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Optimism in Women Undergoing Abdominal Sacrocolpopexy for Pelvic Organ Prolapse

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Abstract

Background—While studies suggest optimism can predict health outcomes, the relationship has not been tested in women with pelvic organ prolapse (POP). This study seeks to (1) explore the relationship between optimism, prolapse severity, and symptoms before surgery; and (2) examine whether optimism predicts post-surgical functional status, treatment satisfaction, and treatment success.

Study Design—Data from the randomized Colpopexy And Urinary Reduction Efforts (CARE) study in which stress continent women undergoing sacrocolpopexy to repair Stage II-IV POP completed a baseline assessment of optimism and validated symptom and quality of life (QOL) measures at baseline and 24-months. Relationships between optimism and demographics, clinical status, and functional and QOL outcomes were assessed.

Results—Of 322 CARE participants, 305 (94.7%) completed 24-month follow-up interviews. At baseline, there were no significant differences in optimism with respect to POP stage or history of prior surgery for prolapse or urinary incontinence. At baseline, women with greater optimism reported significantly better physical and mental functioning ($p = 0.001$), and less symptom distress ($p = 0.01$). Two years after surgery, the difference in symptom experience across the three optimism categories narrowed as all women reported improved health status, fewer symptoms, and less impact on daily activities. Satisfaction with treatment and perception of treatment success were not associated with optimism.

Conclusions—In women planning surgery for POP, optimism is related to pelvic symptom severity but is not associated with satisfaction with treatment or treatment success. Abdominal sacrocolpopexy resulted in substantial improvements in QOL and functional outcomes that were not significantly influenced by optimism.

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Introduction

During the last two decades, research psychologists have confirmed what many clinicians empirically suspected – that patients with a positive outlook on life tend to have better outcomes after medical treatment. The most frequently used measure of dispositional optimism is the Life Orientation Test, revised version (LOT-R).¹ The LOT-R was initially validated in a large sample of university students but has subsequently proven useful for the measurement of optimism in a variety of patient populations. Psychometricians refer to one's habitual tendency towards optimism as "dispositional optimism," an indication that this represents a relatively stable character trait throughout the life course.^{1,2}

Several published studies have suggested that dispositional optimism predicts health and psychosocial and medical outcomes. Using cross-sectional data from the Normative Aging Study, Achat and colleagues³ found that higher levels of optimism were associated with higher vitality scores, freedom from bodily pain, improved general health perceptions, and improved mental health. Similarly, subjects who reported being more optimistic were less likely to report bother with physical symptoms than subjects who reported being less optimistic; optimists were also able to adjust better to important life transitions.⁴ The medical literature provides examples of optimistic patients showing faster postoperative recovery from cardiac surgery,⁵ greater psychological well-being in groups at risk for mental disorders,⁶ and improved mental outcomes in cancer survivors.⁷

The relationships between dispositional optimism, pelvic symptoms, and quality of life in women with pelvic organ prolapse (POP) have not been studied previously. POP is a condition in which one or more pelvic organs (the uterus, bowel and bladder) protrude through the vagina opening. The condition in its milder form is common and was noted in as many as 31% of women aged 20–59 presenting for routine gynecologic care in Sweden.⁸ The incidence and severity of POP increase with age.⁸ Approximately 200,000 women undergo inpatient procedures for prolapse in the United States each year.⁹ The lifetime risk of surgery for POP or incontinence by age 80 years is estimated to be 11.1%.¹⁰ POP is the indication for hysterectomy in 7.5% to 14% of cases,^{11,12} and is concomitantly addressed at 42% of procedures for stress urinary incontinence.¹³ Women with POP report various symptoms including a sensation of pressure and protruding tissue at the vaginal opening as well as urinary and defecatory dysfunction. Investigators have learned that the severity of symptoms may be difficult to quantify due to women's adaptive behaviors that minimize their symptom experiences or impairments.¹⁴

This paper reports an analysis of secondary data from the Colpopexy and Urinary Reduction Efforts (CARE) study, a randomized trial in which women without symptoms of stress incontinence underwent abdominal sacrocolpopexy to repair Stage II-IV POP with or without concomitant Burch procedure.^{15,16} Participants in this study completed an assessment of dispositional optimism, as well as validated generic and condition-specific symptom and quality of life measures. The aims of these analyses were: 1) to explore the relationship between patients' optimism and symptoms of pelvic floor dysfunction prior to surgery; and 2) to determine the extent to which patients' dispositional optimism predicted post-surgical functional status, quality of life, satisfaction with treatment, and perceptions of treatment success.

