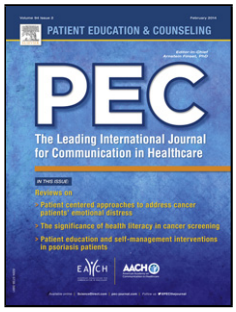

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How Communication about Risk and Role affects Women's Decisions about Birth after Caesarean

Running Head: Decision Making for Birth after Caesarean

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Highlights

- Communication effects on birth after caesarean decisions were experimentally tested.
- Receiving selective information increased odds of choosing repeat caesarean.
- Receiving relative risk information increased odds of choosing repeat caesarean.
- Communication about patient role in decision making did not affect preference.
- Perceived risk of options explained effects of selective information and risk format.

Abstract

Objective. This study investigated how health care provider communication of risk information, and women's role in decision-making, influenced women's preferences for mode of birth after a previous caesarean birth.

Methods: Women (N = 669) were randomised to one of eight conditions in a 2 (selectivity of risk information) x 2 (format of risk information) x 2 (role in decision making) experimental design. After exposure to a hypothetical decision scenario that varied information communicated by an obstetrician to a pregnant

woman with a previous caesarean birth across the three factors, women were asked to decide their preferred hypothetical childbirth preference.

Results: Women provided with selective information (incomplete / biased toward repeat caesarean) and relative risk formats (ratio of incidence being compared e.g. 2.5 times higher), perceived lower risk for caesarean and were significantly more likely to prefer repeat caesarean birth than those provided with non-selective information (complete /unbiased) and absolute risk formats (incidence rate e.g. 0.01 per 100). Role in decision-making did not significantly influence childbirth preferences.

Conclusions: Modifiable aspects of healthcare provider communication may influence women's decision-making about childbirth preferences.

Practice Implications: Optimised communication about risks of all options may have an impact on over-use of repeat CS.

Keywords: decision making**;** maternity; pregnancy; risk communication; shared decision making; informed decision making; vaginal birth after caesarean; VBAC; repeat caesarean

1. Introduction

Caesarean sections (CS) are associated with adverse outcomes for mothers and babies, as well as increased healthcare costs [1–9]. One strategy for reducing caesarean birth rates is to increase the uptake of vaginal birth after caesarean section (VBAC).

Decisions about repeat CS or VBAC may be partly attributable to variations in communication about risks, benefits and the viability or accessibility of alternative options. Informed decision making requires provision of complex risk information for each option that facilitates understanding and promotes agency[10,11]. Risk and benefit information provided by maternity care professionals can modify women's expectations about decisional outcomes and influence care preferences [3,12,13], including preferences for CS [14].

'Information selectivity', the presentation of material that only partially informs about risks and benefits, potentially undermines informed decision-making, as it can reflect or create a persuasive bias [15]. Information selectivity is particularly pertinent to arenas of decision-making where there is controversy or mixed professional opinions, as is the case with VBAC [1,4-9]. Women are more likely to opt for a CS when provided with selective information than when receiving balanced (non-selective) information about both options [14]. Qualitative evidence raises questions about whether women's childbirth preferences would be different if they were fully informed [16–19], but such findings are yet to be confirmed in experimental research.

The format of information about outcomes can also affect patients' perceptions of risk and subsequent decision-making [20–22]. Many women perceive CS as a

safer, more predictable alternative to vaginal birth [14,25,26]. This may be because of how they receive risk information. Information in relative risk format (ratio comparing the incidence rates e.g. 3 times more likely) is more persuasive than the same risk information in absolute format (as an incidence rate e.g. 1 out of 100), and can inflate perceptions of risk [21,23,24].

Healthcare providers can also influence patient decision-making by encouraging the consideration of risk information within the context of personal circumstances and values. In shared decision-making, healthcare providers encourage patient involvement in decision-making processes, facilitating self-efficacy, control and freedom to choose most preferred treatment options [27–29]. In contrast, expected compliance is communicated in provider led decision-making. Women encouraged to play an active role in decision-making are more likely to opt for vaginal birth [30], so provider led decision-making may lead to greater preference for CS than shared decision-making.

There is an overwhelming amount of research into clinical considerations for birth mode following CS. Yet, there is a paucity in research assessing how women are supported to consider such evidence during decision-making. The National Institutes for Health issued a call for research to inform healthcare provider-patient communication about the risks and benefits of repeat CS and VBAC [31]. A subsequent Cochrane review yielded three studies examining the impact of healthcare provider information provision on women's preferences for CS, with inconclusive findings due to methodological concerns [12]. Other existing studies are predominantly retrospective and qualitative in design, subject to recall bias and unable to infer causality [32,33].

