

Theory-based identification of barriers to quality improvement: induced abortion care

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Abstract

Background. The UK Royal College of Obstetricians and Gynaecologists published the clinical guideline, *The Care of Women Requesting Induced Abortion*, to address recognized variations in care. There is little empirical evidence on factors that influence compliance with the guideline. A better understanding of such factors is needed for quality improvement initiatives.

Objective. To identify factors that influence compliance with two key guideline recommendations: offer of an assessment appointment within 5 days of referral, and supply of contraceptives at discharge.

Setting. Thirteen hospital gynaecology units in Scotland.

Methods. Guideline compliance was measured by a case note review. Barriers and facilitators were identified using a combination of approaches: semi-structured interviews with local gynaecologists and a survey of clinical staff. The questionnaire, based upon constructs from the Theory of Planned Behaviour, measured behavioural intention, attitude, subjective norm (perceived social pressure), and perceived behavioural control.

Results. Of 507 cases reviewed, median unit compliance was 46% for the assessment appointment and 59% for contraceptive supplies. Questionnaires were returned by 151 (74%) of 205 staff in 12 units. The interviews and open-ended questions highlighted organizational barriers to guideline implementation. Staff generally had strong intentions and positive attitudes to follow both recommendations. For the assessment appointment, perceived behavioural control was low. The Theory of Planned Behaviour accounted for 27% of the variation in intentions, with subjective norm being the strongest predictor. Intention and perceived behavioural control best explained unit compliance, together explaining 15% of the variation. For contraceptive supplies, the theory accounted for 34% of the variation in intentions, with perceived behavioural control being the strongest predictor.

Conclusion. Clinical staff were highly motivated to implement the guideline but hindered by organizational constraints. Quality improvement initiatives need to target organizational barriers as well as individual professionals.

Keywords: behavioural theory, clinical guidelines, induced abortion

Introduction

Induced abortion is one of the most commonly performed gynaecological procedures, with over 12000 annually in Scotland [1]. Inappropriate variations in quality of care have previously been demonstrated [2]. In response, the UK Royal College of Obstetricians and Gynaecologists (RCOG) laun-

ched the clinical guideline, *The Care of Women Requesting Induced Abortion*, during March 2000 [3].

Guideline dissemination can improve clinical practice, especially if accompanied by effective implementation strategies [4]. Yet few interventions to change practice work consistently across all circumstances [5]. Intervention strategies tailored according to identified needs and barriers may be associated

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with higher rates of success [6], but there is little empirical evidence on the most appropriate methods of identifying needs and barriers.

The majority of behaviour change strategies that have been evaluated target individual professionals (e.g. continuing medical education, reminders) but little is known about why these work in some circumstances rather than others [5]. Theoretical models of change can be used to understand the behaviour of health professionals and design strategies to change practice [7,8]. Such theories focus largely on change at individual and organizational levels. Individual level theories propose that professionals' perceptions of factors such as resource constraints or organizational policy are key determinants of their actions. However, even an individual theoretical framework would need to take account of mutual social influence within organizations. Organizational theories propose that systemic factors such as organizational culture [9] influence individuals' perceptions and behaviour. Evidence for either group-level social influence or organizational culture effects would consist of smaller variation in key variables (e.g. attitude, behaviour) within organizational units than between units (i.e. 'clustering' effects) [10]. This study measured individuals' perceptions and used these to assess clustering effects in gynaecology units.

Theories from social psychology have been used in health promotion research focusing on individual differences in behaviour [11]. The Theory of Planned Behaviour proposes that individual behaviour is determined primarily by the strength of intention to perform that behaviour (Figure 1) [12]. The strength of behavioural intentions is predicted by three variables: (i) attitude towards the behaviour; (ii) subjective norm, or perceived social pressure to perform the behaviour; (iii) perceived behavioural control, or perceptions of the ease or difficulty of performing the behaviour, reflecting past experience as well as anticipated barriers and facilitators.

Perceived behavioural control can also directly influence behaviour. That is, even if intentions are positive, sometimes barriers are so powerful that individuals are unable to act in the intended way. Interventions designed to change beliefs most strongly associated with intentions are expected to be the most effective in changing behaviour. Early studies suggest that the Theory of Planned Behaviour is a useful, systematic tool to identify factors influencing change, including external barriers and facilitators, and hence appropriate forms of intervention [7,13,14].

