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Measuring decisional certainty among women seeking abortion

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37STRUCTURED ABSTRACT

38Objective

39Evaluating decisional certainty is an important component of medical care, including pre-abortion care. However, minimal research has examined how to measure certainty with reliability and validity among women seeking abortion. We examine whether the Decisional Conflict Scale (DCS), a measure widely used in other health specialties and considered the gold standard for measuring this construct, and the Taft-Baker Scale (TBS), a measure developed by abortion counselors, are valid and reliable for use with women seeking abortion and predict the decision to continue the pregnancy.

35Methods

36Eligible women at four family planning facilities in Utah completed baseline demographic surveys and scales before their abortion information visit and follow-up interviews three weeks later. For each scale, we calculated mean scores and explored factors associated with high uncertainty. We evaluated internal reliability using Cronbach’s alpha and assessed predictive validity by examining whether higher scale scores, indicative of decisional uncertainty or conflict, were associated with still being pregnant at follow-up.

32Results

33Five hundred women completed baseline surveys; two-thirds (63%) completed follow-up, at which time 11% were still pregnant. Mean scores on the DCS (15.5/100) and TBS (12.4/100) indicated low uncertainty, with acceptable reliability (α=0.93 and 0.72, respectively). Higher scores on each scale were significantly and positively associated with still being pregnant at follow-up in both unadjusted and adjusted analyses.
Conclusion

The DCS and TBS demonstrate acceptable reliability and validity among women seeking abortion care.

Comparing scores on the DCS in this population to other studies of decision-making suggests that the level of uncertainty in abortion decision-making is comparable to or lower than other health decisions.

Implications

The high levels of decisional certainty found in this study challenge the narrative that abortion decision making is exceptional compared to other healthcare decisions and requires additional protection such as laws mandating waiting periods, counseling, and ultrasound viewing.

Keywords

Decisional conflict, Decisional uncertainty, Decisional certainty, Abortion
INTRODUCTION

Decisional conflict is defined as a state of uncertainty about a course of action when the choices involve risk, loss, regret, or a challenge to personal values [1]. Assessing and responding to decisional conflict—and its corollary, decisional certainty—is routine in health care, particularly in fields such as obstetrics and oncology where decisions often require balancing complex benefits and risks which are sensitive to patients’ preferences and values [2-6].

Evaluating how certain a woman is about her decision to obtain an abortion is also an important component of abortion care [7]. However, unlike other health care decisions, many states enforce laws whose stated purpose is to protect women seeking abortion from making an unconsidered decision [8, 9]. Implicit in these laws is that women experience more conflict about abortion than other healthcare decisions and require additional time or information beyond that typically offered as part of abortion providers’ existing informed consent and counseling practices.

Previous research suggests that the majority of women are certain of their abortion decision when they present for care [10-14]. However, minimal research has examined how to effectively measure certainty among women seeking abortion, or how women’s certainty about abortion compares to other health decisions. Here, we measure and explore factors associated with decisional certainty among women seeking abortion using both a validated scale used in other health specialties [15] and a scale developed using questions authored by abortion counselors [16]. We assess each scale’s psychometric performance in a sample of women seeking abortion in Utah, some of whom decide to continue the pregnancy.

Findings may aid providers in their pre-abortion counseling efforts [7], and can be useful in understanding the magnitude of decisional uncertainty among women seeking abortion as compared to other health decisions.
2. MATERIALS AND METHODS

