Chapter 7

The effect of coping strategies on Health-related quality of life in women with symptoms of pelvic floor dysfunction.

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Introduction

Symptoms of pelvic floor dysfunction, like urinary incontinence, obstructive micturition, overactive bladder, faecal incontinence, constipation and genital prolapse are common in the general adult female population. The prevalence of urinary incontinence has been reported to be between 14 and 71.4%.[1-4] Faecal incontinence occurs in 7%and constipation in 10-20% of otherwise healthy women.[5-7] All of these symptoms may occur in combination[8] and are often without prospect of complete recovery and have a relatively long duration. In this context these symptoms of pelvic floor dysfunction can be regarded as chronic disorders that may have long-term consequences on Health-related Quality of Life (HRQoL) of those affected. Indeed, many women with symptoms of pelvic floor dysfunction report to be bothered by their symptoms and were shown to have a reduction in HRQoL.[9-11]

The concept of HRQoL gives maximum weight to the subjective perception of the severity of the problem for individual women. It is intuitively clear that the impact of symptoms on HRQoL is not only related to the objective severity of the disorder but also to the individual's response to the situation. For instance, only a small proportion of women who have self-reported bothersome urinary incontinence seek professional help.[12,13] These differences in help-seeking behaviour may well be related to the way women handle or cope with problems of pelvic floor dysfunction.

Coping is a psychological construct that refers to the way in which people respond and behave in the response to stressful events. [14,15] It has been subject of investigation in psychologic research for the last two decades. Although the concept of coping is complex some basic "meta-strategies" of coping have been identified. These involve emotion-oriented versus problem-oriented [14] and passive or avoiding versus active or approaching [15] ways of coping. Problem-oriented or active ways of coping are usually considered to be better ways of coping than emotional-oriented or passive ways of coping.[16] However, which coping style is more accurate is also determined by the situation it is applied in. For instance, in situations that are unresolvable (like terminal cancer) emotional-oriented coping strategies may be more appropriate than problem-oriented coping strategies.

In women with pelvic floor dysfunction, the role of coping strategies in the adaptation to these symptoms has received little attention. Although there is an increasing interest in measuring HRQoL in these women it has not been properly recognized that HRQoL may not only be influenced by the severity of the symptoms but also by different coping strategies. Information about the effect of coping strategies on HRQoL can be of clinical importance. The effectiveness of interventions, when measured in terms of changes in HRQoL, may seriously be biassed if the effect of coping strategies (positively or negatively) on HRQoL are not accounted for. In this case, the same objective cure of symptoms may lead to different improvements in HRQoL, obscuring the effect of treatment itself.

Therefore, the aim of our study was to measure the effect of different coping strategies on HRQoL in women with symptoms of pelvic floor dysfunction.

Methods

Study population

The study population consists of a random population sample of 3200 women, between 20 and 70 years of age, that was obtained from the population registration office of a suburban area in the central part of the Netherlands. These women were invited to participate in a study on the prevalence and consequences of urogenital and defecation symptoms in the female community. All women received a questionnaire with an accompanying letter explaining the purpose of the study. Care was taken to encourage women without any symptoms of pelvic floor dysfunction to participate in the study, emphasizing the importance of their cooperation to compare their situation with that of women with symptoms. A reminder was send after four weeks to all women. All data collected were anonymous. Two-thousand forty-two women responded (63.8%).

Study design

All women received a 162-item, self-administered questionnaire in 1999. The study was

approved by the local ethics committee, with the restriction that contacting non-responders after the reminding letter was not allowed.

Data on age and educational level were collected. In analysis, the educational level was dichotomized into primary only and secondary or higher.

