

Association between interpersonal relational factors in couples with tubal infertility and delayed decision-making on definitive treatment: a case control study

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Abstract

Background: Infertility affects about 10% of couples and is often characterized by delay in initializing seeking of treatment, which culminates in delay in appropriate decision-making on definitive management. This creates a need for understanding the determinants of delay in order to strategize on corrective intervention.

Objective: To determine the association between interpersonal relational factors among couples with tubal infertility and delayed decision-making on definitive treatment.

Method: This was an unmatched case-control study at Kenyatta National Hospital Infertility Clinic amongst women with tubal infertility in who decisions on definitive treatment had been made. Cases were patients with delayed decision-making (≥ 4 years), whereas controls were patients without delayed decision-making (< 4 years).

Results: Age > 35 years (OR 15.93, OR 95% CI 5.36-47.38, $p < 0.001$), low education level (OR 8.56, OR 95% CI 2.98-24.58, $p < 0.001$) and rural residence (OR 8.74, OR 95% CI 2.89-26.48, $p < 0.001$) were associated with delay. Formal marriage was negatively associated with delay (OR 0.17, OR 95% CI 0.05 – 0.50, $p < 0.001$). Prolonged duration to effective communication on difficulty in conception (≥ 25 months), (OR 20.3, OR 95% CI 2.52 – 162.83, $p < 0.001$) and being blamed by the male spouse (OR 12.73, OR 95% CI 4.54 – 35.62, $p < 0.001$) were significantly associated with delay. Support by the male spouse, including performance of semen analysis (OR 0.17, 95% CI 0.06 – 0.49, $p < 0.001$) was negatively associated with delayed decision-making on definitive management. In relation to marital conflict, the strongest associations with delay were noted with threats of divorce (OR 47.31, OR 95% CI 9.93 – 225.45, $p < 0.001$), sexual constraints (OR 42.46, OR 95% CI 8.96 – 201.29, $p < 0.001$) and physical violence (OR 27.46, OR 95% CI 3.44 – 218.78, $p < 0.001$).

Conclusion: Adverse inter-relational factors among couples with infertility are significantly associated with delay in decision-making on appropriate treatment of tubal infertility. It is recommended that adequate education on preparedness for infertility as a possible outcome be encouraged, in order to minimize delay in seeking treatment.

Key words: Relational factors, Delayed decision-making, Definitive treatment, Tubal infertility

Introduction

Infertility is a global health problem affecting at least 8 – 12% of couples (1). Given that only less than half of couples with infertility seek appropriate medical attention, these figures may be an underestimate of the actual prevalence of infertility (2). Most couples who suffer from infertility are in developing countries, where preventable infectious pelvic morbidity is the most common cause (3). Overall, tubal blockage is the most important specific anatomic cause of infertility globally (4). In spite of this high prevalence of infertility, and the numerous adverse psychosocial consequences that emanate from childlessness, governments and health policy makers in developing countries have continued to neglect infertility care (5, 6).

Fertility is a nearly universal desire among couples (7). For this reason, infertility is an important cause of marital distress, which culminates in reduced quality of life

(7 - 9). In the less developed countries, this grim situation is further compounded by inadequate knowledge on where to source for services, in addition to the overall limited availability and access to appropriate services (10). Also, inter-relational issues between couples suffering from infertility often emerge and may further influence delay. Despite the universality of relational constraints that exist between individual couples who suffer from infertility (11), there is paucity of data in this respect in the published literature. This creates a dire need for generating credible data that depicts the magnitude of influence by untoward relational issues among infertile couples who experience delay in reaching the desirable level of care that culminates in decision-making on appropriate management. This, in turn, would enable institution of rationalized targeted policies and interventions. This study aimed to determine the association between interpersonal relational factors among couples with tubal infertility and delay in decision-making on definitive treatment.

Materials and Methods

Study design: An unmatched case-control study.

Study setting: The Kenyatta National Hospital Infertility Clinic.

Study population: The cases were women among couples with tubal infertility in whom decision-making on definitive treatment had been unduly delayed. Delay was defined as a period of at least four years since the time when pregnancy was desired. Although to some extent the cut-off of four years was abstract, it was based on the assumption that couples suspect infertility after 1 – 2 years. Once medical help is sought, infertility care for 1 – 2 years should culminate in understanding of the causative factor and in making a definitive decision on specific treatment strategies. The controls were those in whom a definite strategy of treatment was made within four years since pregnancy was desired. Patients with other causes of infertility and those unwilling to participate in the study were excluded. Forty three cases and 43 controls were included in this study.