Methods

The CARE study was performed by the Pelvic Floor Disorders Network (PFDN), a cooperative agreement network sponsored by the National Institute of Child Health and Human Development and consisting of clinical sites and a data coordinating center. The

methods and primary outcomes of the CARE trial have been reported previously.¹⁵ Briefly, stress continent women who were planning to undergo surgical repair of Stage II-IV prolapse were randomized in the operating room to abdominal sacrocolpopexy with or without a concomitant Burch procedure to prevent the development of stress incontinence after the surgery.

Participants met the inclusion criteria of “stress continent” by responding “never” or “rarely” to the six items asking about stress incontinence from the Medical, Epidemiological, and Social Aspects of Aging (MESA) questionnaire.¹⁷ Prolapse was staged using the Pelvic Organ Prolapse Quantification (POP-Q) system, a standardized quantitative method of prolapse assessment.¹⁸ Women were excluded if they were not able to undergo the Burch colposuspension, pregnant at the time of enrollment, or planning to relocate within three months post-operatively.

Participants provided oral and written consent for participation in this research trial. Institutional Review Board approval for research on human subjects was obtained by all clinical sites and the data coordinating center.

Data Collection Procedures

Data for these analyses were collected by telephone at baseline and again two years following surgery. Trained female interviewers, blinded to participants’ randomization assignment and outcomes, working from a central location administered by telephone a quality of life (QOL) interview combining generic and condition-specific measures of health status, prolapse, and pelvic floor symptoms. The measures were previously administered by telephone in a pilot study and subjected to psychometric evaluation.¹⁹ Generic quality of life was assessed using the SF-36 Health Outcomes questionnaire. Condition-specific symptoms and impact on daily activities were assessed with the Pelvic Floor Distress Inventory (PFDI) and Pelvic Floor Impact Questionnaire (PFIQ).²⁰ The PFDI assesses distress associated with pelvic floor symptoms and has three scales: the Urinary Distress Inventory (UDI), the Colorectal-anal Distress Inventory (CRADI), and the Pelvic Organ Prolapse Distress Inventory (POPDI). The PFIQ assesses life impact and also has three scales: the Incontinence Impact Questionnaire (IIQ), the Colorectal-Anal Impact Questionnaire (CRAIQ), and the Pelvic Organ Prolapse Impact Questionnaire (POPIQ). Lower scores indicate less symptom distress (PFDI) and better quality of life (PFIQ). At follow-up, respondents were also asked three satisfaction-related questions: satisfaction with the care received on a 5-point scale from “very satisfied” to “very dissatisfied;” perceived success of their treatment on a 4-point scale from “very successful” to “not at all successful;” and their perception of how they are doing now compared to before their surgery for POP on a 5-point scale from “much better” to “much worse.”

As part of the QOL interview, dispositional optimism was measured using the Life Orientation Test-Revised (LOT-R).¹ The LOT-R is a ten-item measure assessing generalized expectancies for positive versus negative outcomes. Dispositional optimism is hypothesized to be an enduring quality and, thus, was assessed only at baseline. Respondents indicate their level of agreement with 3 positively worded and 3 negatively worded statements on a five-point scale from 0 (strongly disagree) to 4 (strongly agree). There are also four filler items in the measure that are not scored. Negatively worded items are reverse coded before scoring. The LOT-R yields a continuous measure of optimism (range 0–24) and does not have any cut-points that define patients as “optimists” or “pessimists.”

Data Analyses

The LOT-R was only included in the baseline interview prior to surgery. Each of the 6 scored items was scaled from 0–4 where 4 indicated the highest level of optimism. A total score was computed for each subject; when an item was not answered, the score was rescaled to be from 0–24 based on the number of items answered.

