Quality of Care Matters in Contraceptive Continuation: Results from a longitudinal study of reversible contraceptive users in India

Aparna Jain, PhD, MPH; Kumudha Aruldas, MD; Arupendra Mozumdar, PhD; Elizabeth Tobey, MSH, Rajib Acharya, PhD;

Background/Significance

The Bruce quality of care (QoC) framework brought international attention to the importance of providing quality contraceptive services. Since its introduction, Situation Analysis, Service Provision Assessment and Quick Investigation of Quality methods have been developed to measure quality services. A modified QoC framework outlines four aspects to the service-giving process reflecting client-provider interaction: respectful care, solicitation of information for appropriate method selection, information given on selected method, and continuity of FP use. The structure of quality, however, has not been validated empirically. The purpose of this paper is to validate the process quality structure, construct composite measures based on this structure, and test their predictive validity related to contraceptive continuation.

Methods

A cohort study of 2,699 new reversible modern method users were followed for one year. New users were married and between the ages of 15-49 years old and may or may not have used contraceptives previously. They include pill, injectable and IUD (including postpartum) users and were interviewed at the time of method adoption and re-interviewed at three follow-up points: 3 months, 6 months, and 1 year. The study took place in two diverse states of Odisha and Haryana. Within each of the states, recruitment of new IUD/PPIUD users occurred at government health facilities while new pill user recruitment took place with the assistance of community health workers (ASHAs). The bulk of injectable user recruitment has occurred from NGO partners.

The four QoC framework domains were assessed by 22-questions. A weighted additive measure was calculated to create an overall quality score. This score was then categorized into high, medium and low quality received. Exploratory factor analysis was used to explore how the 22-items behaved if no *a priori* hypothesis was considered. The items reduced to 10 across three domains. An overall quality score was calculated similarly to the 22-question quality score. Predictive validity was tested for the 22- and 10-item quality scores using a two-level mixed logistic models (MLM) adjusted for multiple covariates. The outcome was contraceptive continuation at 3-month follow-up.

Results

Most married women enrolled in the study were under the age of 30 (65%), had some level of education (78%), and were Hindu (84%). Nearly all women had at least one child (99%) and a quarter (25%) had three or more children. Thirty-eight percent had used a modern method previously. At the time of enrollment, 40 percent had selected the pill, 39 percent had selected the IUD (15% PPIUD and 24% interval IUD), and 21 percent had selected the injectable.

Figure 1 shows the proportion of respondents who reported receiving information on 22 process quality items after their consultation with a provider. The 22 items are categorized into four key domains of respectful care, information obtained from the provider for appropriate method

selection, information given on the effective use of the method selected, and continuity of contraceptive use and follow-up. Compared to the other three domains, the majority of women reported receiving respectful care across all six items.

Figure 1: Proportion of respondents who reported receiving information on various aspects of process quality(n=2699)