2.1 Sample and study procedures

This study was conducted with English- and Spanish-speaking women ages 15 and older seeking abortion care at four family planning clinics in Utah between October 2013 and April 2014. Adults provided informed consent; minors aged 15 to 17 could participate with parental consent and their own assent. Detailed methods have been described elsewhere [17]. In brief, eligible women were asked to complete a baseline survey on an iPad prior to an abortion information visit and a follow up interview by phone with University of California, San Francisco (UCSF) interviewers three weeks later. Utah requires women seeking an abortion to complete a face-to-face information visit with their provider at least 72 hours before receiving an abortion. During this visit, the provider must read a state-mandated, standardized information script. Clinics in this study also provided pre-abortion counseling during this visit. Thus, all women recruited into the study were presenting for the first of two clinic visits, and would have to return at least 72 hours later for an abortion. Returning for this follow up visit was not a criterion for inclusion in the study. At the time that they completed the baseline survey, women had not yet had any interaction with a health care provider or counselor at the study clinic. The main goal of the overall study was to examine women’s reasons for not having an abortion under the 72-hour waiting period and two-visit requirement [17]; thus, we aimed to recruit at least 75 women who completed an abortion information visit but did not return for an abortion. Previous research in a state without a two visit or waiting period requirement found that 7% of women seek but do not obtain an abortion [14]. Prior to the current study, clinic sources estimated that this figure was higher in Utah; thus, we conservatively assumed that 20% would not return for care and 25% would be lost to follow up, requiring an initial sample of 500 women.
Participants were remunerated with $10 for the baseline survey and $20 for the follow up phone interview. All research activities were approved by UCSF’s Committee on Human Research.

2.2 Measures

The baseline survey assessed women’s age, race, employment, educational attainment and education in progress, religious affiliation, and receipt of public assistance. It also included questions about lifetime mental health diagnoses and past year substance use. Women were asked about their relationship status with the man involved in the pregnancy and his awareness of and support for the abortion, as well as who they had talked to about their abortion decision. To capture levels of misperceptions about abortion, women were presented with a series of statements summarizing common abortion myths derived from previous research [18-20] and asked which statement was closer to the truth (e.g., “abortion causes breast cancer" versus "abortion does NOT cause breast cancer," see Table 1 for all myths presented). Women who incorrectly identified the myth as closer to the truth, or responded "Don't know," were categorized as endorsing that myth. For most women, gestational age at discovery of pregnancy was calculated using the time elapsed between self-reported date of last menstrual period and date they discovered pregnancy. For a minority of women who could not recall these dates, women were asked about how many weeks or months ago these events occurred.

The baseline survey included two scales designed to measure decisional certainty. The Decisional Conflict Scale (DCS) is a validated scale used to assess individuals’ perceptions of uncertainty in the context of healthcare decisions and to identify modifiable factors contributing to uncertainty [15]. It includes 16 items that can be scored in aggregate or as five subscales (Uncertainty, Informed, Values Clarity, Support, and Effective Decision). Women were asked their level of agreement (ranging from Strongly Agree to Strongly Disagree) for all items (see Figure 1a). One previous cross-sectional study used
this scale to assess decisional certainty among women who had an abortion in Portugal, and found low
conflict post-abortion [21].

The second, 4-item scale is from a needs assessment form found in a widely disseminated textbook on
abortion care [16]. The original form contains 16 items developed by abortion counselors and designed
to be self-administered to aid providers in pre-abortion counseling. Previous studies have used the
responses to four of these items to classify women’s confidence in their decision [14, 22, 23]. Similar to
the DCS, women are asked their level of agreement with each item (See Figure 1B). Based on input from
the instrument creators, we refer to this scale as the Taft-Baker Scale (TBS) throughout the present
analysis.

The follow up phone interview included the closed-ended question “Have you had an abortion since you
visited [clinic] on [date]?” We classified women as still pregnant if they responded “No” to this question.
Women who experienced a miscarriage or discovered that they were not pregnant between baseline
and follow up were excluded from the follow up sample for this analysis.

2.3 Statistical Analyses

We calculated a summary score on the DCS overall and each subscale using guidance from the scale
authors [24] and consistent with previous literature; this involved summing responses across items
(where 0=strongly agree, 1= agree, 2= neither agree or disagree, 3=disagree, and 4=strongly disagree),
and transforming scores to range from 0 to 100. Lower scores reflect lower levels of decisional
uncertainty. A similar approach was employed to calculate a summary score on the TBS. To ensure that a
lower score on each item was reflective of lower certainty, we reverse coded two TBS items (#3 and #4,
see Figure 1B). We examined the distribution of scale scores for normality and missingness, and
calculated summary statistics on each measure including mean, median, standard deviation, and range.
We present the median and range given the non-normal distribution of scores. We also present the
mean and standard deviation, in order to allow for direct comparisons between mean DCS score in our study population and how it was presented in other studies.