Symptoms of pelvic floor dysfunction were measured with the Urogenital Distress Inventory (UDI)[17] and the Defecation Distress Inventory (DDI).The UDI consists of 19 items and each item measures if a *symptom* is present and the amount of bother the woman experiences from that symptom. The latter is measured on a four-point Likert scale ranging from not at all to greatly. The original UDI consists of three domains; stress incontinence symptoms, irritative symptoms and obstructive symptoms. The score of each domain ranges from 0 to 100, a high score representing more or more bothersome complaints. We translated the UDI and tested it's psychometric qualities. We identified five instead of three domains namely; urinary incontinence, overactive bladder symptoms, obstructive micturition, genital prolapse and pain/discomfort.(Chapter 2) A total UDI score is computed by taking the sum of the five domains (range 0 - 500). The DDI consists of 15 items about symptoms related to obstructive defecation, constipation, faecal incontinence and painful defecation. It was developed in our Center to be used for measuring anorectal symptoms in women presenting with symptoms of pelvic floor dysfunction. The content validity of the DDI was ensured by literature review and interviews with three experts in the field from the Department of Surgery and Obstetrics/Gynecology from the University Medical Center Utrecht, the Netherlands.

A structured interview of the 15 selected items was held with 20 female patients to account for face validity. The layout of the items was exactly comparable to that of the UDI. Factor analysis, using a principal axis factoring model with varimax rotation, showed four distinct domains (constipation, faecal incontinence, painful defecation and incontinence for gas). Cronbachs' alpha[18], as a measurement of internal consistency of these domains, ranged between 0.71 - 0.78. Like the UDI, the score of the domains ranges from 0 to 100 and the DDI total score ranges from 0 to 400. In the analysis the total score of the UDI and DDI

were added together and transformed into one 'pelvic floor distress' (PFD) scale, with a score ranging from 0 to 100. Again, a high score implicates more or more bothersome symptoms.

Health-related quality of life was measured in three ways. First, two questions were used to obtain a general quality of life score. The questions were: "How would you rate your overall health during the last week?" and "How would you rate your quality of life during the last week". Answers were obtained on a 6-point Likert scale ranging from extremely bad to excellent. The mean value of these two questions was transformed into a single score ranging from 0 (extremely bad) to 100 (excellent). Secondly, a disease specific quality of life score for pelvic floor disorders was obtained. We used the Incontinence Impact Questionnaire (IIQ) as a disease-specific quality of life questionnaire. The IIQ that was developed to be used in combination with the UDI.[17] The original IIQ consists of 30 items about the impact of urogenital symptoms on four aspects of quality of life: physical functioning, emotional functioning, travel and social functioning. A high score on the IIQ domains indicates that the person's well-being on that particular domain is negatively affected. Factor analysis (principal axis factoring with varimax rotation) of our translation of the IIQ identified a fifth factor that contains 4 items about embarrassment. Cronbachs' alpha for the five domains ranged from 0.83 (embarrassment) to 0.93 (mobility). The total IIQ score (sum of all five domains) was used in analysis. Finally, general emotional well-being was assessed with the Center for Epidemiologic Studies - Depression scale (CES-D) [19]. This questionnaire consists of 20 items and has been developed for research in the non-psychiatric population. A Dutch translation has been validated [20]. The total score ranges from 0 to 60. In this study the total CES-D score was used as an indication for depressive symptomatology.

Coping strategies were measured with 22 items originating from the Ways of Coping Checklist (WCC) and the Utrecht Coping List (UCL).[21,22] The reason for this selection was that we considered the WCC and the UCL to assess coping strategies in general.
We were especially interested in disease-specific coping aspects of women with symptoms of pelvic floor dysfunction and therefore made a selection we thought would fit this

purpose. A factor analysis (principal axis factoring with varimax rotation) on these 22 items resulted in the following coping strategies: Planful and rational actions (4 items, Cronbachs' alpha=0.82), Distancing (4 items, Cronbachs' alpha=0.76), Self-blame (2 items, Cronbachs' alpha=0.63), Wishful thinking (3 items, Cronbachs' alpha=0.75), Emotion expression/seeking social support (3 items, Cronbachs' alpha=0.85), Seeking distraction (2 items, Cronbachs' alpha=0.62) and Avoidance (3 items, Cronbachs' alpha=0.63). The items of each subscale are presented in the appendix. For each coping strategy a score ranging from 0 to 100 was obtained. A higher score indicating a more extensive use of that the coping strategy.

