

## **UC San Diego**

### **Independent Study Projects**

#### **Title**

Fertility preservation and decisional regret in young breast cancer survivors: a longitudinal analysis

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## Introduction

- Fertility is important to young breast cancer survivors (YBCS).
- Treatment for breast cancer increases the risk of infertility.
- Fertility preservation prior to breast cancer treatment aims to improve options for fertility post-treatment.
- Fertility preservation decisions are challenging for YBCS.
- In retrospective cohort studies, YBCS that underwent fertility preservation experienced less decisional regret after primary cancer treatment.<sup>1</sup>

## Objectives and Hypotheses

- 1) To assess longitudinal changes in decisional regret on fertility preservation following breast cancer diagnosis
- 2) To determine if fertility concerns and fertility preservation treatment decisions are related to decisional regret.

**Hypothesis: Undergoing fertility preservation and having less concern for future fertility will be associated with less decisional regret over time.**

## Methods

- **Study Design:** Prospective cohort
- **Participants:** 169 YBCS younger than age 45 were recruited at breast cancer diagnosis between 2009 and 2012 and followed prospectively for 5 years in a study on ovarian function.
- Clinic-based recruitment occurred at the breast oncology clinics of 3 academic breast centers.
- Participants completed questionnaires during study visits every 6 months for up to 5 years.
- Questionnaires included the Decision Regret Scale and assessing worry about future fertility.<sup>2</sup>
  - 5 questions summed as the **Decisional Regret Score** (Range 0 [no regret] to 100 [high regret])
- **Analysis:**

**Exposures: Undergoing fertility preservation procedures, concern about future fertility**

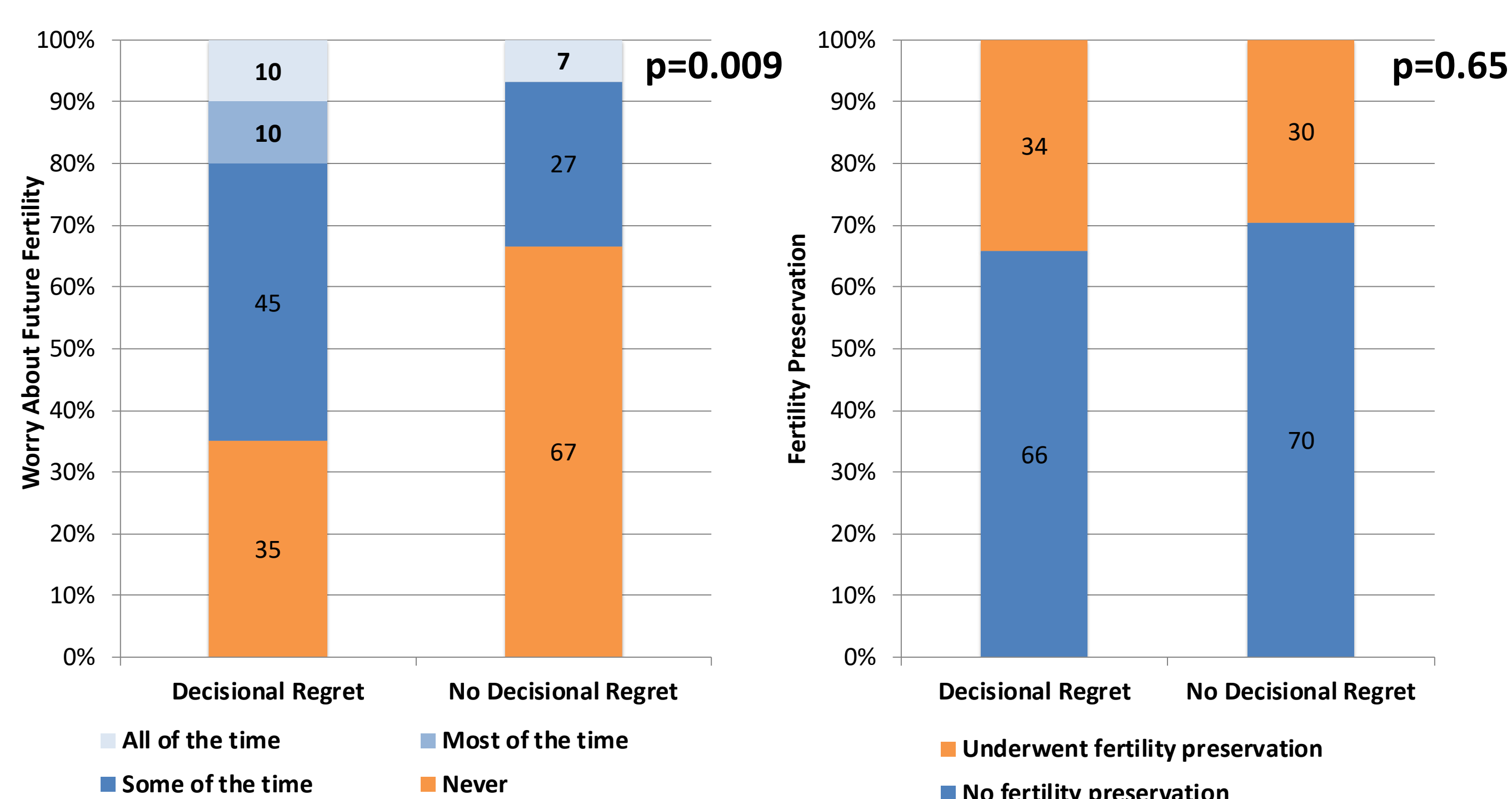
**Outcome: Decisional regret on fertility preservation**

