	236 (58.3)
Visits to GP in past year	
0	32 (8.0)
1-3	183 (45.9)
4-8	139 (34.8)
9 or more	45 (11.3)

Table 2: Manipulation check

	Manipulation	Mean (SD)	t / p
Having choice	One choice	2.93 (1.21)	t=10.06
	Lots of choice	3.91 (0.71)	p<0.0005
Making choice	Not acting on choice	3.37 (1.04)	t=5.15
	Acting on choice	3.81 (0.68)	p<0.0005
Uncertainty	Low uncertainty	3.27 (0.98)	t=4.28
	High uncertainty	2.85 (1.01)	p<=.0005
Anticipated regret	Low regret	3.22 (0.96)	t=2.34
	High regret	3.45 (1.02)	p=0.019

Table 3: Impact of experimental manipulation (Mean and SDs)

HAVING CHOICE	Having choice (NO) (n=199)								Having choice (YES) (n=210)							
MAKING CHOICE	Making choice (NO)				Making choice (YES)				Making choice (NO)				Making choice (YES)			
UN-CERTAINTY	Uncertainty (NO)		Uncertainty (YES)		Uncertainty (NO)		Uncertainty (YES)		Uncertainty (NO)		Uncertainty (YES)		Uncertainty (NO)		Uncertainty (YES)	
REGRET	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)	Regret (NO)	Regret (YES)
	(n=25)	(n=25)	(n=24)	(n=26)	(n=25)	(n=24)	(n=25)	(n=25)	(n=29)	(n=25)	(n=25)	(n=24)	(n=30)	(n=25)	(n=24)	(n=28)
Total Emotion	M=2.040 SD=0.617	M=2.52 SD=0.909	M=2.164 SD=0.708	M=2.359 SD=0.970	M=2.044 SD=0.726	M=2.252 SD=0.942	M=2.291 SD=0.780	M=2.513 SD=1.028	M=1.908 SD=0.721	M=2.044 SD=0.792	M=1.800 SD=0.677	M=2.021 SD=0.702	M=1.813 SD=0.634	M=1.951 SD=0.659	M=2.009 SD=0.814	M=1.754 SD=0.658
Tension	M=2.680 SD=0.785	M=2.853 SD=1.093	M=2.889 SD=0.920	M=2.833 SD=0.929	M=2.893 SD=0.987	M=3.167 SD=1.155	M=2.993 SD=0.965	M=2.907 SD=1.116	M=2.609 SD=1.134	M=2.760 SD=1.078	M=2.333 SD=0.972	M=2.806 SD=1.007	M=2.349 SD=0.897	M=2.573 SD=0.905	M=2.764 SD=0.929	M=2.405 SD=1.059
Depression	M=1.880 SD=0.706	M=2.520 SD=0.991	M=1.867 SD=0.839	M=2.444 SD=1.010	M=2.133 SD=1.027	M=2.507 SD=1.171	M=1.873 SD=0.768	M=2.483 SD=0.991	M=1.736 SD=0.833	M=1.960 SD=0.988	M=1.769 SD=0.759	M=1.827 SD=0.811	M=1.803 SD=0.773	M=2.240 SD=1.019	M=1.813 SD=0.789	M=2.129 SD=0.957
Anger	M=1.560 SD=0.7183	M=2.187 SD=1.059	M=1.514 SD=0.748	M=1.872 SD=1.033	M=1.373 SD=0.662	M=2.014 SD=1.061	M=1.747 SD=0.914	M=2.127 SD=1.220	M=1.379 SD=0.754	M=1.413 SD=0.647	M=1.333 SD=0.609	M=1.396 SD=0.812	M=1.278 SD=0.533	M=1.453 SD=0.623	M=1.333 SD=0.674	M=1.238 SD=0.461
Total Satisfaction	M=3.433 SD=0.638	M=3.000 SD=0.917	M=3.427 SD=0.773	M=3.142 SD=0.940	M=3.580 SD=0.847	M=3.473 SD=0.941	M=3.423 SD=0.756	M=3.733 SD=0.745	M=3.743 SD=0.547	M=3.800 SD=0.597	M=3.801 SD=0.690	M=3.743 SD=0.547	M=3.778 SD=0.578	M=3.667 SD=0.433	M=3.717 SD=0.679	M=3.917 SD=0.491
Satisfaction Outcome	M=3.453 SD=.623	M=2.880 SD=1.004	M=3.347 SD=0.895	M=3.077 SD=1.003	M=3.600 SD=0.861	M=3.400 SD=0.967	M=3.410 SD=0.807	M=3.067 SD=1.013	M=3.611 SD=0.910	M=3.694 SD=0.651	M=3.773 SD=0.692	M=3.753 SD=0.854	M=3.711 SD=0.677	M=3.667 SD=0.509	M=3.733 SD=0.707	M=3.922 SD=0.508
Satisfaction Process	M=3.413 SD=0.696	M=3.120 SD=0.892	M=3.507 SD=0.701	M=3.205 SD=0.914	M=3.560 SD=0.843	M=3.547 SD=0.990	M=3.436 SD=0.741	M=3.107 SD=0.970	M=3.856 SD=0.641	M=3.792 SD=0.563	M=3.849 SD=0.515	M=3.667 SD=0.408	M=3.655 SD=0.697	M=3.449 SD=0.815	M=3.720 SD=0.689	M=3.607 SD=0.752
Personal Control	M=3.440 SD=0.591	M=3.583 SD=0.724	M=3.393 SD=0.795	M=3.547 SD=0.793	M=3.707 SD=0.596	M=3.542 SD=0.785	M=3.282 SD=0.728	M=3.587 SD=0.735	M=3.782 SD=0.725	M=3.875 SD=0.714	M=3.847 SD=0.629	M=3.583 SD=0.646	M=3.495 SD=0.889	M=3.653 SD=0.573	M=3.893 SD=0.699	M=3.595 SD=0.604
Treatment Control	M=3.819 SD=0.405	M=3.875 SD=0.518	M=3.813 SD=0.452	M=3.813 SD=0.482	M=4.147 SD=0.491	M=3.847 SD=0.499	M=3.821 SD=0.535	M=3.760 SD=0.532	M=4.111 SD=0.404	M=3.986 SD=0.347	M=3.736 SD=0.688	M=3.986 SD=0.333	M=3.957 SD=0.401	M=3.893 SD=0.393	M=4.147 SD=0.501	M=3.905 SD=0.443
Information Seeking	M=3.139 SD=0.822	M=3.986 SD=0.735	M=3.087 SD=0.985	M=3.487 SD=0.788	M=2.993 SD=0.800	M=3.361 SD=0.916	M=3.244 SD=0.786	M=3.253 SD=0.878	M=2.753 SD=0.798	M=2.933 SD=0.811	M=2.884 SD=0.722	M=3.213 SD=0.686	M=2.701 SD=0.609	M=2.903 SD=0.506	M=2.972 SD=0.911	M=3.222 SD=0.745