We sought to experimentally investigate how variations in (i) information selectivity about the risks and benefits of repeat CS or VBAC, (ii) the format of risk information, and (iii), the degree to which a woman's role in decision-making was encouraged, influenced women's birth choices. We hypothesised that:

1. selective information biased towards the benefits of repeat CS would lead to greater preference for CS compared to non-selective information
2. relative risk communication would lead to greater preference for CS compared to absolute risk communication
3. provider led decision-making would lead to greater preference for CS compared to shared decision-making

Additionally, we aimed to determine if the effects of information selectivity and relative risk on women's preferences were explained by perceptions of risk.

2. Methods

2.1 Participants

We obtained a convenience sample via email recruitment from an existing database of maternity care consumers in Queensland that had consented to

contact for future research. The recruitment email with web link to an anonymous survey was sent to 6417 women. Women were invited to participate if aged over 18 years and not currently pregnant. We assumed invited participants would de-select themselves from participation if ineligible and did not assess gender or pregnancy status to confirm this.

Of 6417 emailed invitations, 1137 were undeliverable. The responding sample of 762 participants (14.4% of those assumed to have received the invitation) and their randomisation to experimental conditions is displayed in Figure 1. Of 762 responses, none selected to active non-consent but 93 were incomplete and were excluded.

Characteristics of included participants are described and compared with Australian women who birthed in 2012 in Table 1. Participants were significantly older than Australian birthing women on average, and significantly underrepresented Aboriginal and/or Torres Strait Islander (ATSI) women and women born outside Australia (see Table 1). A larger proportion of the sample had previously given birth by CS (37.8%) compared to Australian birthing women (28.8%). There were no significant differences between women in each experimental condition in the proportion who had previously given birth by CS.

[INSERT FIG 1 ABOUT HERE]

[INSERT NEW TABLE 1 ABOUT HERE]

2.2 Design

A 2 (information selectivity: selective vs. non-selective) x 2 (risk format: absolute vs. relative) x 2 (role in decision-making: choice vs. compliance) experimental design was used. The eight experimental conditions (see Table 2) ranged from that considered most optimal for decision-making (condition 1) to least optimal (condition 8). The three factors were manipulated via a vignette presented to participants describing a hypothetical consultation where an obstetrician provides a pregnant woman ('Audrey') with information about childbirth options after a previous CS (see Supplementary Material). Participants were randomly allocated to one condition and blind to both the experimental manipulation and true objectives of the study.

[INSERT TABLE 2 ABOUT HERE]

Participants were asked to provide consent to participate and demographic information prior to exposure to the experimental manipulation. They were then randomly allocated via a randomisation logic in the computer programming software (Key Survey) to be presented with one of eight vignettes representing each experimental condition (Table 2 and Supplementary Material). Following vignette exposure, participant preference for VBAC or repeat CS, decisional certainty and perceptions of risk, information selectivity and role in decision-making were assessed. On completion, participants received debriefing information on the research aims and the optimal decision-making vignette.

This study was approved by the Faculty of Psychology and Counselling Ethics Review Board at the Queensland University of Technology (approval number: 1500000466).

2.3 Manipulation of independent variables.

Information selectivity was manipulated by varying the range of information presented about the likelihood of outcomes associated with VBAC and repeat CS. In non-selective conditions, all known risk and benefit information was presented for both options (see Supplementary Material). Selective information communicated risk information favouring CS, which was considered the most ecologically valid given its consistency with reported directions of bias [16,17]. Length of hospitalisation could be perceived as either a risk or benefit depending on individual values, so comparative outcomes were included in both selective and non-selective conditions.

We created two levels of risk information format by manipulating the format for presenting the likelihood of outcomes associated with each option. In *absolute risk* conditions, information was presented as an incident rate (e.g., risk of maternal death is 0.01 per 100 for women planning a CS). In *relative risk* conditions, risk was presented as a ratio of the comparative incidence rates (e.g., risk of maternal death is 2.5 times higher for women who have a CS than for women who have a vaginal birth).

Role in decision-making (choice vs. compliance) was manipulated by varying the degree to which the woman in the vignette was encouraged by the obstetrician to be involved in the decision-making process. In *choice* conditions, shared decision-making was created by emphasising freedom to choose, control over the decision-making process and encouragement to participate [27–29]. The obstetrician encouraged the woman to take time to consider all information and the best option for her, and provided assurance of support and expertise in both birthing options. In *compliance* conditions, the woman was advised of the schedule for repeat caesareans and instructions for booking it, without encouragement or facilitation of participation in the decision-making process (see Supplementary Material).

To protect the integrity of manipulations, all other information communicated in the vignettes was constant across conditions. Several features were designed to prevent otherwise manipulating the perceived risk of one option over another. Descriptive language such as 'rarely, extremely, or very', was avoided to prevent imposing subjective interpretations of risk information [16,34]. Percentages and ranges of statistical risk and benefit information were also avoided to minimise misinterpretation of risk and its effect on subsequent decision-making [22,35]. Although the terms 'trial of labour' and 'attempted labour' are commonly used in maternity services and research in relation to VBAC, this terminology was excluded to avoid potentially inflating perceived risk of the VBAC option because of negative connotation around the words "trial" and "attempt" [19].