To compare agreement in responses on the two scales, we computed Cohen’s kappa statistics (k) with 95% confidence intervals. Scores on each scale were dichotomized to isolate individuals scoring above the 90th percentile. We considered kappa $\geq 0.2$ as evidence of fair agreement, $\geq 0.4$ as moderate agreement, $\geq 0.6$ as substantial agreement, and $\geq 0.8$ as almost perfect agreement [25]. In addition, we constructed two multivariate logistic regression models to predict scoring above the 90th percentile on each scale.

We used Wilcoxon-Mann-Whitney tests to examine whether scores differed between women who completed a follow up interview and those who were lost to follow up. A more extensive attrition analysis on this data has been described elsewhere [17].

### 2.3.1 Reliability

The internal consistency of each scale was evaluated using Cronbach’s $\alpha$. A threshold of $\alpha=0.70$ was considered evidence of acceptable reliability [26].

### 2.3.2 Validity

To examine group validity, we used Wilcoxon-Mann-Whitney and Kruskal-Willis tests to evaluate if scores differed between groups we hypothesized a priori would vary based on previous literature. For example, given studies suggesting that women who lack social support for their decision are more likely to anticipate difficulty coping post-abortion [22, 27], we hypothesized that male partner’s awareness of and support for the abortion would influence women’s uncertainty. We also hypothesized that younger women and those with misinformation about the safety or long term health effects of abortion would express more uncertainty.
We assessed predictive validity in two ways. First, for both the DCS and TBS, we compared scale distributions between women who were still pregnant at follow up and those who received an abortion using Wilcoxon-Mann-Whitney tests. Second, we explored the performance of the DCS subscales and the TBS in predicting still being pregnant at follow up using multivariate logistic regression models, extending our previous work that found that a higher score on the DCS scale (i.e. more uncertainty) was significantly and positively associated with still being pregnant at follow up [17]. We conducted all analyses using Stata 14.0 (College Station, TX) [28].

3. RESULTS

Among 683 eligible women approached to participate, 500 completed a baseline survey at the beginning of their abortion information visit, for a response rate of 73%. Nearly two-thirds (n=309, 62%) completed a follow up phone interview. The mean duration between baseline and follow up survey was 25.7 days. A small minority (n=8, 3%) discovered that they were not pregnant or experienced a miscarriage by the follow up interview and were excluded from subsequent analyses as they no longer had a decision to make about the pregnancy. The majority (n=267, 89%) of those remaining had had an abortion by the follow up phone interview.

Study participants were predominantly white (68%) and Hispanic/Latina (22%). The average age was 25.6, and one-half (50%) were nulliparous. One-third (32%) reported receiving public assistance in the last year. Three-quarters (76%) were employed or in school. Most (67%) were in a relationship with or married to the man involved in their pregnancy. Almost half (45%) reported being religiously affiliated (Table 1).

3.1 Decisional Conflict Scale
At baseline, 492 women completed all 16 items of the DCS. Scores on the DCS were heavily skewed toward low conflict scores and were not normally distributed. The median score was 9.4, and ranged from 0 to 68.8. The mean score was 15.5 (standard deviation (SD)=15.2). There were no differences in mean DCS score according to whether or not women completed a follow up interview (p=0.558, Table 2).

Cronbach’s alpha for the DCS overall was 0.93, suggesting high internal consistency. Each subscale of the DCS also had acceptable internal reliability, with Cronbach’s α ranging from 0.75 for the Uncertainty Subscale to 0.92 for the Values Clarity subscale (Table 2).

