TITLE: Perceptions of Fecal Microbiota Transplantation: Factors That Predict Acceptance

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BODY:

AIM/BACKGROUND: Fecal Microbiota Transplantation (FMT) has been utilized for over a thousand years, though its importance in modern medicine has not come to light until recently. FMT has gained attention for its ability to treat refractory and recurrent *Clostridium difficile* infection, an illness that can dramatically affect quality of life and increase healthcare costs. Despite its effectiveness, many patients are reluctant to accept FMT. Our study examines attitudes towards FMT and factors that contribute to making this therapy an acceptable alternative for some, but not others.

METHODS: We created a nine page survey to collect demographic data and assess patients' attitudes toward FMT. The surveys were distributed over a six month period at the Gastroenterology clinics of a Veteran's Affairs hospital, an urban public hospital, and a Faculty Group Practice affiliated with an urban academic medical center. Unanswered questions were not included in the analysis. Statistical calculations were performed using STATA® software. For the 213 surveys which had complete data for the primary outcome measures, Pearson χ^2 analysis was performed on univariate factors that may account for FMT acceptability. Multivariable logistic regression was performed on factors that were associated with acceptance of FMT on univariate analysis (p<0.10).

RESULTS: There were 267 patients surveyed. Characteristics of our study population are presented in Table 1. Overall 12% (29/234) of respondents knew of FMT prior to the survey and 77% (163/213) would undergo the procedure if medically indicated. On univariate analysis, subjects with children were more likely to agree to FMT (81% vs 69%, p=0.04), as well as those with university or graduate degrees versus those with less than a college education (81% vs 68%, p=0.03). No other factors were significantly associated with FMT acceptability, including, history of chronic diarrhea, use of herbals, or prior experience with *C. difficile* infection (Table 2). There was a trend towards willingness for FMT among those who were married vs. unmarried (85% vs 73%, p=0.06). Between colonoscopy, NGT, and enemas, 65 respondents (71%) chose colonoscopy as the most acceptable vehicle for stool transplant, while NGT was the least preferred. Disease transmission was the most common concern regarding stool transplants (30%, n=242) and success rate of the fecal transplant was the least selected concern (9.1%) (Figure 1).

CONCLUSIONS: The majority of patients had no prior knowledge of FMT. To our knowledge, this is the largest and most diverse survey regarding perceptions of Fecal Microbiota Transplantation. Having children was a significant predictor for accepting FMT, suggesting that parents may be more willing to try emerging therapies for the sake of their

loved ones. Having a college degree was also a significant factor, implying that a better understanding of the disease and medical terminology may affect one's willingness to undergo FMT. The main concern for undergoing FMT was the risk of disease transmission. Since FMT is a potentially life-saving procedure, the knowledge gained from this survey may help medical practitioners counsel patients and their families when making recommendations for Fecal Microbiota Transplantation.

Table 1: Characteristics of survey	
participants	
Sites	
VA clinic	50% (133/267)
Faculty group practice	28% (75/267)
Public hospital	22% (59/267)
Male	65% (170/260)
English as primary language	87.7% (229/261)
Race (self-identified)	
White	54% (139/256)
Black	23% (59/256)
Asian	7.8% (20/256)
Other	14% (38/256)
Education	
Did not complete high school	7.5% (20/266)
High school	25.6% (68/266)
Vocational school	4.5% (12/266)
College	39.5% (105/266)
Graduate school	22.9% (61/266)
Income	
<25K/year	39.5% (94/238)
25-49K	26.5% (63/238)
50-74K	17.7% (42/238)
75-99K	5.9% (14/238)
>100K	10.5% (24/238)
Have children	61.5% (160/264)
Current or prior use of probiotics	32% (83/257)
Personal history of chronic diarrhea	9.0% (23/254)
Heard of <i>C. difficile</i> infection	28.6% (66/231)
previously	
Heard of fecal transplant previously	12.4% (29/234)

Table 2: Logistic regression analyses of variables affecting FMT acceptability

Willingness to undergo		
FMT	Univariate odds ratio (p-	Multivariable odds ratio (p-

	value, 95%CI)	value, 95%CI)
Respondents with children	1.95 (p=0.04, 1.02-3.69)	2.11 (p=0.04, 1.02-4.35)
Married	2.04 (p=0.07, 0.95-4.39)	1.54 (p=0.30, 0.68-3.46)
College graduates	2.08 (p=.03, 1.09-3.95)	2.27 (p=0.02, 1.11-4.6)
Experience with <i>C. difficile</i> *	1.57 (p=0.22, 0.758-3.24)	1.48 (p=0.32, 0.68-3.22)

^{*}either personally or through a friend or relative

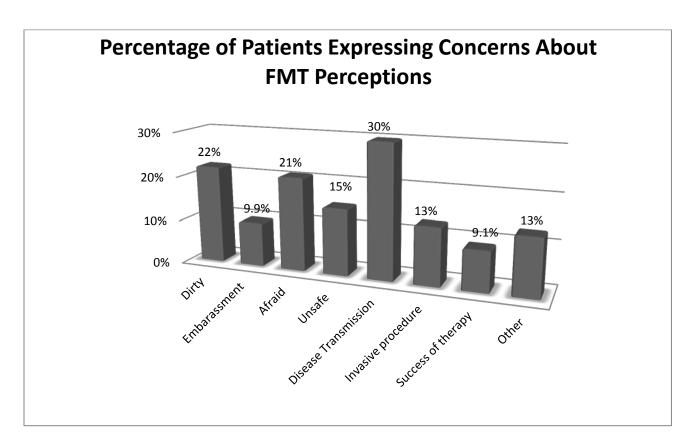


Figure 1: Concerns regarding FMT