Data collection and management: Upon completion of the clinic visit, informed verbal and written consent was sought from every eligible participant individually in a separate room in the clinic. Data collection was by administration of a principally structured pre-coded

questionnaire to each individual participant in a separate room in the clinic by trained research assistants using simple consecutive sampling. Follow-up visits were not required for this study. Sample size was determined using Fleiss's formula with 1:1 case/control ratio at 95% significance (α of 1.96) and 80% power (β of 0.84). The estimate was based on findings by Mati *et al* (12) and Mulgaonkar (13).

Data analysis approach: The Statistical Package for Social Sciences version 21.0 was used for data analysis using conditional logistic regression without testing for effect modification.

Results

The factors that showed significant association with delayed decision-making on definitive treatment were age >35 years (OR 15.93, OR 95% CI 5.36-47.38, $p < 0.001$), education level of primary or less (OR 8.56, OR 95% CI 2.98-24.58, $p < 0.001$) and rural residence (OR 8.74, OR 95% CI 2.89-26.48, $p < 0.001$). There was no significant association with delay noted in relation to number of pregnancies (OR 0.63, OR 95% CI 0.26-1.47, $p = 0.280$) or number of deliveries (OR 0.70, OR 95% CI 0.27-1.83, $p = 0.465$) (Table 1).

Table 1: Distribution of general and reproductive characteristics among cases and controls

Characteristic	Case (N=43)	Control (N=43)	Odds Ratio	OR 95% CI	P-value
	No. (%)	No. (%)			
Age¹					
<25	1 (2.3)	3 (7.0)	0.32	0.03 – 3.18	0.306
25 – 34	11 (25.6)	34 (74.1)	0.09	0.03 – 0.25	<0.001
35+	31 (72.1)	6 (14.0)	15.93	5.36 – 47.38	<0.001
Education level					
Primary or less	25 (58.2)	6 (14.0)	8.56	2.98 – 24.58	<0.001
Secondary or more	18 (41.9)	37 (86.1)	0.12	0.04 – 0.34	<0.001
Usual residence					
Rural	23 (53.5)	5 (11.6)	8.74	2.89 – 26.48	<0.001
Urban	20 (46.5)	38 (88.4)	0.11	0.04 – 0.35	<0.001
No. of pregnancies²					
None	20 (46.5)	25 (58.1)	0.63	0.26 – 1.47	0.280
One and more	23 (53.5)	18 (41.9)	1.60	0.68 – 3.75	0.280
No. of deliveries³					
None	30 (69.8)	33 (76.7)	0.70	0.27 – 1.83	0.465
Once and more	13 (30.2)	10 (23.3)	1.43	0.55 – 3.74	0.505

Non-committal marital relationships (cohabitation) were associated with delay (OR 4.44, OR95%, CI 1.55 – 12.74, $p = 0.004$). Traditional marriage did not show a significant association with delay (OR 1.21, OR 95%CI 0.52 – 2.83, $p = 0.664$). Being in an official marriage with a certificate was negatively associated with delay (OR 0.17, OR95%CI 0.05 – 0.50, $p < 0.001$) (Table 2).

Table 2: Distribution of marital characteristics among cases and controls

Nature of marriage	Cases (N=43)	Controls (N=43)	Odds Ratio	OR 95% CI	P - value
	No. (%)	No. (%)			
Type of marriage					
Official-traditional	20(46.5)	18(41.9)	1.21	0.52 – 2.83	0.664
Official-with a certificate	5(11.6)	19(44.2)	0.17	0.05 – 0.50	<0.001
Cohabitation	18(41.9)	6(14.0)	4.44	1.55 – 12.74	0.004
Number of marriages¹					
First	16(37.2)	36(83.7)	0.12	0.04 – 0.32	<0.001
Second	14(32.6)	6(14.0)	2.98	1.01 – 8.70	0.041
Third and above	13(30.2)	1(2.3)	18.2	2.26 – 146.74	<0.001

Though more controls (58.1%) than cases (39.5%) were able to easily communicate on difficulty in conceiving with the male spouse, there was no significant association with delayed decision-making on definitive treatment (OR 0.47, OR 95% CI 0.20 – 1.11, $p=0.084$). However, taking a prolonged duration to effectively communicate that there was difficulty in conception (≥ 25 months) was significantly associated with delay (OR 20.3, OR 95% CI

2.52 – 162.83, $p<0.001$), as was being blamed by the male spouse (OR 12.73, OR 95% CI 4.54 – 35.62, $p<0.001$). There were no significant associations with delay noted in relation to discussion of the possibility of the male spouse contribution (OR 0.57, OR 95% CI 0.20 – 1.63, $p=0.289$) and discussion of the plan to seek treatment (OR 0.69, OR 95% CI 0.29 – 1.61, $p=0.385$) (Table 3).