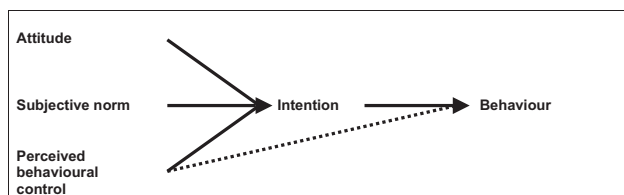


Figure 1 The Theory of Planned Behaviour.(12)

We applied the Theory of Planned Behaviour to identify factors influencing compliance with two key recommendations from the RCOG guideline.

Methods

The study took place within the context of a cluster randomized controlled trial to test the effectiveness of a tailored guideline implementation strategy. All 26 hospital gynaecology units in Scotland participated. The study population comprised all clinical staff involved in abortion care at the 13 units randomized to the intervention arm, as findings would be used to design the intervention. The study was approved by the Multi-centre Research Ethics Committee for Scotland.

Baseline compliance with guideline recommendations

Women undergoing induced abortion over a 3 month period were identified from ward admission books. We randomly selected 50 cases from each unit and trained data collectors undertook structured case note reviews to measure compliance with the guideline recommendations. We reviewed all cases in smaller units where 50 or fewer women underwent abortions during this period.

Interviews with lead gynaecologists

An investigator (R.F.) conducted semi-structured interviews with local lead gynaecologists, nominated by heads of gynaecology units because of their involvement in leading or organizing abortion care. We based the interview framework upon a previous literature review [15]. We fed back case note review findings before each interview and asked interviewees what factors helped or hindered compliance with selected recommendations. Minimal prompting was used. Notes were taken at each meeting. Preliminary findings from these interviews subsequently informed the development of items for the Theory of Planned Behaviour questionnaire.

Questionnaire development

The questionnaire focused on two key guideline recommendations:

'Ideally, all women requesting abortion are offered an assessment appointment within 5 days of referral.'

'Before she is discharged following abortion, contraceptive supplies should have been offered if required. The chosen method of contraception should be initiated immediately following abortion.'

We selected these recommendations for two reasons. Firstly, they are clinically important. Timely clinical assessment is critical because the earlier in pregnancy an abortion is performed, the lower the risk of complications [16,17]. Contraception provision represents an essential component of preventive care, particularly as over 90% of women ovulate

within a month of first trimester abortion [18]. Secondly, the case note review demonstrated variation among units and potential for improved compliance.

Items measuring psychological variables from the Theory of Planned Behaviour were derived from previously recommended scales and items [11,12]. We pre-tested the draft questionnaire on seven clinical staff from the trial control arm and then modified it to improve acceptability.

The definitive questionnaire sought data on the following variables (detailed in Table 1):

- (i) *Behavioural intention*. Intentions to follow our two key recommendations were measured by responses to three items relating to the following given scenarios: 'Next week, a woman is referred to your clinical teams by her general practitioner requesting abortion'; and 'Next week, a woman is being discharged from your unit following suction termination of pregnancy. She has indicated her wish to use the oral contraceptive pill but has not already been given supplies from any source.'
- (ii) *Attitude*. We used four items to assess attitudes to each behaviour.
- (iii) *Subjective norm*. Three bipolar items assessed the strength of subjective norm relevant to each recommendation, as different groups might approve or disapprove of following the recommendations.
- (iv) *Perceived behavioural control*. We included five control items for each recommendation.
- (v) *Specific facilitators and barriers*. We asked brief open-ended questions.
- (vi) *Survey procedure*. The lead gynaecologists identified all medical, midwifery, and nursing staff involved in abortion care at their units. We posted questionnaires and brief information about the survey to these staff. Non-responders received reminders 3 weeks later.
- (vii) *Data entry and analysis*. The interviewer collated and categorized responses to semi-structured interviews in terms of specific barriers and facilitators identified.