Statistical analysis

Stepwise linear regression analyses were used to determine which variables can be used to predict generic HRQoL, disease-specific HRQoL(IIQ) and depressive symptoms (CES-D). Squared multiple correlations were calculated after each entry of a new factor into the model. All variables were entered in one block. Factors included as independent variables in the models were age, educational level, PFD total score and coping strategies.

Standardized regression coefficients were calculated for each variable that explained a significant proportion of the different HRQoL scale variations. This allowed us to study the strength and direction of the effect.

All data analysis were performed with the statistical package SPSS 10.0.

Results

The baseline characteristics of the study population are presented in Table 1. Only 9.5% of the women did not report any symptoms on the UDI and DDI. Of the remaining 1848 women a total of 1057 (57.2%) answered the questions of the IIQ and coping. From the group of women with 1 to 5 positive symptoms on the UDI and DDI, 36.8% answered the IIQ and coping questions. For the group of women with 6 to 10 positive symptoms this was 69.3%, for the group of women with 11 to 15 positive symptoms 86.1%, and for the group

of women with more than 15 symptoms 98.9%.

Table 1 Characteristics of the study population.

Age (years)	46.5 (13.1)
Age distribution	
20-29 years	233 (11.4)
30-39 years	443 (21.6)
40-49 years	465 (22.7)
50-59 years	501 (24.5)
60-70 years	400 (19.8)
Parity	
0	581 (28.5)
1	241 (15.6)
2	708 (27.9)
≥3	512 (14.8)
Educational level	
Primary only (low level)	439 (21.5)
Secondary or higher (high level)	1603 (78.5)
Marital status	
Married	1359 (66.6)
Divorced	145 (7.1)
Widow	98 (4.8)
Never been married	440 (21.5)
Positive symptoms on UDI and DDI	
0	194 (9.5)
1-5	925 (45.3)
6-10	586 (28.7)
11-15	249 (12.2)
>15	88 (4.3)

Values are expressed as means (SD) or numbers (%)

The results of the stepwise linear regression analyses are presented in Table 2, 3 and 4. Table 2 shows the results for the disease-specific HRQoL as measured with the IIQ.

The PFD score explained the largest proportion (33%) of the total variance (42%) of the model. The coping strategies Avoidance, Wishful thinking, Seeking distraction, Planful/rational actions and Distancing explained an additional 8 % of the total variance of the IIQ.

The strength and direction of the effect of coping strategies on the IIQ score are shown in Table 2. The educational level explained the final 1% of the total explained variance of the IIQ.

Table 2. Factors associated with the Incontinence Impact Questionnaire total score.

	Standardized regression coefficient	R Square
Pelvic floor distress score	0.453	0.33
Avoidance*	0.152	0.38
Wishful thinking*	0.134	0.39
Educational level	-0.094	0.40
Distraction*	0.127	0.41
Planful/rational action*	-0.080	0.42
Distancing*	-0.066	0.42

Stepwise linear regression analysis. Only factors significantly ($p<0.05$) associated are shown

* Coping strategy

Table 3. Factors associated with General HRQoL.

	Standardized regression coefficient	R Square
Pelvic floor distress score	-0.264	0.10
Wishful thinking*	-0.214	0.12
Planful/rational action*	0.149	0.14

Stepwise linear regression analysis. Only factors significantly ($p<0.05$) associated are shown

* Coping strategy

In Table 3 the results for the general HRQoL score are shown.

A total of 14% of the variance of the general HRQoL was explained by the model. Ten percent was explained by the PFD and an additional 4% by two coping strategies. Note the strength of effect of the two coping strategies and the PFD and also the difference in direction of the effect between the coping strategies Wishful thinking and Planful actions.

Table 4. Factors associated with the CES-D total score.

	Standardized regression coefficient	R Square
Pelvic floor distress score	0.279	0.10
Age	-0.180	0.12
Seeking distraction*	0.106	0.14
Self-blame*	0.068	0.14
Emotional expression/seeking support*	-0.110	0.15
Wishful thinking*	0.086	0.15

Stepwise linear regression. Only factors significantly ($p<0.05$) associated are shown

* Coping strategy

Finally, in Table 4 the results for depressive symptoms are shown. Again, the largest proportion of variance was explained by the PFD (10%) and only 3% by coping strategies. Age explained 2 % of variance. Again, notice the direction and strength of effect of the different coping strategies on depressive symptoms.