2.3 Measures

2.3.1 Dependent variables: childbirth preference and decisional certainty.

The primary dependent variable was hypothetical childbirth preference (i.e. repeat CS or VBAC). Preference was measured by asking, "If you were in Audrey's position, what type of birth would you plan to have?" ("caesarean birth" or "vaginal birth"). Response options were randomised to manage systematic bias of response choice order and primacy effects [36].

Decisional certainty about childbirth preference was assessed to account for impact of variations in risk communication that may be insufficiently powerful to affect overall birth mode preference, but exert a subtle effect on degree of certainty for preferred birth mode. Decisional certainty was measured with the single item, "How sure are you about your decision?". Participants responded on a 5-point scale ranging from "not sure at all" to "extremely sure", with higher scores indicating greater decisional certainty.

2.3.2 Perception of risk: mediating effects.

Perceived risk of both options was measured to examine effects on associations between information selectivity or risk format, and childbirth preference. Perception of risk was measured using a two-part item "In your opinion, how risky is it for Audrey to plan a: a caesarean birth and b: a vaginal birth". Participants were asked to respond to both parts using a 5-point scale ranging from "not risky at all" to "extremely risky", with higher scores indicating greater perceived risk.

2.3.3 Checks for manipulation of independent variables.

Perceptions of information adequacy were assessed with the question "Do you think Audrey had enough information to make an informed decision?" ("Yes"/"No"). Perceived involvement in decision-making was measured to assess manipulation of role in decision-making, using three items designed to measure freedom to choose, control over the decision-making process and encouragement to participate [27–29]: "In your opinion, how much freedom did Audrey have to choose the type of birth?"; "Overall, if you were in Audrey's position how much control would you feel you had over the final decision about the type of birth planned?"; "Overall, if you were in Audrey's position how encouraged by your obstetrician would you feel to be involved in the decision-making?". Participants responded using a 5-point scale from "none at all" to "very high amount", with higher scores indicating greater perceived freedom, control and encouragement respectively.

2.4 Analysis

Binary logistic regression was used to assess effects of information selectivity, risk format and role in decision-making on birth mode preferences. Results are expressed as relative odds (OR) of preference for repeat CS and associated 95% confidence interval (CI). Our sample size (n = 669) was in excess of that required to meet the minimum criterion of 50 cases per IV for binary logistic regression

with no more than four independent variables per analysis. [37]

One-way between groups ANOVA was used to assess effects of experimental manipulation on decisional certainty. Levene's test indicated non-homogenous variance for decisional certainty, $F(7, 661) = 2.07$, $p = .044$, so results of the Welch's ANOVA and Games-Howell post hoc analyses were reported [38]. Although assumptions for all other analyses were met, bootstrapping was applied where relevant at 1000 samples to increase confidence that the sampling distribution approximated normal.

To assess mediating effects of perception of risk, the Hayes Process application [39] was used given its appropriateness for accommodating a dichotomous dependent variable [40] .

Statistical Package for the Social Sciences (SPSS) version 21 with alpha set at 0.05 was used for all analyses.

3. Results

3.1 Preferences for Childbirth and Decisional Certainty

On Audrey's behalf, 33.5% of participants chose repeat caesarean and 66.5% chose vaginal birth. Childbirth preference by experimental condition is shown in Table 3.

[INSERT TABLE 3 ABOUT HERE]

Together, the three independent variables of information selectivity, risk information format and decision-making involvement significantly predicted preference for repeat CS, χ^2 (3, N = 669) = 29.61, $p < .001$, Cox and Snell $\chi^2 = .04$, Nagelkerke $\chi^2 = .06$. Hosmer and Lemeshow test revealed that the model was an adequate fit for the data, χ^2 (6, N = 669) = 4.82, $p = .570$.

Both information selectivity and risk format uniquely predicted preference for repeat CS (see Table 4). Women who received selective information had 1.57 times the odds of preferring repeat CS than those who received non-selective information. Women presented with relative risk information had 2.36 times the odds of preferring repeat CS compared to women presented with absolute risk information. Decision-making role did not predict childbirth preference.

[INSERT TABLE 4 ABOUT HERE]

Women who chose repeat CS were significantly less certain about their decision (M = 3.52, SD =1.0), than women who chose VBAC (M = 3.77, SD = 0.98), t (667) = -3.04, p = .002. The mean difference (-.25, 95% CI [-0.40, -0.09]) represented a small effect, d = .25. Decisional certainty differed significantly between experimental conditions, Welch's F (7, 668) = 3.85, p = .001, η^2= 0.04 (see Table 3). Highest decisional certainty was among participants who received non-selective information in absolute risk format with a decision-making role reflecting 'choice' (condition 1). Those participants were significantly more

certain about their birthing preference than participants exposed to: 1. selective/absolute/ compliance (condition 6), mean difference, 0.69, p = .003, BCa 95% CI [0.38, 0.99], 2. selective/relative/choice (condition 7), mean difference 0.57, p = .033, BCa 95% CI [0.28, 0.87], and 3. selective/relative/compliance (condition 8), mean difference 0.58, p = .024, BCa 95% CI [0.29, 0.87]. All comparisons had small effect sizes (d = 0.31, 0.25 and 0.27 respectively).