We entered case note review and questionnaire survey data onto an Access database and analysed them using SPSS and STATA. We calculated summary measures for each of the four psychological variables (intention, attitude, subjective norm, and perceived behavioural control) from the means of the contributing items. We generated simple descriptive statistics for each variable and estimated the intra-cluster correlation (ICC) using gynaecology unit as a random effect. Individual professionals within gynaecology units were likely to respond in a similar manner and the ICC measures the degree of this intra-cluster dependence [19]. Failure to account for clustering effects in analyses can overestimate the significance of results [20].

We firstly investigated relationships between behavioural intention and the other three psychological measures using Pearson's correlation coefficient. Secondly, we performed a regression analysis (using robust standard errors to adjust for clustering effects) with intention as the dependent variable and attitude, subjective norm and perceived behavioural control as independent variables.

We also used regression analysis using robust standard errors to test for the strength of the relationships between intentions, perceived control, and compliance. We assessed the degrees to which both intention alone and intention combined with perceived behavioural control were directly associated with unit compliance. We repeated statistical analyses using non-parametric tests wherever possible as there was some evidence of skewness in behavioural measures.

In analysing the open-ended survey questions, we allowed for more than one response from each respondent and undertook a content analysis of factors that helped or hindered following the recommendations [21]. Two researchers (R.F. and G.P.), who were blind to gynaecology unit and grade of respondent, independently categorized the verbatim open-ended responses according to which component of a framework they most closely fitted. Following piloting and modification, the final categories comprised: attitudes, subjective norms, and perceived behavioural control (self-efficacy, organizational and environmental). We resolved all disagreements by consensus without the need for arbitration by a third researcher (A.W.).

Results

Compliance with guideline recommendations

We reviewed a total of 507 case notes for the 13 gynaecology units (range 8–50). Median unit compliance was 45.8% [interquartile range (IQR) 19.3–56.9%] for the offer of an assessment appointment and 58.6% (IQR 49.5–93.9%) for contraceptive supplies at discharge.

Interviews with lead gynaecologists

We interviewed 12 lead gynaecologists. We were unable to interview the 13th consultant within the available time frame. Consequently, no staff were identified from this unit for the survey. Many factors reported as influencing compliance with the offer of an assessment appointment were organizational in nature (Table 2). However, individual attitudes also played a role, with five interviewees reporting that colleagues partially or not involved in abortion care assigned it a lower priority than (say) investigation for potential malignancy. Interviewees perceived that compliance with the offer of contraceptive supplies was related mainly to organizational and individual factors. Accidental omission and inconsistent recording in case notes were the most frequently mentioned individual-level barriers.

Response to questionnaire survey

Of 205 questionnaires, 151 (74%) were completed from the 12 units which participated in the survey (unit range 50–100%). Two respondents had removed the gynaecology unit code from their questionnaires; their data could not be used in analyses of unit compliance.

Table 1 Sample items for each variable in the Theory of Planned Behaviour relating to the two guideline recommendations investigated

Variable	Guideline recommendation			
	Assessment appointment within 5 days of referral		Contraception supplies at discharge	
	Questionnaire item:	Response format:	Questionnaire item:	Response format:
Behavioural intention	(a) I intend to offer this woman an assessment appointment with 5 days of referral (b) I want to offer ... (c) I plan to offer ...	1 (definitely do not) – 7 (definitely do)	(a) I intend to offer this woman contraception supplies at discharge (b) I want to offer ... (c) I plan to offer ...	1 (definitely do not) – 7 (definitely do)
Attitude	Overall, I think that offering this woman an assessment appointment within 5 days of referral would be ...	(a) 1 (bad practice) – 7 (good practice) (b) 1 (harmful to her) – 7 (beneficial to her) (c) 1 (the wrong thing to do) – 7 (the right thing to do) (d) 1 (unfair to women awaiting appointments for other reasons) – 7 (fair)	Overall, I think that providing contraceptive supplies to this woman prior to discharge would be ...	(a) 1 (bad practice) – 7 (good practice) (b) 1 (harmful to her) – 7 (beneficial to her) (c) 1 (the wrong thing to do) – 7 (the right thing to do) (d) 1 (a waste of time) – 7 (a good use of time)
Subjective norm	(a) My professional colleagues would (b) My professional body would (c) Other people important to me would	1 (disapprove) – 7 (approve) of my offering this woman an assessment appointment with 5 days of referral	(a) My professional colleagues would (b) My professional body would (c) Other people important to me would	1 (disapprove) – 7 (approve) . . . of my offering this woman contraception supplies at discharge
Perceived behavioural control	(a) Offering this woman an assessment appointment is (b) The likelihood of being able to offer an appointment is (c) I am confident in my ability to offer an assessment appointment	1 (difficult) – 7 (easy) 1 (very unlikely) – 7 (very likely) 1 (strongly disagree) – 7 (strongly agree)	Same items as for offering an assessment, with stem altered to reflect an offer of contraception supplies at discharge	1 (difficult) – 7 (easy) 1 (very unlikely) – 7 (very likely) 1 (strongly disagree) – 7 (strongly agree)