In order to present levels of mean optimism, the histogram of optimism scores was examined. Optimism had a highly skewed distribution. Approximately 20% had a score of 18, corresponding to an average answer of “agree” with the optimism concept. Another 35% were above 18 with only 12% responding with an average answer of “neither agree nor disagree” or worse. Therefore, to present trends related to level of optimism, LOT-R scores were divided into three cohorts: high optimism (range 18.0–24.0, N=168), medium optimism (15.1 – 17.9, N=65) and low optimism (5.0 – 15.0, N=72).

Since many of the QOL measures, including optimism, have skewed distributions, Spearman correlations were computed between optimism and the other measures. At baseline, no adjustments were performed. When 24-month assessments were used, partial correlations were computed between the ranked data, adjusting for site, treatment, whether a concomitant paravaginal procedure was performed, and for the baseline ranked score of that assessment. The adjustments for site and paravaginal procedure were included because randomization was stratified on these variables.

The average LOT-R score at baseline was compared between groups defined by demographic variables either by a two-sample t-test or by a one-way analysis of variance depending on whether there were 2 or 3 groups.

Data are presented as means $\pm$ standard deviations (SD). All p-values are two-tailed.

Results

Of the 322 women in the CARE trial, 305 (94.7%) completed the 24-month follow-up interview and are included in these analyses. Table 1 shows the mean LOT-R scores for the CARE sample at baseline according to sociodemographic and clinical characteristics. There were no significant associations between LOT-R scores and race or age. College educated women were more optimistic than their less well-educated counterparts ($p<0.001$). In addition, married women were more optimistic than non-married women ($p=0.05$). There were no significant differences in participants' dispositional optimism with respect to POP-Q stage at baseline or history of prior surgery for prolapse or urinary incontinence. There was also no difference between the two treatment groups in terms of dispositional optimism at baseline ($p=0.46$).

Table 2 presents the association between LOT-R scores and generic and condition-specific quality of life measures at baseline. Women with greater dispositional optimism reported better physical and mental functioning ($p<0.001$) on the SF-36 and less symptom distress as measured by the three available PFDI subscales ($p=0.01$). Similarly, the impact of pelvic symptoms on daily activities was also different with higher optimism related to less bother on two of the three PFIQ subscales: urinary and colo-rectal-anal ($p=0.01$).

Table 3 shows these same relationships between dispositional optimism at baseline and quality of life variables at two-years follow-up post-surgery after adjusting for site, treatment, paravaginal procedure, and baseline ranked scores. Mental health functioning was the only correlation that remained significant, although all measures trend in the same direction as observed at baseline. Women in all three optimism groups reported improved

health status (as measured by the SF-36), fewer pelvic floor-related symptoms (measured by the PFDI), and less impact on daily activities (measured by the PFIQ).

While not shown, the relationship between dispositional optimism and patients' satisfaction and perceptions of treatment success using the three survey items at follow-up was also examined. There were no significant differences between level of optimism and patient self-reports of these outcome measures. After 24 months, the vast majority of CARE patients reported being very satisfied with their care (80.3%), indicated that their treatment was very successful (72.4%), and believed they were doing much better than before their surgery (85.8%).

Discussion

Pelvic organ prolapse rarely results in severe morbidity or mortality; rather it produces symptoms that impact a woman's daily activities and negatively affect her quality of life. Several authors have demonstrated that the degree of bother and impact on daily activities caused by POP and related lower urinary tract and gastrointestinal symptoms is only weakly to moderately correlated with objective measures of disease severity.^{20,21} In this population of women undergoing surgery for symptomatic POP, women with greater dispositional optimism reported fewer condition-specific symptoms, less bother and less impact of symptoms on daily activities at baseline. This finding suggests that optimism plays an important role in a patient's experience of this condition. These findings are similar to those of Scheier and Carver²² who found that people who are highly optimistic are less likely to report being bothered by physical symptoms than those who are less optimistic. We also found that prior to their surgery, patients with greater dispositional optimism reported better physical and mental functioning. This is consistent with findings in community dwelling adults in which optimism correlated with better physical and mental functioning and positive health behaviors.^{3,23}