3.2 Perceptions of Risk and Childbirth Preferences

Figure 2 represents how perceived risk mediated the effect of information selectivity on preference for repeat CS. Participants who received selective information were more likely to prefer repeat CS, b = 0.36, 95% CI [0.03, 0.68], p = 0.031 (path c) and had lower perceived risk of repeat CS compared to VBAC, b = -0.45, 95% CI [-0.627, -0.273], p<.001 (path a). Participants with higher perceived risk of CS were significantly less likely to prefer repeat CS, b = -1.36, 95% CI [-1.492, -1.037], p<.001 (path b). After controlling for perceived risk, information selectivity no longer significantly predicted childbirth preference, indicating full mediation, b = - 0.139, 95% CI [-0.524, 0.245], p = .478, Cox and Snell $\square^2$ = .25, Nagelkerke $\square^2$ = .34 (path c'). There was a significant indirect effect of information selectivity on preference for repeat CS, mediated by perception of risk, b = 0.57, BCa 95% CI [0.35, 0.88] (path a*b). Sobel's test confirmed that the indirect effect was significant, z = 4.53, p<.001.

[INSERT FIG 2 ABOUT HERE]

Figure 3 represents how perceived risk mediated the association between risk format and childbirth preference. Participants who received risk information in relative format were more likely to prefer repeat CS, b = 0.80, 95% CI [0.47, 1.13], p<.001 (path c) and had lower perceived risk for repeat CS than VBAC, b = -0.37, 95% CI [-0.45, -0.09], p = 0.003 (path a). As already reported, participants with higher perceived risk of repeat CS were significantly less likely to prefer repeat CS, b = -1.21, 95% CI [-1.43, -1.09], p<.001 (path b). Controlling for perceived risk attenuated the effect of risk format but it remained significant, indicating partial mediation, b = 0.61, 95% CI [0.22, 1.0], p = .002, Cox and Snell $\square^2$ = .26, Nagelkerke $\square^2$ = .36 (path c'). There was a significant indirect effect of risk format on preference for repeat CS, mediated by perception of risk, b = 0.33, BCa 95% CI [0.14, 0.60] (path a*b). Sobel's test confirmed that the indirect effect was significant, z = 2.86, p = .004.

[INSERT FIG 3 ABOUT HERE]

3.3 Perceptions of Information Adequacy and Perceived Involvement in Decision Making by Experimental Condition

Overall, 70.4% (N = 477) of participants believed they had received enough information about the risks and benefits of childbirth options to make an informed decision. Perceptions of information adequacy by level of information selectivity and risk format are displayed in Table 5. As intended with the experimental manipulation, perceived information adequacy was greatest in

conditions with non-selective information and risk presented in absolute format (incidence rate), and least in conditions of selective information and relative risk communication (ratio of incidence rate).

[INSERT TABLE 5 ABOUT HERE]

Perceived freedom, perceptions of control and degree of encouragement to participate are displayed in Table 6, by level of manipulated role in decision-making. As intended, a higher percentage of participants in choice conditions perceived optimal levels of freedom, control and encouragement than those in compliance conditions.

[INSERT TABLE 6 ABOUT HERE]

4. Discussion and Conclusion

4.1 Findings

Women who received non-selective information presented in absolute risk format and with a decision-making role reflecting 'choice' were most likely to prefer VBAC, and with the highest decisional certainty. The analysis of information adequacy and perceived involvement confirmed the independent variables were effectively manipulated to communicate variations in risk information and role in decision-making. Risk perception fully explained the association between information selectivity and childbirth preference, and partially explained the association between risk format and childbirth preference.

These findings confirm possible adverse influences of selective risk information on perceived risk of alternative options and decisional preferences, and suggest the provision of selective information favouring CS [19,41]may influence current rates. Selective information provision may be due to healthcare providers' attempts to persuade women to consent to their most preferred option, or their misdiagnosis of women's preferences about the information they need and want [42–44].

Similarly, gaps in information regarding physiological risks and benefits of CS versus VBAC have been shown to interfere with women's ability to weigh risks and benefits with their personal values [15]. Decision theory literature posits that optimal decision-making is reliant on patients being provided with unbiased, balanced information pertaining to all possible decisional outcomes [45]. A review of interventions to inform patient healthcare decision-making [10] and narrative analyses of patients processes for making treatment decisions (e.g., [10,15,46]) suggests patients are unable to accurately assess risk or assign personal value to decisional outcomes in the absence of complete and impartial

information, compromising their ability to make optimal decisions. The direction of manipulating information selectivity in our study was informed by qualitative research findings that healthcare provider bias for birth mode after CS most commonly favours repeat CS [16,17]. Further research is needed to explore whether the effects of information selectivity identified here are evident when information selectivity is biased towards VBAC. A complete understanding of how information selectivity can affect decision- making in healthcare, and how those effects depend on characteristics of the options themselves, is needed.

