

Accuracy of psychosocial assessments in an online surgical decision aid developed for early breast cancer patients with resource and educational constraints

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Background

- Women with early breast cancer routinely face a choice between breast conservation therapy and mastectomy, and assume agency through shared decision making.
- However, for women with lower socioeconomic power or education, barriers such as access to understandable information, involvement of family in decision making, and a decreased sense of autonomy inhibits this agency.
- To better empower this population, a simple to understand, **online, self-administered, conjoint analysis based decision aid** called “**Navya Patient Preference Tool**” (PPT) is developed to be used outside the physician encounter.
- PPT is unique in its incorporation of several psychological scales that assess potential confounders of participation in shared decision making.

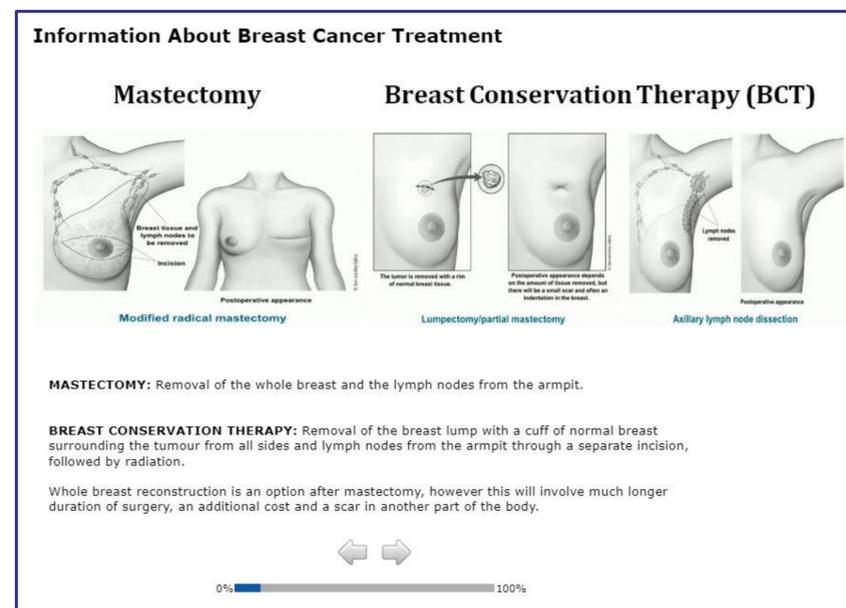
Table 1 Internal and External Validity of Scales

Name of Scale	N	Mean	Cronbach's α
Decisional Conflict Index (DCI)	102	1.2944	0.91
Traditional Egalitarian Gender Role (TEGR)	102	3.5544	0.78
Autonomy Preference Index (API)	102	4.4152	0.74
Appearance	98	3.0187	0.84
Baseline Resiliency Scale (BRS)	102	3.1699	0.70
Caregiving	100	4.7733	0.69
Correlations Pairs (External Validity)	R	P value	
Education Level and TEGR	- 0.405	< 0.01	
Education Level and BRS	+0.228	< 0.05	
DCI and API	- 0.337	< 0.01	
Education and number of children	- 0.315	< 0.01	

Methods

- This is a pre-planned analysis of the reliability and validity of the psychological scales used in all three arms of an IRB approved randomized controlled trial to assess PPT. (Figure 2)
- Women with operable, node negative breast cancer eligible for BCT or MRM at one of Asia's largest academic tertiary cancer centres were eligible.
- Navya PPT consists of a conjoint analysis questionnaire along with various psychosocial scales analysing implicit preferences for breast conservation given to the intervention arms. (Figure 1 and 2)
- Cronbach's alpha as a measure of internal reliability for all scales, and correlations of scores with known demographic trends as a measure of external validity are calculated (Table 1).

Figure 1 Screenshot of the online decision aid (DA)



Results

- N = 102 patients, 30 completed PPT in English, 39 in Hindi, and 33 in Marathi, (vernaculars).
- 69/102 were in middle and lower socioeconomic groups (Kuppuswamy Index).
- 53/102 had completed less than high school education. (Table 2)
- Internal reliability of all scales were high (Table 1). DCI was highly reliable at 0.91, and is the primary outcome measure for the RCT.
- Correlations in the dataset met those expected in real world data, suggesting external validity. (Table 1)
- Individual scale items that are unrealistic were not chosen by any of the 102 respondents (e.g., My doctor should not participate in my medical decisions), substantiating nuanced reading.
- 85% of patients “Strongly Agreed” on a 1-5 Likert scale that “The survey questions were easy to understand” (mean score 1.18/5. SD 0.4)

Figure 2 Randomization schema and tradeoffs

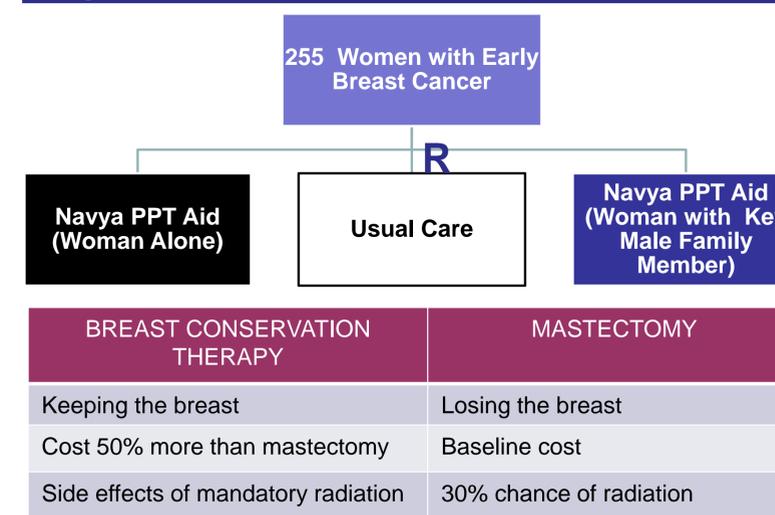


Table 2 Demographic Characteristics

Parameter		N	%
Stratification criteria (N=102)			
Age	Mean and Range	49.5 (29-76)	
	≤ 50	62	60.8
	> 50	40	39.2
Educational level	≤ Class 12	53	51.9
	> Class 12	49	48.1
Kuppuswamy Index	< 16 (lower and middle)	69	67.6
	≥ 16 (upper middle and higher)	33	32.4
Surgical and pathological details (N=92)			
Surgery type	Breast conservation surgery	76	82.6
	Modified radical mastectomy	16	17.4
pT size	Mean and Range (cm)	2.26 (0.4-5.3)	
pN	N0	69	75
	N+	23 (1-24)	25
Subtype	ER and/or PR +	60	65.2
	Triple Negative	11	11.9
	HER2 positive	21	22.8

Conclusions

- Women with limited education and low socioeconomic status complete the online, self administered PPT outside of a physician encounter, with high internal reliability and external validity. Majority of women found the aid easy to understand.
- Decision Aids such as “Navya PPT”, which account for psychosocial confounders of agency, have the potential to benefit women otherwise marginalized from shared decision making.