- Decisional Regret dichotomized as none versus any
- Bivariable analysis: Student's t-test, Chi-square or Fisher's Exact test
- Repeated measures analysis: Generalized linear models to estimate change in DRS over time and the association between patient characteristics and DRS

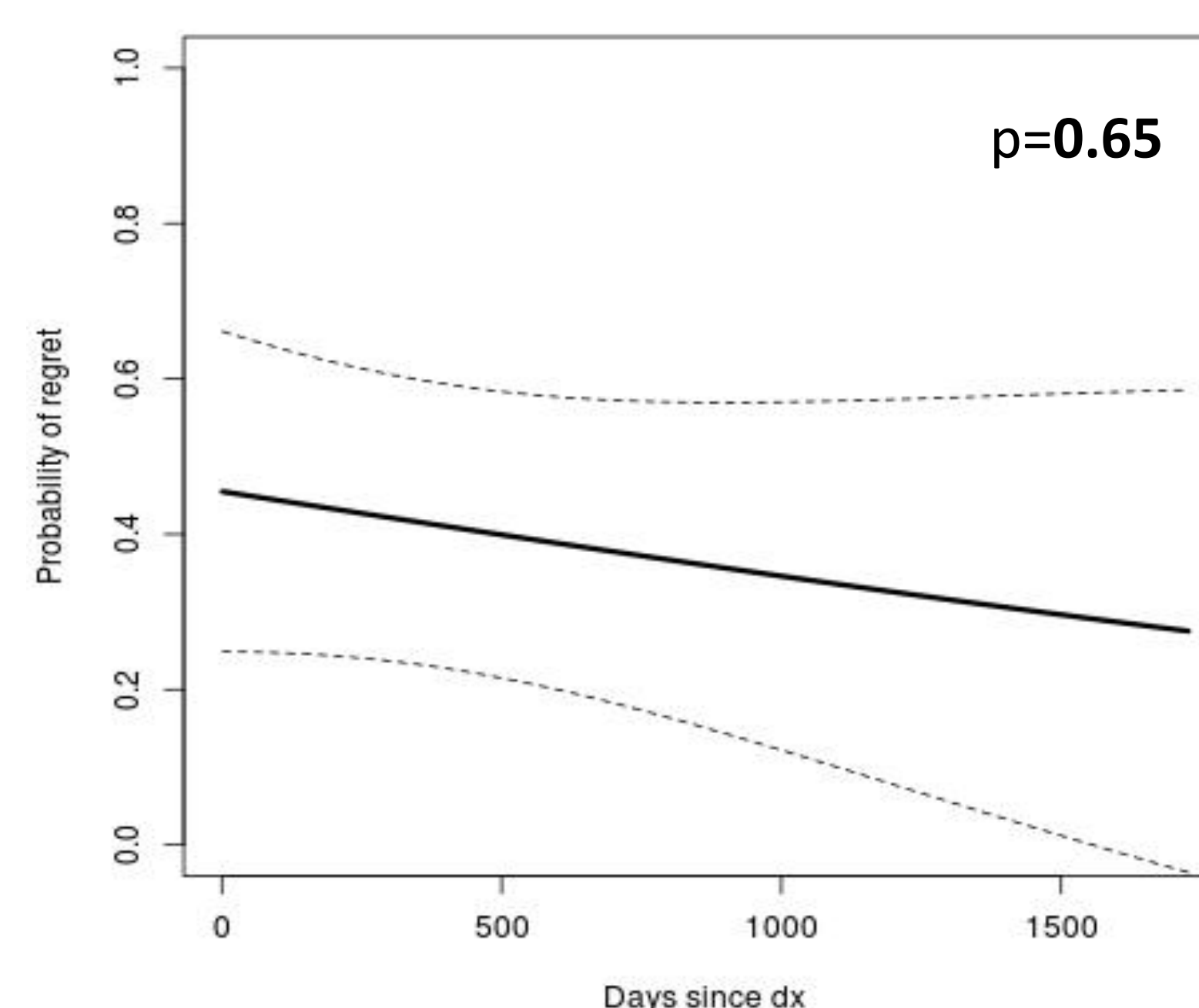
## Results

- Mean age at diagnosis was 38.7 (SD 4.8). Median total follow up was 176 days (IQR 84 to 1415 days).
- At enrollment:
  - 48% reported decisional regret about fertility preservation (median DRS=20).
  - 31% underwent fertility preservation (**Figure 1a**)
  - 48% worried about future fertility (**Figure 1b**)
- Over time, the probability of decisional regret about fertility preservation appeared to decrease (**Figure 2**), but was not statistically significantly different (OR 0.8, 95% CI 0.4-1.7).

**Figures 1a, 1b: Baseline worry about future fertility was associated with higher decisional regret about fertility preservation. Undergoing fertility preservation was not associated with decisional regret.**



**Figure 2: Probability of decisional regret on fertility preservation (SE) over time since breast cancer diagnosis**



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## Results, continued

- In repeated measures analysis (**Table**):
  - Worry about future fertility remained significantly associated with decisional regret over time (OR 55.1, 95% CI 7.7-395.1).
  - Undergoing fertility preservation was not related to regret.