The format of risk information influences perception of risk and treatment preferences across various healthcare settings [47–50], although this had not been experimentally tested for birth mode. Our findings suggest women's childbirth decisions may be compromised by information in relative format, as this results in avoidance of perceived increased risk associated with alternative options. Relative risk inflates perception of risk [51–53] and increases willingness for treatment in an attempt to mitigate perceived risk [50,54,55]. Alternatively, in the absence of absolute risk information, women may reference existing misconceptions about CS to interpret relative risk information. Some women perceive CS as the low risk, safer alternative to an 'unpredictable' VBAC [14,25,26,56]. This might explain why perception of risk only partially mediated the relationship between risk format and childbirth preferences.

Women who received non-selective (complete, unbiased) information presented in absolute risk format showed the highest decisional certainty. In cancer patients the best predictor of decisional certainty is perceived information provision related to treatment options; perceptions of feeling uninformed or unable to comprehend risk information leads to greater decisional uncertainty [57]. An enhanced capacity to undertake a risk benefit analysis and make value judgments on all decisional outcomes may contribute to decisional certainty.

In the current study, there was no significant effect of decision-making role on childbirth preferences. Other studies have attributed similar null effects to difficulties communicating expectations of compliance within a hypothetical vignette, and resulting participant perceptions of choice within compliance conditions [58]. We took further measures to strictly communicate the expectation of compliance in provider led conditions, and the majority of participants in our compliance condition reported small to no freedom, control or encouragement. Therefore, failure to convey an expectation of compliance is an unlikely explanation for our findings. Characteristics of our study sample may better explain why role in decision-making did not significantly predict childbirth preferences. All participants were multiparous, with more than half having given birth between two and four times. Multiparous women may have higher decisional confidence and be less influenced by variations in healthcare provider encouragement for involvement in the decision-making process. Compared to primiparous women, multiparous women have a greater sense of internal and external control, and differing expectations and priorities about maternity care service provision [55,59]. Further research needs to determine moderating effects of parity on the association between role in decision-making and treatment preferences.

In Australia, 85% of women who have had a previous CS have a repeat CS section [60]. In our study, between 17.1% and 50.5% of women across the experimental conditions chose hypothetical repeat CS on Audrey's behalf. The gap between practice and preferences reported in this study may be due to the hypothetical nature of the decision scenario, alongside the composition of our sample. However, the gap may also be due to inflated information provision (even in the most selective conditions) in our study relative to practice. Although another Australian study has reported that the majority of women (96%) who had pre-labour CS report being informed about the benefits and risks of both birth options [61], it is not known how the extent and quality of information in practice compares with that manufactured in our study.

Information provided to women about mode of birth and associated risks and benefits is inconsistent, insufficient and not always readily available to support the decision-making process [41,62]. Within the current study, quality of information was intentionally compromised within the selective information conditions. Despite receiving incomplete information, more than half of the women in selective conditions believed they had enough information to make an informed decision. This suggests a concerning lack of awareness about what constitutes informed decision-making, as well as notable deficits in knowledge about the risks associated with childbirth options.

4.2 Limitations

We were unable to investigate response bias due to minimal available data on the invited sample. Our study sample had high generalisability to the population who might reasonably be faced with the hypothetical decision tested here (women with recent childbirth experience, high representation of those with experience of a previous CS), younger women and cultural diversity were under-represented in our sample. Further research is needed to examine how personal characteristics moderate the effects of variations in communication.

While the use of vignettes and a hypothetical decision-making outcome were considered necessary for managing ethical risks of experimental research like this, decisions about birth mode after caesarean in more ecologically valid scenarios and samples may uncover effects of a different magnitude or direction. For example, opportunities for two-way information exchange (e.g., for patients to ask clarifying questions and for providers to respond) might attenuate effects of selectivity, and the nature of subsequent communication may influence effects of risk information format on decisional outcome. Our findings that 'perceived risk' of the options mediated associations between variations in selectivity and risk format and decisional outcome could be further explored to better delineate the causal mechanisms between variations in communication features and decisional outcomes. For example, comprehension of risk was not assessed in our study, but may at least partially explain these associations.

In this study, we manipulated information selectivity only in one direction of bias. It is unclear how effects of selectivity biased in the alternative direction may influence decisional outcomes or perceived risk of the options.

4.3 Conclusion

Our findings suggest women provided with selective and relative risk information are more likely to opt for repeat CS. Further, the effect of selectivity and risk format on decisional outcomes is explained by variations in perceived risk of the alternatives, suggesting an adverse effect of selective and relative risk presentation on women's ability to perform risk/benefit evaluation. In such situations, decisional outcomes may not be consistent with women's informed preferences and values for childbirth. Further, our findings support the idea that such conditions of biased communication about risk may be at least partially responsible for the over-use and rising rates of CS.