The association between coping strategies and educational level is shown in Table 5. Lower educated women more extensively used Avoidance coping as compared to higher educated women. The opposite is true for the coping strategy Planful rational actions.

Table 5. Educational level and coping strategies in women with pelvic floor dysfunction.

	Low educated n=218	**Higher educated** n=839	**P-value***
Planful and rational actions	55.0 (1.7)	61.7 (0.8)	0.0001
Emotion expression/seeking social support	44.6 (1.6)	48.1 (0.8)	0.05
Distancing	43.0 (1.9)	44.6 (0.9)	NS
Wishful thinking	50.0 (1.4)	47.1 (0.7)	0.05
Avoidance	41.0 (1.4)	35.8 (0.6)	0.001
Distraction	45.1 (1.5)	46.2 (0.8)	NS
Self-blame	36.8 (1.4)	36.8 (0.7)	NS

Values are mean (standard error of mean)

* Students T-test. P-values adjusted for unequal variances when appropriate.

Discussion

Our study shows that, when measuring HRQoL in women with symptoms of pelvic floor dysfunction, the severity score of these symptoms (PFD score) explained most of the variance in HRQoL, regardless if this is expressed in general, disease-specific or emotional terms. Coping strategies explained a reasonable extra proportion of the variance of the IIQ (8%) but only a small proportion of the variance of the RAND-36 or depressive symptoms (CES-D). When using a generic HRQoL outcome measure, the strength of the negative effect of the severity of pelvic floor symptoms (PFD score) is the same as the strength of the negative effect of the coping strategy Wishful thinking, and almost twice the strength of the positive effect of the coping strategy Planful/rational actions. This implicates that women with the same PFD score may have a marked difference in generic HRQoL score, depending on the strength and direction of the coping strategies they apply to the situation. Without knowledge about these coping strategies, the true effect of pelvic floor symptoms on generic quality of life is difficult to express. The same is true for the assessment of HRQoL with an disease-specific instrument like the IIQ. Of the total 42% of explained variance in the model,

approximately 8% is explained by coping strategies. When looking at the direction of the effects (positive or negative), women who more express the coping strategies Planful/rational actions and Distancing will have a lower IIQ score (better HRQoL!) as compared to women in whom these strategies are less expressed.

The concept of coping is a complex one and there is a lot of discussion about which factors determine coping strategies and what the effects of coping strategies on well-being are.[23] Although there are several definitions for coping, the most commonly used is the one by Lazarus and co-workers who describe coping as "constantly changing cognitive and behavioural efforts to manage the specific external and internal demands that are appraised as taxing or exceeding the resources of the person".[16] Several important issues are incorporated in this definition. First, "constantly changing" implies that coping strategies are flexible. Depending on the nature, severity and stage of the disease coping strategies may differ. Life-threatening diseases, such as cancer or heart diseases, call for a more problem oriented coping strategy as compared to non life-threatening diseases like diabetes that do not cause the same amount of alarm.[23] With progression of disease, for instance the progression of breast cancer, coping strategies have been reported to change from problem-oriented to more emotional-oriented.[24] Our results show that there is a clinical and statistical significant positive correlation between increasing severity of symptoms (Higher IIQ score) and emotion-oriented avoiding coping strategies (Avoidance and Wishful thinking). However, this does not mean these emotion-oriented, avoiding coping strategies in severe pelvic floor dysfunction have to be always interpreted as inadequate ways of coping. If the situation is appraised as one in which nothing useful can be done to change the situation, rational problem-solving efforts can be counterproductive and emotion-oriented or avoiding coping strategies may be the best choice.[25-27] A second important issue in the definition of coping by Lazarus and co-workers is that it emphasises the importance of personal resources. This has lead some researchers to explore the relationship between coping strategies and personality characteristics. Coping strategies postulated to be functional were shown to be linked to personal qualities that are widely regarded as beneficial (like optimism