With respect to the individual items comprising the DCS scale, women scored highest (reflecting more uncertainty) on the item “This decision is easy for me to make” (mean = 1.55, SD=1.44). This was the only item for which less than half of women (34%) strongly agreed with the statement. Women scored lowest (reflecting less uncertainty) on the items “I know which options are available to me” (mean = 0.31, SD=0.54) and “I expect to stick with my decision” (mean=0.40, SD=0.63, data not shown, see Figure 1a for response distributions to all items).

Mean DCS scores differed between women who were still pregnant at follow up and those that received abortion care (28.5 and 13.8, p<0.000) (Table 2). In a multivariate model, a higher score on the Uncertainty subscale was significantly and positively associated with being pregnant at follow up (adjusted OR = 1.04, 95% CI: 1.00, 1.08 (Table 3).

Mean scores on the DCS were significantly higher, indicating more conflict, among women ages 19 and under as compared to women ages 20 and older (20.5 vs. 14.6, p=0.005). Finally, mean DCS scores also increased significantly with the number of abortion myths endorsed by women, from a low of 5.8 among women endorsing zero myths to 21.1 among women endorsing four myths presented (p=0.0001, Table 2).
3.2 Taft-Baker Scale

At the baseline interview, 484 women completed all four items of the TBS. Similar to the DCS, scores were heavily skewed toward low uncertainty scores and were not normally distributed. The median score was 6.3 and ranged from 0 to 56.3. The mean score was 12.4 (standard deviation=14.7). There were no differences in mean TBS score according to whether women completed a follow up interview (p=0.923, Table 2).

The reliability of the TBS was acceptable according to Cronbach’s alpha (α= 0.72) (Table 2).

Mean TBS scores differed between women who were still pregnant at follow up and those that received an abortion (mean = 24.4 and 10.8, p<0.000) (Table 2). In a multivariate model, higher TBS score was significantly and positively associated with still being pregnant at follow up (adjusted OR = 1.07, 95% CI: 1.03, 1.09).

TBS scores also differed according to women’s age, with women aged 19 and under scoring higher than women aged 20 and older (16.4 vs. 11.7, p=0.003). There were no significant differences in mean scale scores according to partner involvement and support. Similar to the DCS, women who endorsed a larger number of abortion myths also scored higher on the TBS (Table 2).

3.3 Agreement on scale scores

Dichotomized scale scores at the 90th percentile demonstrated moderate agreement in responses between scales (k=0.51, 95%CI=0.39, 0.63). The majority of women (84%) had scores reflecting low uncertainty on both scales. However, a subset of women (10%) had discordant DCS and TBS scores, and 6% had scores reflecting high uncertainty on both scales.
246 In multivariate analyses, women’s age, endorsement of abortion myths, and religious affiliation were associated with scoring above the 90th percentile on the DCS. Age and endorsement of abortion myths were associated with scoring above the 90th percentile on the TBS. Specifically, women ages 35 and older were less likely to have scores reflecting high conflict for the DCS (aOR=0.20, 95% CI:0.04, 0.91) and TBS (aOR=0.11, 95% CI:0.01, 0.88) as compared to women ages 25 to 34. For each additional abortion myth endorsed, women were more likely to score above the 90th percentile on the DCS (aOR=1.92, 95% CI: 2.52-1.40, 2.62) and TBS (aOR=1.71, 1.23, 2.38). Finally, compared to women who reported no religious affiliation, women who reported being Mormon were significantly more likely to have scores reflecting high conflict on the DCS (aOR=2.71, 1.32, 5.54).