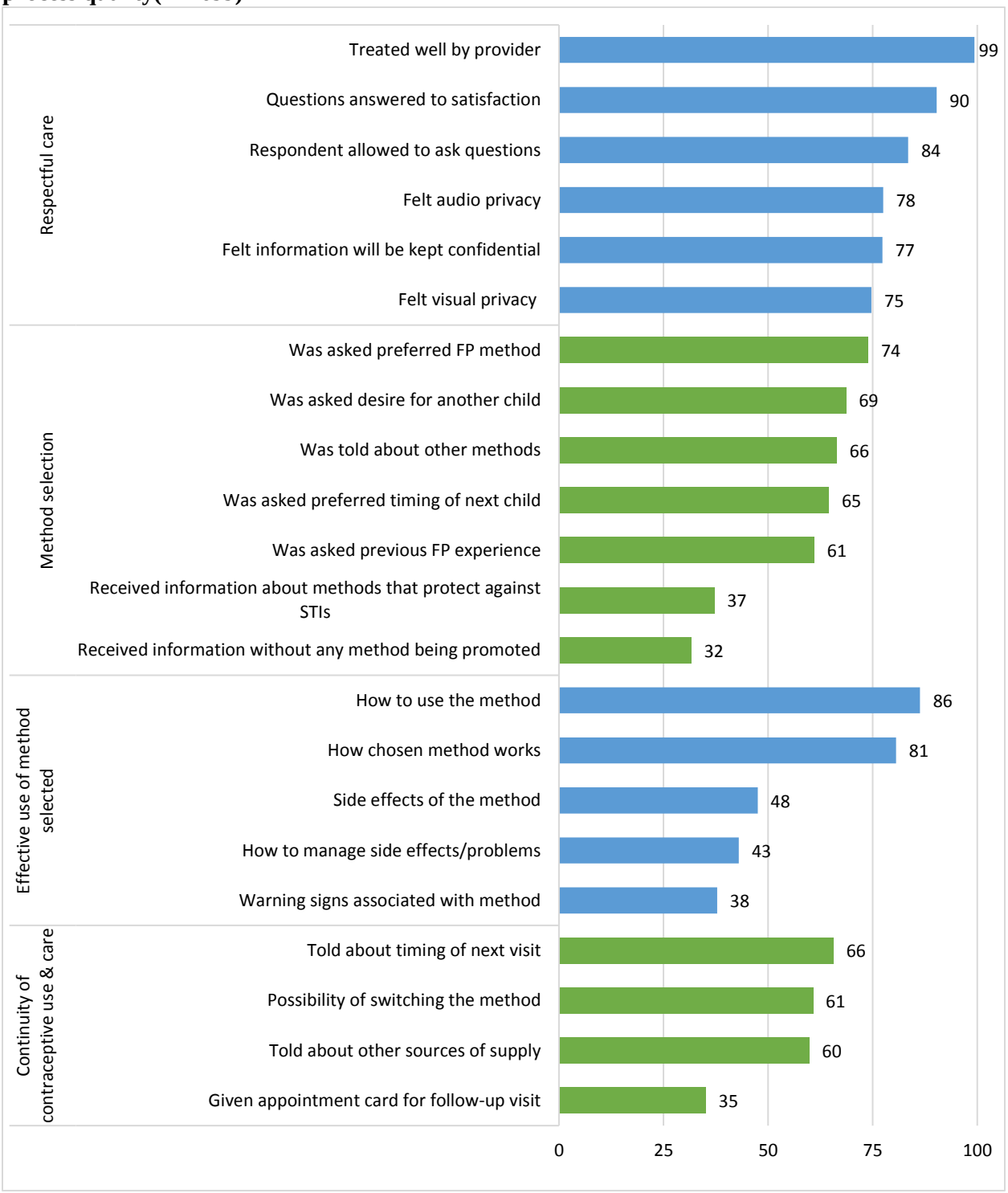

Table 1 shows the factor loadings from the EFA. The 22 process quality items reduced to 10-items across three factors: 1) 3 items from the effective use of method selected domain plus 1 item from the continuity of contraceptive use & care domain; 2) 4 items from the method selection domain; and 3) 2 items from the respectful care domain.

Table 1: Factor loadings of exploratory factor analysis results*

Quality Domains	Items	Exploratory Factor Analysis		
		Factor A	Factor B	Factor C
Respectful care	F12) Treated well by provider			
	F5) Respondent allowed to ask questions			
	F8) Questions answered to satisfaction			
	F10) Felt information will be kept confidential			
	F4) Felt audio privacy			0.9045
	F3) Felt visual privacy			0.9045
Method selection	E1b) Was asked desire for another child		0.8812	
	E1c) Was asked preferred timing of next child		0.8934	
	E1e) Was asked preferred FP method		0.5492	
	E1d) Was asked previous FP experience		0.6761	
	E1f) Was told about other methods			
	E1g) Received information without any method being promoted			
	E1o) Received information about methods that protect against STIs			
Effective use of method selected	E1j) How to use the method			
	E1i) How chosen method works			
	E1k) Side effects of the method	0.9197		
	E1l) How to manage side effects/problems	0.9688		
	E1m) Warning signs associated with method	0.7451		
Continuity of contraceptive use & care	E1n) Possibility of switching the method	0.5127		
	E1p) Told about timing of next visit			
	E1h) Told about other sources of supply			
	E1q) Given appointment card for follow-up visit			

*Factor loadings of less than 0.5000 are not shown

Percentage distribution of the 22-item and 10-item process quality measures are presented in Table 2. There is an even distribution of the proportion of women who received low, medium or high process quality at the time of method adoption for the 22-item composite measure. On the other hand, for the 10-item composite measure, there are slightly more women who received medium quality (39%) compared to low quality (29%) and high quality (32%).

Table 2 also shows the results of the bivariate analysis and adjusted odds ratios of modern method continuation at 3-month follow-up survey for the 22-item and 10-item quality measures. The adjusted odds of continuing a modern contraceptive at the 3-month follow-up survey was nearly three time greater (AOR: 2.98; 95% CI: 2.01-4.42) for women who reported receiving high levels of quality at the time of method enrollment compared to low levels using the 22-item measure. Modern contraceptive continuation was also greater at the 3-month follow-up survey for women who received medium levels of quality (AOR: 1.81, 95% CI: 1.32-2.49).

Similar findings are observed for the 10-item measure of process quality. Women who reported receiving high quality at the time of method enrollment were 2.5 (95% CI: 1.66-3.69) times more likely to be using a modern contraceptive method at the 3-month follow-up survey. Medium levels of quality received also significantly increased the likelihood of modern method continuation at 3-month follow-up (AOR: 1.54; 95% CI: 1.12-2.12).

Table 2: Summary table of 22-item and 10-item process quality composite measures

Quality Composite Measure	Percentage distribution (n=2699)	Bivariate of modern method continuation 3-months follow-up (n=2259)	Adjusted odds ratio of modern method continuation 3-months follow-up (n=2259)^	
			AOR	95% CI
22-item measure				
Low	33.3	82.4**	ref	
Medium	32.5	89.0	1.81**	(1.32-2.49)
High	34.2	93.7	2.98**	(2.01-4.42)
Total	100.0	-	-	-
10-item measure				
Low	29.3	83.4**	ref	
Medium	38.5	88.0	1.54**	(1.12-2.12)
High	32.2	93.2	2.48**	(1.66-3.69)
Total	100.0	-	-	

^Adjusted for age, education, religion, number of living children, previous modern method use, method selected at enrollment, and state

** p-value ≤0.01

Discussion

The results of these analyses suggest that the structure of quality of care can be measured empirically and the proposed 22 - and 10-question indices can be used to predict contraceptive continuation. While the larger index could be used in special studies, the smaller index is better suited for routine data collection and monitoring. Future research on quality of care should consider including these measures for replicated and further testing.