4.4 Practice Implications

There are myriad legitimate reasons why a woman prefers one birth mode over another. It is unreasonable to assume that healthcare providers will have opportunity or capacity to become familiar with all the possible factors. It is therefore critical that healthcare providers pay attention to the selectivity of information communicated about outcomes of all available options and the format of the risk information itself.

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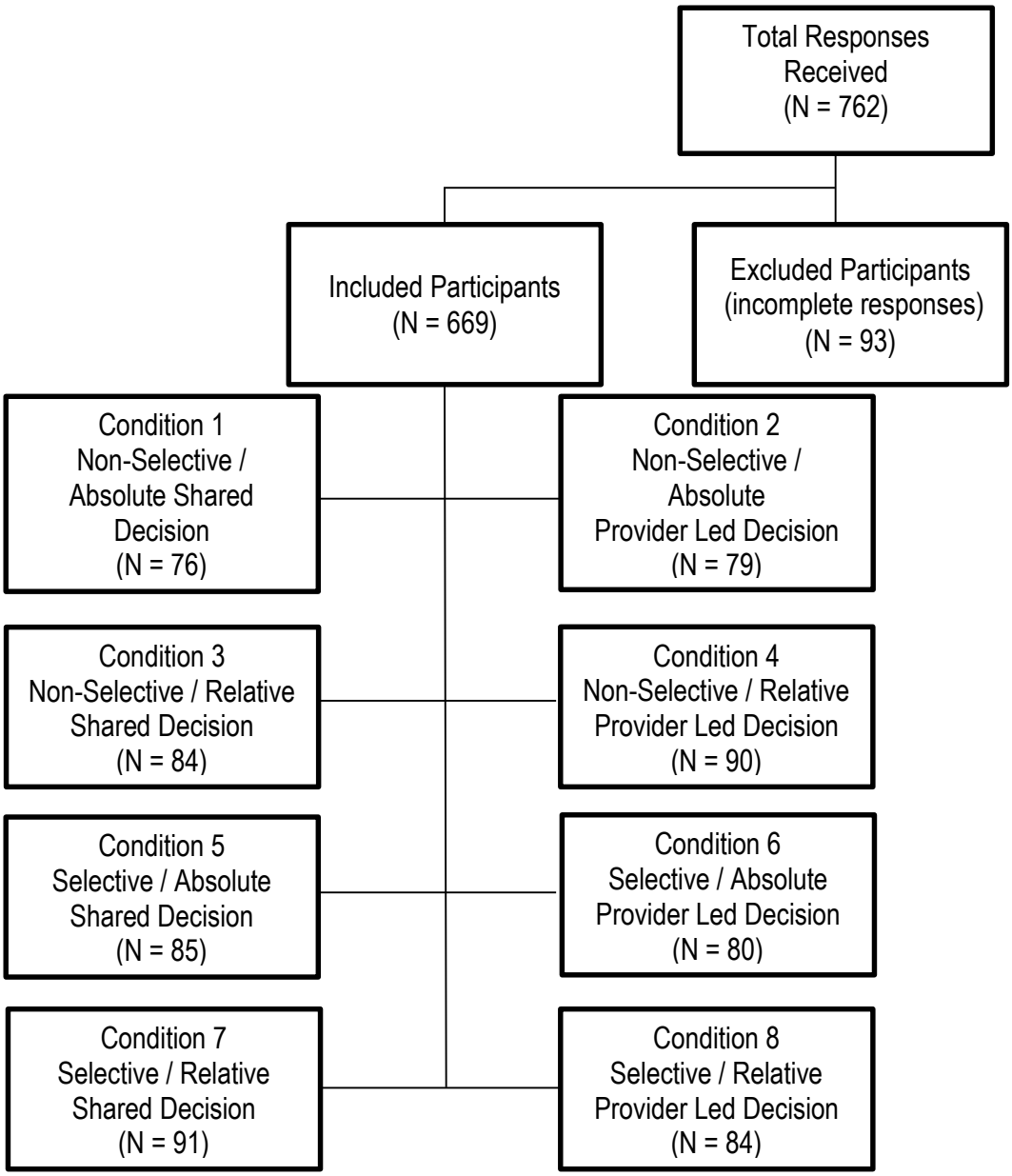
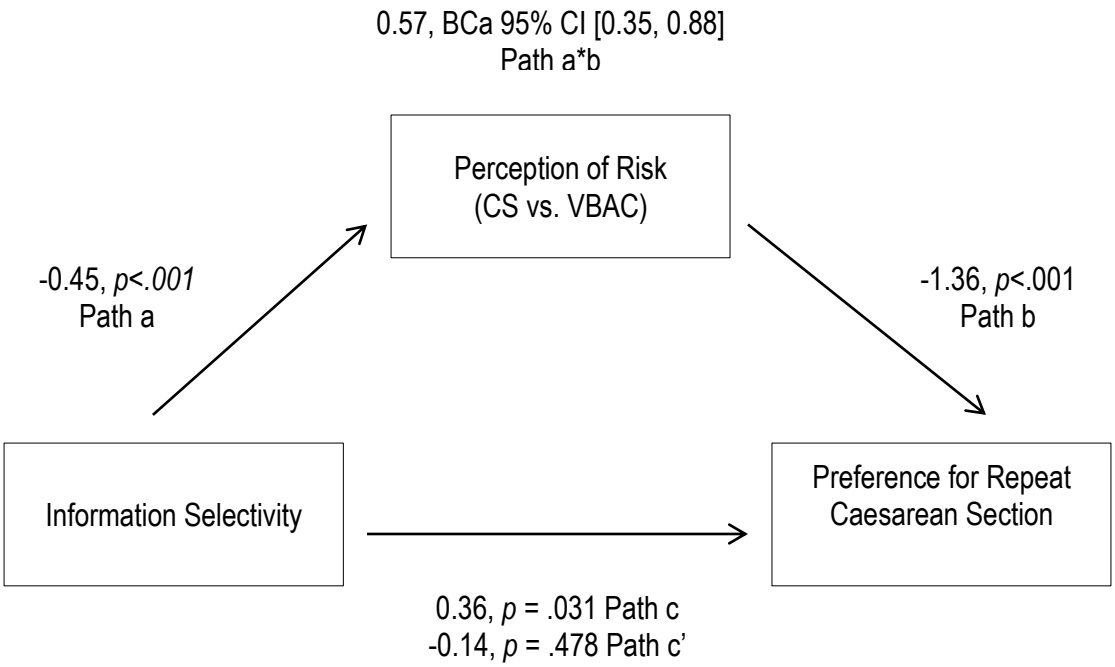
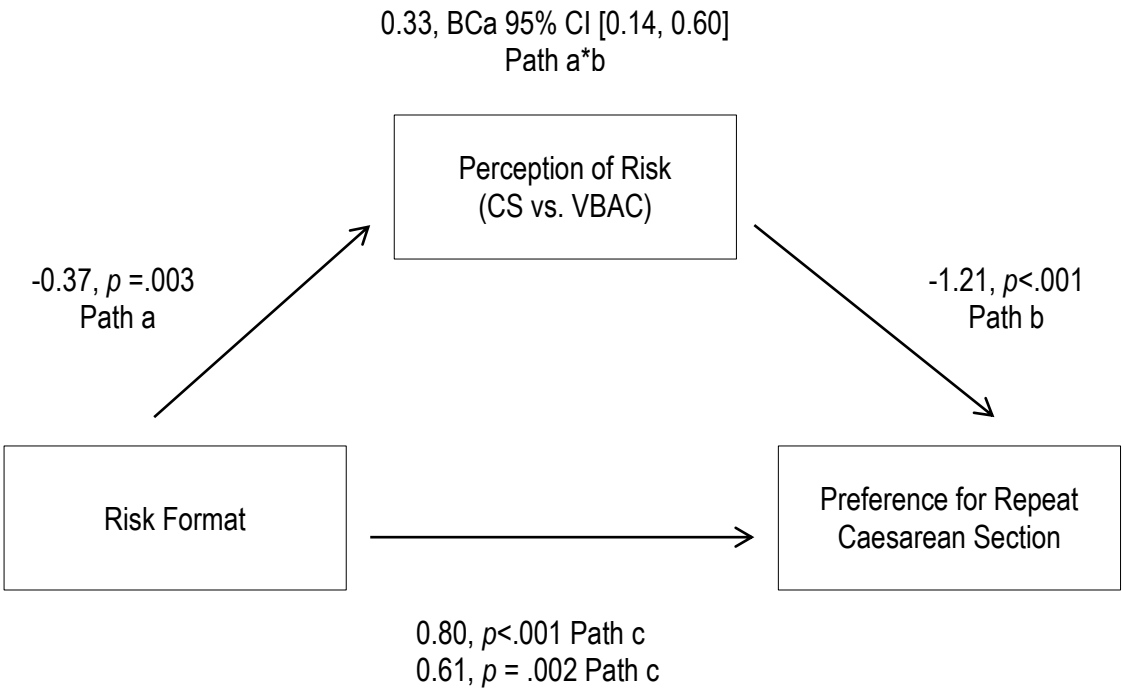