While studies demonstrate some variability in the degree to which baseline optimism predicts future functioning, possessing the trait of optimism when faced with serious illness appears to be helpful. In women with breast cancer, baseline optimism is associated with better emotional and social functioning in the months after diagnosis²⁴ and women with ovarian cancer reporting higher baseline optimism scores had lower CA-125 values during treatment (though optimism did not predict normal values of this cancer specific antigen).²⁵ In contrast, optimism at the time of prostate biopsy was not associated with decreased psychological distress two weeks after an eventual cancer diagnosis.²⁶ Baseline optimism has also been associated with a lower rate of rehospitalization after coronary artery bypass graft, independent of comorbidities, depression and neuroticism²⁷ and decreased disease progression in women with cardiovascular disease.²⁸

There is little information about the role of pre-operative optimism as a predictor of postoperative function and quality of life. When we planned this study, the surgeons on the research team anticipated that high pre-operative optimism would be strongly associated with high postoperative satisfaction and quality of life, and low symptom distress and bother. Indeed, some surgeons noted that the patient on whom they are most reluctant to operate is the pessimist, believing that even if she were cured anatomically, her self-reported overall quality of life would be no better. In contrast, we found that after surgery the differences in quality of life outcomes and symptom burden between women with high and low optimism seen at baseline largely disappeared (with the possible exception of mental health functioning). Indeed, all women showed substantial clinical and psychosocial improvements. Moreover, dispositional optimism did not influence patients' perceptions of treatment success or satisfaction with treatment.

Our study design did not allow us to test whether women with higher baseline optimism had an easier recovery or less immediate post-operative pain. We also cannot draw any conclusions about what the role of optimism would be on perceived success of treatments that are less uniformly successful. Abdominal sacrocolpopexy, a major abdominal procedure, is highly effective at anatomically correcting POP involving the vaginal apex.¹⁶ As demonstrated in this study, it is also remarkably successful at alleviating pre-operative symptoms and bother associated with POP. It is possible that this strong treatment effect masked any impact of optimism on patient outcomes and that optimism may play a larger role in treatments that are less effective. Additionally, middle-aged and older women without POP experience many of the same symptoms, such as bladder and bowel dysfunction, as women undergoing surgery for POP.²⁹ Thus, another possibility is that some form of “response shift” may be occurring in which women recalibrate their baseline goals as part of a normal adaptive mechanism.³⁰ This may be less likely to occur after more minor procedures or non-surgical therapy and pre-operative optimism may play a larger role in predicting outcome in these instances. Findings may also differ depending on when follow-up occurs. In future work, we will evaluate the stability of our findings five years after surgery.

In conclusion, in women planning surgery for POP, greater dispositional optimism is associated with greater physical and mental functioning, fewer symptoms, and less impact on daily activities at baseline. Abdominal sacrocolpopexy resulted in substantial improvements in quality of life and functional outcomes two years after surgery that were not significantly influenced by dispositional optimism. Symptoms, by definition, are subjective, as are self-reports of treatment success. To better understand subjective success, it is important to consider the many factors, including optimism, that affect health. It may be that the very best predictor of success and symptom resolution following elective surgery is simply a good surgery.

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Abbreviations and Acronyms

PFDN	Pelvic Floor Disorders Network
CARE	Colpopexy And Urinary Reduction Efforts
POP	Pelvic organ prolapse
LOT-R	Life Orientation Test-Revised
MESA	Medical, Epidemiological, and Social Aspects of Aging
QOL	Quality of life
PFDI	Pelvic Floor Disorders Inventory
PFIQ	Pelvic Floor Impact Questionnaire

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Table 1

Life Orientation Test-Revised Scores for Colpopexy and Urinary Reduction Efforts Study Population before Surgery by Sociodemographic Characteristics, Pelvic Organ Prolapse Stage, and Surgery History (n=305)

	Life Orientation Test-Revised		p Value
	Mean	SD	
Sociodemographic Variables			
Race			
Caucasian (n=283)	17.4	3.6	0.39
Non-Caucasian (n=22)	16.6	4.2	
Age, y			
< 65 (n=177)	17.5	3.6	0.20
65 (n=128)	17.0	3.7	
Education			
Less than college (n=232)	16.9	3.6	<0.001
College (n=73)	18.6	3.5	
Marital status [*]			
Married/living as married (n=227)	17.6	3.5	0.05
Single, separated, or widowed (n=77)	16.5	3.9	
Missing or unknown (n=1) [*]	16.0	----	
Clinical Variables			
Pelvic organ prolapse status			
II (n=42)	17.8	3.5	0.24
III (n=204)	17.4	3.7	
IV (n=59)	16.6	3.6	
History of prior surgery for POP or UI			
Yes (n=117)	17.4	3.5	0.78
No (n=188)	17.2	3.7	

* Patients with missing/unknown marital status were excluded from analysis.