Table 3: Aspects of communication between spouses prior to seeking infertility treatment by cases and controls

Aspect of communication	Cases (N=43)	Controls (N=43)	Odds Ratio	OR 95% CI	P- value
	No. (%)	No. (%)			
Easily communicated on the subject of difficulty in conceiving	17 (39.5)	25 (58.1)	0.47	0.20 – 1.11	0.084
Duration taken before effective communication (months)					
0 – 12	16 (37.2)	36 (83.7)	0.12	0.04 – 0.32	<0.001
13 – 24	13 (30.2)	6 (14.0)	2.67	0.91 – 7.87	0.069
25+	14 (32.6)	1 (2.3)	20.3	2.52 – 162.83	<0.001
Blamed by spouse as contributor of infertility	35 (81.4)	11 (25.6)	12.73	4.54 – 35.62	<0.001
Discussed the possibility of male spouse contribution	7 (16.3)	11(25.6)	0.57	0.20 – 1.63	0.289
Discussed a plan of seeking treatment	17 (39.5)	21 (48.8)	0.69	0.29 – 1.61	0.385

Prolonged duration from initial consultation to first accompaniment to the clinic was significantly associated with delay (OR 3.67, OR 95% CI 1.19 – 11.35, $p=0.019$), as was lack of accompaniment by the male spouse (OR 4.50, OR 95% CI 1.47 – 13.79, $p=0.006$). The aspects that were associated with lack of delay include ability of the couple to easily discuss tubal blockage (OR 0.21, OR 95% CI 0.08 – 0.52, $p=0.001$), acceptance of semen analysis (OR 0.11, OR 95% CI 0.03 – 0.35, $p<0.001$) and performance of semen analysis (OR 0.17, 95% CI

0.06 – 0.49, $p<0.001$). Amongst those that performed semen analysis, presence of the wife when semen analysis results were received (OR 1.26, OR 95% CI 0.37 – 4.32, $p=0.714$), ability of the couple to discuss the semen analysis results with the doctor (OR 0.79, OR 95% CI 0.25 – 2.52, $p=0.694$) and ability to discuss the results freely as a couple (OR 0.42, 95% CI 0.14 – 1.26, $p=0.119$) were not significantly associated with delay, despite being more common amongst the controls (71.1%, 71.1% and 68.4% respectively) (Table 4).

Table 4: Aspects of support by the male spouse during the investigations for infertility

Aspect of support the male spouse	Cases		Controls		Odds	OR	P-value
	N	No. (%)	N	No. (%)	Ratio	95% CI	
Duration from initial consultation to initial accompaniment to the clinic (months)	43		43				
< 1		17 (39.5)		8 (18.6)	2.86	1.07 – 7.63	0.033
1 – 4		7 (16.3)		24 (55.8)	0.15	0.06 – 0.42	<0.001
5 – 8		5 (11.6)		6 (14.0)	0.81	0.23 – 2.89	0.741
9+		14 (32.6)		5 (11.6)	3.67	1.19 – 11.35	0.019
Frequency of spousal accompaniment to the clinic	43		43				
Always		3 (7.0)		5 (11.6)	0.57	0.13 – 2.55	0.458
Often		4 (9.3)		13 (30.2)	0.24	0.07 – 0.80	0.045
Sometimes		8 (18.6)		12 (27.9)	0.59	0.21 – 1.63	0.307
Rarely		12 (27.9)		8 (18.6)	1.90	0.69 – 5.19	0.307
Never		16 (37.2)		5 (11.6)	4.50	1.47 – 13.79	0.006
Couple able to easily discuss diagnosis of tubal blockage	43	15 (34.9)	43	31 (72.1)	0.21	0.08 – 0.52	0.001
Easily convinced to have semenalysis	43	22 (51.2)	43	39 (90.7)	0.11	0.03 – 0.35	<0.001
Semenalysis actually done	43	22 (51.2)	43	37 (86.0)	0.17	0.06 – 0.49	<0.001
Duration before accepting semenalysis (months)							
0 – 2	22	11 (50.0)	37	23 (60.5)	0.61	0.21 – 1.77	0.361
3 – 5		1 (4.5)		8 (21.1)	0.17	0.02 – 1.49	0.078
6+		10 (45.5)		7 (18.4)	3.57	1.10 – 11.57	0.030
Duration from acceptance to actual performance of semenalysis (months)							
0 – 2	22	17 (77.3)	37	33 (91.7)	0.41	0.10 – 1.74	0.218
3 – 5		2 (9.1)		4 (8.3)	1.13	0.17 – 7.37	0.896
6+		3 (13.6)		0 (0.0)	-	-	-
Wife present when semenalysis results were received	22	17 (77.3)	37	27 (71.1)	1.26	0.37 – 4.32	0.714
Couple able to freely discuss the results of semenalysis with the doctor	22	15 (68.2)	37	27 (71.1)	0.79	0.25 – 2.52	0.694