Figure 1 Participant Flow



Note. CS = caesarean section; VBAC = vaginal birth after caesarean section

Figure 2. The relationship between information selectivity and preference for repeat caesarean section as mediated by perception of risk.



Note. CS = caesarean section; VBAC = vaginal birth after caesarean section

Figure 3. The relationship between risk format and preference for repeat caesarean section as mediated by perception of risk.

Table 1 Participant Characteristics compared with Australian Birthing Women in 2012

Characteristic	Participant Sample N = 669	95% CI in participant sample	Australian Birthing Women N = 307,474 [c]	Test of Differences
Age in Years				
mean [a]	35.32	[34.9, 35.74]	30.1	t (667) = 24.37, p<.001
range	20-53		15-56	
ATSI Status [b]	0.9%	[0.18%, 1.62%]	4%	χ^2 (1) = 16.78, p<.001
Australian Born [b]	81%	[78%, 84%]	68.8%	χ^2 (1) = 46.51, p<.001
Previous CS [b]	37.8%	[34.13%, 41.47%]	28.8%	χ^2 (1) = 26.53, p<.001

Note. [a] one-sample t-test; [b] chi-square test; [c] Australian Mothers and Babies 2012[63]; CI = confidence interval; CS = caesarean section.

Table 2 Experimental Design

	Non-Selective Information		Selective Information	
	Absolute Risk	Relative Risk	Absolute Risk	Relative Risk
Choice	1. Non-Selective Absolute Risk Choice	3. Non-Selective Relative Risk Choice	5. Selective Absolute Risk Choice	7. Selective Relative Risk Choice
Compliance	2. Non-Selective Absolute Risk Compliance	4. Non-Selective Relative Risk Compliance	6. Selective Absolute Risk Compliance	8. Selective Relative Risk Compliance

Table 3 Preference for repeat Caesarean Birth and Decisional Certainty, by condition

Condition		Preferred Caesarean	Decisional Certainty		
	N	N(%)	M	SD	BCa 95% CI
1 Non-selective, absolute risk, choice	76	13 (17.1%)	4.04	0.90	[0.74, 4.23]
2 Non-selective, absolute risk, compliance	79	21 (26.6%)	3.83	0.95	[3.63, 4.05]
3 Non-selective, relative risk, choice	84	25 (29.8%)	3.69	1.03	[3.47, 3.83]
4 Non-selective, relative risk, compliance	90	38 (42.2%)	3.68	1.12	[3.34, 3.80]
5 Selective, absolute risk, choice	85	22 (25.9%)	3.90	0.95	[3.79, 4.10]
6 Selective, absolute risk, compliance	80	22 (27.5%)	3.45	0.95	[3.25, 3.65]
7 Selective, relative risk, choice	91	46 (50.5%)	3.67	1.08	[3.35, 3.87]
8 Selective, relative risk, compliance	84	37 (44.0%)	3.56	0.92	[3.47, 3.87]

Note. M = mean; SD = standard deviation; BCa = bootstrapped; CI = confidence interval

Table 4 Predicting Preference for repeat Caesarean Section based on Information Selectivity, Risk Format and Role in Decision-Making

Variable	B	S.E	Wald	df	Sig	OR	95% CI for OR
Information Selectivity							
Selective	0.49	.17	5.37	1	.022	1.57	[1.06, 2.05]
Risk Format							
Relative Format	0.82	.27	22.99	1	.000	2.36	[1.62, 3.16]
Role in Decision-Making							
Compliance	0.29	.27	1.33	1	.250	1.21	[.87, 1.79]

Note. Caesarean (CS) predicted by the model (target shown); B = regression coefficient; S.E = standard error of coefficient; df = degrees of freedom; Wald = Wald statistic; OR = odds ratio of preferring CS; CI = confidence interval

Table 5 Perceived Information Adequacy for Informed Decision-Making by level of Information Selectivity and Risk Format

Manipulation of Information	Perceived Adequate Information % (N)	Perceived Inadequate Information % (N)	χ^2	p	φ_c
Non-Selective Information	80.6% (N = 265)	19.4% (N = 64)	27.05	<.001	.20
Selective Information	62.3% (N = 212)	37.7% (N = 128)			
Absolute Risk Information	79.4% (N = 254)	20.6% (N = 66)	19.54	<.001	.17
Relative Risk Information	64.9% (N = 223)	35.1% (N = 126)			

Note. non-selective = complete information; selective information = incomplete information; absolute risk = incidence rate; relative risk = ratio of incidence rate; χ^2 = Chi Square; p = p value at 95% significance; φ_c = Cramer's V effect size

Table 6 Perceived Involvement: Manipulation Checks for Role in Decision-Making

Aspect of Decision-Making	Role Condition	Rating of Perceived Amount (%)					χ^2	p	φ_c
		None	Small	Moderate	High	Very High			
Freedom	Choice	0	6.86	18.45	41.36	33.33	292.40	<.001	.66
	Compliance	28.85	36.03	19.21	10.81	5.10			
Control	Choice	0.30	7.14	23.51	37.50	31.55	232.07	<.001	.59
	Compliance	26.66	33.03	19.29	13.21	7.81			
Encouragement	Choice	1.49	6.55	27.18	38.19	26.59	247.16	<.001	.61
	Compliance	31.54	30.63	21.92	12.91	3.00			

Note. χ^2 = Chi Square; p = p value at 95% significance; φ_c = Cramer's V effect size