  - Additional demographic, reproductive characteristics were not related to regret.

**Table: Repeated measures analysis of characteristics associated with decisional regret over time.**

Participant Characteristics	OR (95% CI)
Years since diagnosis	0.06 (0.002-2.1)
Age diagnosis	1.0 (0.8-1.2)
Race	
Caucasian	Ref
Other	4.1 (0.4-41.2)
Income ≥ \$60,000/year	0.3 (0.02-4.9)
Ever pregnant (at enrollment)	0.6 (0.05-6.1)
Multiparous (at enrollment)	0.3 (0.03-2.6)
Fertility Preservation Undertaken	4.4 (0.4-45.2)
Worry about future fertility	
Never	Ref
Some/most/all of the time	<b>28.8 (1.6-531.3)</b>
Cancer stage	
0	Ref
1	8.6 (0.06-1153.0)
2	3.1 (0.03-271.2)
3	7.4 (0.04-1326.5)
Chemotherapy	
None	Ref
AC/T	3.4 (0.1-112.7)
TC	1.5 (0.01-163.3)
Tamoxifen	4.0 (0.3-56.9)

## Conclusion

- In a cohort of YBCS, experiencing decisional regret about fertility preservation persists for years after diagnosis.
- Those worried about future fertility are more likely to experience decisional regret regarding fertility preservation.
- These findings support discussion of fertility preservation and fertility concerns with YBCS at diagnosis and over survivorship.

## References

- [1] Benedict, Catherine, Bridgette Thom, and Joanne F. Kelvin. "Young Adult Female Cancer Survivors' Decision Regret About Fertility Preservation". *Journal of Adolescent and Young Adult Oncology* 4.4 (2015): 213-218. Web. 16 Jan. 2017.
- [2] Brehaut J, O'Connor A, Wood T et al. Validation of a Decision Regret Scale. *med decis making*. 2003;23(4):281-292. doi:10.1177/0272989x03256005.