Table 5: Aspects of marital conflict experienced by the wife as a result of infertility among cases and controls

Aspect of marital conflict	Case (N=43)	Control (N=43)	Odds Ratio	OR 95% CI	P-value
	No. (%)	No. (%)			
Threat for divorce	30 (69.8)	2 (4.7)	47.31	9.93 – 225.45	<0.001
Actual separation	16 (37.2)	1 (2.3)	24.89	3.12 – 198.70	<0.001
Verbal abuse	26 (60.5)	9 (20.9)	5.78	2.22 – 15.03	<0.001
Threats of physical violence	20 (46.5)	2 (4.7)	17.83	3.82 – 83.21	<0.001
Actual physical violence	17 (39.5)	1 (2.3)	27.46	3.44 – 218.78	<0.001
Threats of marrying another wife	31 (72.1)	4 (9.3)	25.19	7.39 – 85.82	<0.001
Marrying another wife	21 (46.5)	2 (4.7)	19.57	4.19 – 91.29	<0.001
Sexual constraints	29 (67.4)	2 (4.7)	42.46	8.96 – 201.29	<0.001

All of the aspects explored showed very strong associations with delayed decision-making on definitive management of tubal infertility: threat for divorce (OR 47.31, OR 95% CI 9.93 – 225.45, $p < 0.001$); actual separation (OR 24.89, OR 95% CI 3.12 – 198.70, $p < 0.001$); verbal abuse (OR 5.78, OR 95% CI 2.22 – 15.03, $p < 0.001$); threats of physical violence (OR 17.83, OR 95% CI 3.82 – 83.21, $p < 0.001$); actual physical violence (OR 27.46, OR 95% CI 3.44 – 218.78, $p < 0.001$); threats of marrying another wife (OR 25.19, OR 95% CI 7.39 – 85.82, $p < 0.001$); actually marrying another wife (OR 19.57, OR 95% CI 4.19 – 91.29, $p < 0.001$) and sexual constraints (OR 42.46, OR 95% CI 8.96 – 201.29, $p < 0.001$). The strongest associations with delayed decision-making were exhibited by: threats of divorce, sexual constraints and physical violence (Table 5).

Discussion

This study has revealed a strong association between adverse interpersonal relationship among infertile spouses and delay in reaching a definitive treatment plan. Nature of marriage, level of communication, spousal support, and marital conflicts are important determinants in causing delay. In addition, low education and residing in rural areas are significant contributors to the observed delay.

Formal marriage nurtures better relational stability, commitment, and co-operation. Thus, nearly 85% of women not experiencing untoward delay were in the first marriage compared to only 37% among those with delay. On the other hand, cohabitation is a loose association – hence the undue delay experienced by the cases. This has also been observed in the developed world (14, 15) which is indicative of the universality of the problem.

On inter-spousal communication, lack of effective communication was significantly preponderant among couples experiencing delay. Compounding this situation is the evident tendency to lay blame on the female spouse, which has also been observed by others (16). Effective spousal communication enhances objectivity and co-operation in seeking treatment and hence should lead to quicker decision-making (17). If, however, there is no male participation and contribution, then undue delay may be inevitable. The tenets that depict

poor spousal support and co-operation are: delay in initiation of appropriate search for treatment, inertia in accompaniment to service providers, resistance against being investigated, and refusing to discuss investigated causative pathologies. Even after the husbands accept semen analysis, actualization takes a long time. This observed male resistance confers a heavy burden on the part of the female in seeking for fertility solutions (14), thereby contributing to undue delay in reaching decisions on appropriate specific interventions. In Japan, lack of support by the male spouse is associated with higher stress and anxiety levels, and lower quality of life among women in infertile associations (17).

The high preponderance of various aspects of marital conflict among patients experiencing delay in treatment underscores the importance given to conception and delivery as important deliverables within the marriage contract. This may degenerate into gender-based violence, which is very strongly associated with delay in completion of care. This finding is in agreement with other studies (1, 9, 18, 19).

Conclusion

From the findings of this study, it can be deduced that adverse spousal relational factors are strongly associated with undue delay in infertility management. Hence, there is a need for pre-marital provision of adequate information and education on preparedness for infertility as a possible outcome in marital relationships in order to: empower couples to seek medical care promptly; enhance communication within the couple; elicit better male spousal support during investigation and treatment and to reduce marital conflict related to infertility.

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