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2564. DISCUSSION

257 Much of the discourse around abortion policy suggests that abortion decision-making is exceptional compared to other healthcare decisions [29], and thus requires additional protection by targeted laws such as mandated waiting periods, information scripts, and ultrasound viewing requirements. Levels of decisional uncertainty in this study as measured by the DCS (mean score (µ) = 15.5) were comparable to or lower than those found in other studies of women making healthcare decisions, such as mastectomy after a breast cancer diagnosis (DCS µ = 17.4)[30], prenatal testing after infertility (DCS µ =22.1)[31], or antidepressant use during pregnancy (DCS µ = 26.2)[32]. They are also lower than levels observed in studies of men and women making decisions about reconstructive knee surgery (DCS µ = 37.4-42.7)[33] or men deciding on prostate cancer treatment options (DCS µ=35.7)[34]. Thus, our findings challenge these laws’ implicit characterization of women making abortion decisions—as compared to other healthcare decisions—as particularly conflicted.
Our results are also consistent with previous research [10-14] indicating that the majority of women are certain of their decision when they present for abortion care. A unique contribution of our study is that, unlike previous research, we measured decisional certainty using two scales, one of which has been extensively validated and is considered to be the gold standard for measuring this construct across diverse health domains [35], and the other of which was developed by abortion providers explicitly for counseling purposes. Despite their different origins, both scales performed well in psychometric analyses, indicating their appropriateness for use among women seeking abortion care and ability to distinguish the minority of women who may benefit from additional support and clinic resources.

Comparing scores between the DCS and TBS suggests that the two scales are capturing similar but not identical constructs. The 16 items in the DCS may permit exploration into more nuanced aspects of the decision-making process that are not captured in the 4-item TBS. The item on the DCS that women had the most difficult time agreeing with was “This decision is easy for me to make.” This is consistent with previous research in which over one-half of women who had an abortion retrospectively report that their decision was either somewhat or very difficult [36]. Importantly, difficulty deciding does not necessarily translate into continuing the pregnancy, as 4 in 5 women in our study who disagreed with the statement that the decision was easy had an abortion at follow up. Further, the majority (85%) of those who disagreed that the decision was easy also agreed with the statement that abortion was the better choice for them. This suggests that, as has been found in other research, women can simultaneously acknowledge that their abortion decision was not easy and that they are confident it was the right decision for them [36].

Our study found that women who endorsed a greater number of myths about abortion were more likely to express uncertainty about their decision. Importantly, our study is not able to disentangle the temporal relationship between these variables. It is plausible that women who are more conflicted...
about their decision seek out or internalize negative information about abortion in their environment
more readily than those who are certain of their decision. Alternatively, endorsement of myths about abortion, or, more broadly, holding negative attitudes toward abortion, could introduce uncertainty into women’s decision-making. In our study, myth endorsement and decisional certainty were assessed prior to any interaction with a provider at the study clinic. Future research should examine how the subsequent patient-provider interaction influences women’s myth endorsement and certainty, including heterogeneity in effects when providers must cover mandated information scripts that contain scientifically inaccurate or misleading information about abortion [39].

This study had several limitations. Our sample was limited to women seeking abortion care in four Utah facilities, and as a result differed from the national profile of women seeking abortion in several respects. First, adolescent women were underrepresented here (6%) as compared to nationally (18%). Thus, our finding that adolescent women score higher on each scale merits additional exploration with a larger and more representative sample of young women. Second, Utah’s population, and therefore our study population, has an overrepresentation of Mormon women and underrepresentation of African-American women seeking abortion as compared to national profiles. Interestingly, the larger sample of Mormon women allowed us to identify significant differences in levels of decisional certainty by religious affiliation, with Mormon women more likely to have high uncertainty as compared to women reporting no religious affiliation. Additional exploration by not only religious denomination, but also religiosity, would provide a more complete assessment of the role of religion. Finally, approximately one-third of our sample did not complete a follow up interview, and our results might be biased if those with high uncertainty were more likely to be lost to follow-up. However, there was no evidence of differential attrition by DCS or TBS score, reducing the likelihood of this bias.
Moving forward, this study should give confidence to providers who want to use validated scales to assess their patient's decisional certainty as part of pre-abortion counseling or informed consent. For example, the TBS could be used as an initial screening tool to identify the minority of women who are uncertain of their decision. The DCS and its subscales could then be administered to this subset of women to identify specific factors contributing to that uncertainty, supporting providers in their efforts to provide patient-centered counseling and care [41, 42].
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Conflicts of Interest

David Turok is the director of surgical services for Planned Parenthood Association of Utah.
REFERENCES