continued

Table 1 *continued*

Variable	Guideline recommendation			
	Assessment appointment within 5 days of referral		Contraception supplies at discharge	
	Questionnaire item:	Response format:	Questionnaire item:	Response format:
	(d) I have control over whether or not to offer appointment	1 (no control) – 7 (complete control)		1 (complete control) – 7 (no control) (Reverse scored)
	(e) Factors outside my control prevent me from offering an appointment	1 (strongly disagree) – 7 (strongly agree) (reverse scored)		1 (strongly disagree) – 7 (strongly agree) (reverse scored)
Barriers/facilitators	Please add any comments on what factors make it difficult or easy to offer an assessment appointment within 5 days of referral	(free format)	Please add any comments on what factors make it difficult or easy to provide contraceptive supplies prior to discharge	(free format)

Table 2 Factors perceived by 12 lead gynaecologists as influencing ability to follow guideline recommendations (in parentheses: number of interviewees raising each point)

Guideline recommendation	Assessment appointment within 5 days of referral		Contraception supplies at discharge	
	Help implementation	Hinder implementation	Help implementation	Hinder implementation
Recommendation-specific factors	Guideline produced by professional body (1)		Guideline produced by professional body (1)	Uncertainty about benefits of policy (1)
Individual factors	Women seeking abortion seen as high priority (6)	Women seeking abortion seen as low priority (5)	Seen as high priority (7)	Accidental omission or poor recording (4)
Organizational or environmental factors	Existing telephone referral system (9)	Coping with fluctuations in demand or supply (9)	Availability of a range of methods to offer women (7)	Lack of choice of methods (4)
	Appointments coordinated by one person (5)	Shortages of staff, space, and facilities (6)	Inclusion in unit guidelines or protocols (6)	Lack of family planning-trained nursing staff (3)
	Sufficient clinic capacity to manage demand (4)	Insufficient resources to improve referral system (3)	Availability of nursing staff trained in family planning (4)	Delay in obtaining supplies from pharmacy (2)

Psychological variables

Table 3 shows the mean values for the four psychological measures relating to both recommendations. The measures of intentions, attitudes, and perceived behavioural control

achieved acceptable internal reliability (Cronbach's $\alpha > 0.7$). We did not expect the individual items measuring subjective norms to be correlated with one another, as different sources of social pressure may be perceived to exert independent effects [22].

Table 3 Psychological measures on assessment of appointment within 5 days of referral and offer of contraceptive supplies at discharge¹

	Mean	SD	Intra-cluster correlation
Assessment appointment			
Behavioural intentions	6.16	1.12	<0.01
Attitude	6.37	0.99	0.1
Subjective norms	5.93	0.89	0
Perceived behavioural control	3.95	1.37	0.29
Contraceptive supplies			
Behavioural intentions	6.69	0.87	0.05
Attitude	6.78	0.72	0
Subjective norms	6.49	0.67	0.08
Perceived behavioural control	6.03	1.17	0.22

¹Possible range: 1–7. Higher scores indicate a stronger intention to perform the behaviour, a more positive attitude towards the behaviour, perception of stronger social pressure to perform the behaviour, and perception of greater control over the behaviour.