and self-esteem) and inversely associated with less beneficial qualities (pessimism).[28,29] We did not measure personality characteristics but we were informed about the educational level of the women. We showed that low educated women more frequently used Avoidance coping strategy as compared to higher educated women. The opposite was found for the coping strategy Planful rational actions, which was more expressed in higher educated women. Besides, a nearly significant difference was found in the coping strategies Wishful thinking (more expressed in lower educated women) and Emotion expression/seeking social support (more expressed in higher educated women). Apparently a low educational level predisposes to the use of avoiding, emotion-oriented coping strategies in women with pelvic floor dysfunction. Since we have shown that these coping strategies have a negative effect on HRQoL, lower educated women are more likely to experience greater negative impact of pelvic floor symptoms on their quality of life. We could clearly demonstrate this effect with the disease-specific IIQ, but not with a generic HRQoL questionnaire or depressive symptoms. However, these findings have to be interpreted carefully because we also showed that the strength of effect of beneficial coping strategies ("Planful rational actions" and "Distancing") was almost half that of non-beneficial coping strategies ("Avoidance" and "Wishful thinking"). This implicates that the value of coping in women with pelvic floor dysfunction is not so much in raising the level of well-being but in the prevention of a worse situation. This difference between the strength of effect of beneficial and non-beneficial coping strategies has been reported before.[30]

A point of concern of our study is the fact that only 57.2% of women with at least one PFD symptom present answered the questions of the IIQ. There was a clear relationship between the number of reported symptoms on the PFD and the willingness to fill in the IIQ questionnaire. We believe that women with few symptoms were less likely to feel bothered by these symptoms and therefore decided to skip the IIQ questions in the questionnaire. However, since the IIQ is intended to measure bothersomeness of pelvic floor dysfunction on different aspects of HRQoL we do not believe that our results are effected by the response rate.

In this study we could clarify which coping strategies are most helpful in women with pelvic floor dysfunction in the general female community. The next question would be whether the use of more beneficial coping strategies can be encouraged in women with pelvic floor dysfunction symptoms. Clearly, our study design (random, anonymous, population sample) was not suitable to answer such a question. However, it is most likely that the flexible use of coping strategies in different situations by the same individuals makes it possible to encourage the use of specific strategies in specific situations. Recently, a study by van Dulman and co-workers demonstrated that cognitive-behavioural therapy for irritable bowel syndrome increased the number of successful coping strategies and decreased patient's avoidance behaviour.[31] Although the beneficial effect of behavioural therapy in urinary incontinence is well established[32], it has not been evaluated how much of the success can be contributed to changing coping strategies.

In conclusion, the effects of coping strategies on HRQoL in women with symptoms of pelvic floor dysfunction can be substantial, especially when HRQoL is measured in general terms. If these effects of coping strategies are not accounted for in treatment outcome analysis, the true value of the effect of the intervention may be obscured. This can be especially bothersome in non-randomised studies that compare the effectiveness of different treatments. Low educated women with pelvic floor symptoms more frequently use emotion-oriented, passive coping strategies as compared to higher educated women. These coping strategies were shown to be positively correlated with a worse HRQoL. Therefore, screening for coping strategies and educational level can be of importance in selecting women with pelvic floor dysfunction that may benefit from behavioural therapy. This may be especially true for women with relatively mild objective symptoms.

Appendix. Questions used in the assessment of coping strategies with corresponding scale

Planful and rational actions

I think about how to handle the problem

I take direct action to get around the problem

I concentrate my efforts in doing something about it

I prepare myself for new situations in order not to get into problems

Expression of emotion/seeking social support

I try to get advise about what to do from someone I trust

I talk to someone about how I feel

I discuss my feelings with someone

Distancing

I accept that this has happened and that it can't be changed

I learn to live with it

I just wait and see what will happen

I accept the reality of the fact that it has happened

Wishful thinking

I feel unhappy because I can't get around the problem

I wish the problem was over

I wish I could have prevented what has happened

Avoidance

I try to avoid situations that can get me into trouble

I try to avoid contact with people who are unaware of my problems

I avoid social contacts

Distraction

I try to get distraction

I try to think about other things not related to the problem

Self-blame

I blame myself for what has happened

I criticize myself

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