Table 4: Impact of the experimental manipulation (Anova Table)

	HAVING CHOICE	MAKING CHOICE	UNCERTA INTY	REGRET	HC*UN	HC*R	MC*UN	MC*R
Total Emotion	F=26.507 P<0.0005	F=0.010 P=0.920	F=0.006 P=0.937	F=7.028 P=0.008	F=0.261 P=0.610	F=3.511 P=0.062	F=0.391 P=0.532	F=0.487 P=0.485
Tension	F=10.888 P=0.001	F=0.132 P=0.717	F=0.003 P=0.995	F=0.998 P=0.318	F<0.001 P=0.987	F=0.053 P=0.817	F=0.026 P=0.873	F=0.756 P=0.385
Depression	F=21.099 P<0.0005	F=0.006 P=0.939	F=0.110 P=0.740	F=7.184 P=0.008	F=0.535 P=0.465	F=5.820 P=0.016	F=0.192 P=0.662	F=0.614 P=0.434
Anger	F=31.239 P<0.0005	F=0.020 P=0.887	F=0.024 P=0.878	F=11.679 P=0.001	F=0.298 P=0.586	F=8.200 P=0.004	F=1.383 P=0.240	F=0.001 P=0.975
Total Satisfaction	F=38.323 P<0.0005	F=0.925 P=0.337	F=0.024 P=0.876	F=3.324 P=0.069	F=1.562 P=0.212	F=4.734 P=0.030	F=1.132 P=0.288	F=0.361 P=0.548
Satisfaction Outcome	F=39.212 P<0.0005	F=0.135 P=0.714	F=0.192 P=0.662	F=2.786 P=0.096	F=0.838 P=0.360	F=2.627 P=0.106	F=1.405 P=0.237	F=0.295 P=0.587
Satisfaction Process	F=32.539 P<0.0005	F=2.092 P=0.149	F=0.011 P=0.917	F=3.426 P=0.065	F=2.143 P=0.144	F=6.273 P=0.013	F=0.208 P=0.649	F=0.357 P=0.551
Personal Control	F=8.519 P=0.004	F=0.278 P=0.598	F=0.383 P=0.536	F=0.050 P=0.822	F=1.052 P=0.306	F=1.756 P=0.186	F=0.231 P=0.631	F=0.050 P=0.823
Treatment Control	F=4.907 P=0.027	F=0.811 P=0.369	F=3.088 P=0.080	F=1.693 P=0.194	F=0.679 P=0.410	F=0.110 P=0.740	F=0.382 P=0.537	F=5.152 P=0.024
Information Seeking	F=22.359 P<0.0005	F=1.743 P=0.188	F=0.883 P=0.348	F=16.970 P<0.0005	F=5.035 P=0.025	F=1.134 P=0.288	F=1.921 P=0.167	F=2.211 P=0.138