Table 4 Correlations (Pearson's *r*) between psychological variables

	Behavioural intentions	Attitude	Subjective norms
Assessment appointment			
Behavioural intentions	—		
Attitude	0.31**	—	
Subjective norms	0.51**	0.44**	—
Perceived behavioural control	0.29**	0.19*	0.28**
Contraceptive supplies			
Behavioural intentions	—		
Attitude	0.45**	—	
Subjective norms	0.50**	0.49**	—
Perceived behavioural control	0.32**	0.07*	0.37**

*Correlation significant at the 0.05 level (two-tailed).

**Correlation significant at the 0.01 level (two-tailed).

Mean intentions to comply with both recommendations were high. Mean perceived behavioural control was lower for the offer of an assessment appointment. The ICC was relatively high for perceived behavioural control for both recommendations (0.29 and 0.22), suggesting that staff within the same gynaecology unit perceived similar levels of control. The smaller ICCs for the other variables suggested that behavioural intentions, attitude and subjective norms were more related to individual staff than to a 'unit' effect.

Prediction of behavioural intentions

For offering assessment appointments, all psychological variables were significantly correlated with one another (Table 4). After regression adjustment for clustering in the data, subjective norm best predicted intention (Table 5). A subgroup

analysis indicated that the subjective norm item, 'Most professional colleagues would offer this woman an assessment appointment within 5 days of referral' was the best predictor ($\beta = 0.16$, $P = 0.05$). Overall, the Theory of Planned Behaviour measures accounted for 27% of variation in intentions.

For offering contraceptive supplies at discharge, all psychological variables were also significantly inter-correlated (Table 4). Following regression, perceived behavioural control best predicted intention (Table 5). Overall, the Theory of Planned Behaviour measures accounted for 34% of variation in intentions.

Prediction of unit compliance

For offering assessment appointments, behavioural intention alone significantly predicted unit compliance on regression

Table 5 Results of regression analyses predicting intentions

Predictor	Coefficient for difference in outcome for one unit change in predictor	95% CI	Adjusted R^2 (%)
Offer of assessment appointments			
Subjective norm	0.52	(0.26, 0.78)	27
Attitude	0.05	(−0.15, 0.26)	
Perceived behavioural control	0.13	(−0.03, 0.28)	
Offer of contraceptive supplies			
Subjective norm	0.37	(−0.18, 0.91)	34
Attitude	0.37	(−0.33, 1.07)	
Perceived behavioural control	0.15	(0.01, 0.29)	

analysis ($R^2 = 0.04$, $P = 0.008$). Predictive power increased when perceived behavioural control was added to intention (adjusted $R^2 = 0.11$, $P = 0.04$). Thus, the two variables together predicted 15% of variation in unit compliance.

Behavioural intention did not predict unit compliance with offering contraception at discharge (adjusted $R^2 = 0.004$, $P = 0.48$). Adding perceived behavioural control had no statistically significant impact (adjusted R^2 change = 0.10, $P = 0.16$).

Specific barriers and facilitators

For an assessment appointment, 138 open-ended responses were categorized. Most responses (126, 91%) related to perceived behavioural control and 101 to predominantly organizational factors, with 73 comments mentioning the negative impact of organizational constraints, e.g. limited time and resources. For contraceptive supplies at discharge, 125 responses were categorized. Most comments (114, 91%) also concerned perceived behavioural control. Eighty comments on organizational factors accounted for the majority of responses, over half of which (42) helped implementation. However, 20 respondents also mentioned environmental factors as barriers (e.g. patient preference).

Discussion

Less than half the women (46%) referred for induced abortion were offered an assessment appointment within 5 days, as recommended by the guideline. More (59%) received contraceptive supplies at discharge when required. Compliance varied substantially among gynaecology units.

According to clinical staff providing abortion care, organizational factors most influenced gynaecology unit compliance. Staff generally had strong intentions to offer an assessment appointment within 5 days of referral but their perceived control over this action was low. Behavioural intention alone explained 4% of unit compliance compared with 15% when perceived behavioural control was also considered. In other words, compliance was higher in units where

staff believed they had more influence over the offer of an assessment appointment.

Staff expressed strong intentions to offer contraception at discharge, with perceived behavioural control explaining 34% of intention. However, it appears that staff experienced substantial problems in putting these intentions into practice as 41% of women were not offered contraception.