POP, pelvic organ prolapse; UI, urinary incontinence.

Table 2

Associations between Optimism before Surgery and Key Generic and Condition-Specific Quality of Life Measures before Surgery (n=305)

Quality of life measures	Life Orientation Test-Revised categories			Spearman correlation	
	High Optimism (n=168)	Medium Optimism (n=65)	Low Optimism (n=72)	Correlation	p Value
SF-36 health status component scores, mean (SD)					
Physical function	47.5 (9.1)	44.1 (10.2)	42.2 (9.5)	0.22	0.0001
Mental function	54.0 (7.4)	51.6 (8.2)	47.5 (10.7)	0.28	<0.0001
Pelvic Floor Distress Inventory subscales, mean (SD)					
Urinary distress	55.7 (37.5)	59.5 (42.0)	72.8 (43.5)	-0.15	0.0095
Pelvic organ prolapse distress	97.7 (64.6)	108.1 (62.6)	127.3 (72.3)	-0.15	0.0083
Colorectal-anal distress	59.4 (65.9)	71.2 (62.0)	91.2 (76.2)	-0.21	0.0002
Pelvic Floor Impact Questionnaire subscales, mean (SD)					
Urinary impact	40.6 (47.4)	46.8 (48.7)	61.6 (56.3)	-0.14	0.0121
Pelvic organ prolapse impact	37.4 (50.8)	39.6 (54.2)	58.4 (64.1)	-0.07	0.2034
Colorectal-anal impact	23.2 (43.9)	23.3 (43.8)	43.6 (56.3)	-0.19	0.0010

Higher SF-36 scores indicate better quality of life, while higher Pelvic Floor Distress Inventory and Pelvic Floor Impact Questionnaire scores indicate more symptom bother/impact.

Table 3

Associations between Optimism before Surgery and Key Generic and Condition-Specific Quality of Life Measures at 24 Months Postsurgery (n=305)

Quality of life measures	Life Orientation Test-Revised categories			Spearman correlation	
	High Optimism (n=168)	Medium Optimism (n=65)	Low Optimism (n=72)	Correlation	p Value*
SF-36 health status component scores, mean (SD)					
Physical function	49.9 (9.5)	47.4 (10.2)	46.5 (9.6)	0.08	0.18
Mental function	55.3 (5.7)	51.7 (9.9)	50.2 (10.4)	0.13	0.03
Pelvic Floor Distress Inventory subscales, mean (SD)					
Urinary distress	23.5 (30.5)	26.4 (31.4)	28.9 (34.6)	-0.02	0.73
Pelvic organ prolapse distress	24.1 (35.0)	31.5 (40.7)	43.4 (54.1)	-0.09	0.12
Colorectal-anal distress	28.7 (39.6)	35.3 (39.3)	46.6 (49.4)	-0.06	0.33
Pelvic Floor Impact Questionnaire subscales, mean (SD)					
Urinary impact	16.3 (30.8)	20.7 (44.2)	21.0 (36.5)	-0.01	0.87
Pelvic organ prolapse impact	7.5 (24.2)	11.4 (37.8)	10.3 (27.8)	-0.10	0.12
Colorectal-anal impact	11.0 (28.4)	13.9 (41.4)	15.4 (38.2)	0.04	0.52

Higher SF-36 scores indicate better quality of life, while higher Pelvic Floor Distress Inventory and Pelvic Floor Impact Questionnaire scores indicate more symptom bother/impact.

* p Values indicates significance of Spearman correlation adjusted by site, treatment, paravaginal procedure performed, and baseline ranked scores.