Study strengths and weaknesses

Pragmatic and theory-based approaches were combined to identify barriers to guideline implementation. The use of more than one source of data about barriers increased the likelihood of identifying factors influencing adherence to the guideline. Data from closed-format questionnaire items about perceived behavioural control, from open-ended questionnaire items, and from interviews converged for the finding that control over the behaviour was low and this prevented professionals from enacting their positive intentions.

Earlier studies have investigated why clinicians follow clinical guidelines or not [23]. Most describe clinicians' reported reasons for their actions but these reasons are not necessarily the same as the causes of their behaviour. Those responsible for implementing clinical guidelines may sometimes suspect that reasons such as organizational constraints are actually rationalizations of negative individual attitudes to changing practice. Although social desirability may partly account for respondents' high intentions, our findings provide stronger evidence that highly motivated individuals were constrained by organizational factors.

The convergence of questionnaire data and interview data with respect to perceived behavioural control provides further evidence that external constraints were perceived barriers to putting intentions into practice. The fact that ICCs were relatively high for perceived behavioural control further suggests that this measure tapped 'actual' external control factors. That is, the measurable similarity of perceptions within units lends weight to the veracity of these perceptions.

Whilst the survey responses are likely to be representative of staff directly providing abortion care, we did not explore

the beliefs and intentions of staff in the wider organization. Several lead gynaecologists suggested that other members of staff can have indirect but important influences on abortion services through, for example, competition for limited resources. This effect would have been captured by the subjective norm items relating to 'my professional colleagues' (Table 1) and again demonstrates a convergence between interview and questionnaire data.

Data were not available on the performance of individual professionals. This is a common methodological challenge of research on guideline implementation since performance data are often only traceable to organizational level. Unit compliance was analysed adjusting for the clustering of responses, but since there was no variability in compliance per cluster, this may have underestimated the relationships between individual predictors and unit-level performance.

Implications

Our findings show that professionals' good intentions are not necessarily enough to translate guidelines into clinical practice. The organizational environment may prevent individuals from enacting their intentions. A range of individual and organization level barriers to the implementation of the guideline recommendations was identified. The key issues are to what degree these different barriers are remedial by interventions and at what level such interventions should take place.

Subjective norms best explained intentions to offer an assessment appointment within 5 days. Therefore, marketing this recommendation as the professional norm potentially represents an appropriate approach to promoting implementation. However, the mean intention of staff involved in abortion care to follow the recommendation was already generally high. Interventions aiming to improve performance by increasing intention alone might encounter 'ceiling effects' or even become counter-productive. Furthermore, perceived behavioural control was the strongest predictor of unit compliance. Enhancing professional control over appointment systems represents a more promising approach to improving compliance.

Negative attitudes of staff in the wider organization and limited resources were reported as major obstacles to offering appointments within 5 days of referral. Therefore, interventions with a wider target might be more promising. However, little rigorous evidence is available to support interventions targeting the organizational end of this spectrum [24].

Perceived behavioural control explained 34% of variation in intention to offer contraception at discharge. However, intention and perceived behavioural control did not explain unit compliance. This was unexpected, as we had anticipated and demonstrated that individual staff perceived greater control over contraception at discharge compared with offering appointments. Interview data suggested that availability and skills of clinical staff were important influences on this behaviour. The practical implication is that training individual staff in family planning may enhance their perceived behavioural control but this needs to be accompanied by

organizational changes, such as widening the range of contraception available.

Behavioural theory is increasingly being used within implementation research. This study focused on perceptions of individual health professionals to explore factors associated with guideline adherence. However, this is only one approach, and wide-ranging inter-disciplinary work (e.g. including organizational psychology) is required to improve understanding of a complex problem. The long-term aim is to develop diagnostic tools that can provide an empirical basis for selection of appropriate interventions and levels to target—whether individual, team, or organizational—given specific barriers and circumstances.

Conclusion

Inappropriate variations in induced abortion are related to both organizational and individual factors. Approaches solely targeting individual staff to follow guideline recommendations are likely to be ineffective or counter-productive because most staff providing abortion care are already highly motivated.

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