PSYCHOLOGY, PSYCHIATRY, IMAGING & BRAIN NEUROSCIENCE SECTION

The Effects of a Life Stress Emotional Awareness and Expression Interview for Women with Chronic Urogenital Pain: A Randomized Controlled Trial

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Abstract

Objective. Women with chronic urogenital pain (CUP) conditions have elevated rates of lifetime trauma, relational stress, and emotional conflicts, but directly assessing and treating psychological stress is rarely done in women's health care settings. We developed and tested the effects on patients' somatic and psychological symptoms of a life stress interview that encourages disclosure about stressors and uses experiential techniques to increase awareness of links between stress, emotions, and symptoms. **Methods.** In this randomized trial, women with CUP recruited at a multidisciplinary women's urology center received either a single 90-minute life stress interview (N = 37) or no interview (treatment-as-usual control; N = 25). Self-report measures of pain severity (primary outcome), pain interference, pelvic floor symptoms, and psychological symptoms (anxiety and depression) were completed at baseline and six-week follow-up. **Results.** Differences between the life stress interview and control conditions at follow-up were tested with analyses of covariance, controlling for baseline level of the outcome and baseline depression. Compared with the control condition, the interview resulted in significantly lower pain severity and pelvic floor symptoms, but the interview had no effect on pain interference or psychological symptoms. **Conclusions.** An intensive life stress emotional awareness expression interview improved physical but not psychological symptoms among women with CUP seen in a tertiary care clinic. This study suggests that targeting stress and avoided emotions and linking them to symptoms may be beneficial for this complex group of patients.

Key Words: Women's Health; Chronic Urogenital Pain; Clinical Trial; Emotional Disclosure; Emotional Awareness and Expression; Stress; Interview

Introduction

Chronic urogenital pain (CUP) is an umbrella term that encompasses disorders such as interstitial cystitis, pelvic floor dysfunction, and dyspareunia. These conditions

typically involve pain, pressure, and physical and sexual dysfunction, and they are common—affecting nearly one in seven women in the United States. Women with CUP have elevated anxiety and depression, stemming not only

from having a painful and socially stigmatized condition, but also from psychosocial histories that may include trauma, abuse, or victimization. Almost half of women with CUP report physical, sexual, or emotional abuse at some point in their lives [1–5]. There are no data on the prevalence of other psychological, interpersonal, or emotional conflicts in women with CUP in the absence of trauma or abuse; however, clinical observations of these patients and women who have overlapping conditions such as fibromyalgia suggest that emotional conflicts related to rejecting or neglectful parents, excessive family demands, and perfectionism are quite common. Both theory and research suggest that unresolved trauma and emotional conflicts can trigger or exacerbate urogenital pain and other symptoms [6,7], likely through multiple pathways including activating the brain pain matrix, increasing peripheral muscle tension, enhancing a somatic or bodily focus, and motivating complaints of physical symptoms to health care providers [8,9]. For example, interpersonal rejection activates the same neural pathways as pain, further implicating negative emotions in the experience of somatic symptoms [10,11].

Despite the key role played by life stress, conflict, and emotional processes in CUP, clinicians rarely assess and treat these factors in health care settings. Medical providers focus on medication, physical therapy, and surgery. When mental health clinicians are involved, the focus tends to be on assessing and treating anxiety and depression and enhancing motivation for symptom self-management, particularly through skills training. Patients' emotional struggles, particularly those that are stigmatized, shameful, or secretive, are too often ignored, potentially adding to patients' emotional burden and augmenting or maintaining their pain and other symptoms.

The most commonly practiced psychosocial framework for assessing and treating somatic symptom disorders such as CUP is cognitive behavioral [12]. In contrast, emotion-focused approaches emphasize the importance of examining unresolved trauma and conflicts, encouraging emotional disclosure, and facilitating the experience and expression of avoided or suppressed emotions [6,13,14]. Such emotion-focused models suggest the potential value of an assessment that seeks to increase patients' awareness of how their stress, negative emotions, and psychological conflicts might influence their urogenital symptoms. Because the failure to engage in emotional awareness, experience, and expression appears to propagate both mental and physical symptoms associated with trauma and conflict [6,8,9,14], the use of experiential techniques to enhance emotional awareness and expression might be an effective way to reduce physical and psychological symptoms in women with CUP. Indeed, research has found that therapies that activate avoided emotions associated with trauma or conflict, such as short-term intensive psychodynamic therapy [6], trauma-focused psychotherapy [15], and emotional awareness and expression therapy [16,17], decrease pain

and other somatic symptoms and improve functioning and quality of life.

We developed an intensive interview that targeted patients' life stress with the goal of emotional awareness and expression and tested it among women with CUP in a women's urology clinic. In a randomized trial, we compared this novel interview with a treatment-as-usual control condition to determine the interview's effects on three key pain-related outcome domains: a) pain severity and pelvic symptoms; b) pain interference; and c) psychological symptoms of anxiety and depression. We hypothesized that women in the interview condition would show more improvements in these outcomes than control women.

Methods

Participants

We recruited women diagnosed with CUP conditions who were receiving care at a multidisciplinary women's urology center. Women were included if they had a primary urogenital pain disorder (e.g., interstitial cystitis, pelvic floor dysfunction, or dyspareunia) and were 18 to 80 years old. Patients were excluded if they: a) had a current psychotic disorder; b) were cognitively impaired or had dementia; c) were unable to communicate or read in English; or d) were deemed too psychiatrically unstable by their clinician to meaningfully participate.

Procedure

The study was approved by the Beaumont Health System and Wayne State University Institutional Review Boards and was conducted in accordance with the Declaration of Helsinki. The trial was registered on clinicaltrials.gov (NCT02286115) before recruitment, which ran from September 2014 to December 2015, with follow-ups completed by January 2016. Medical providers at the urology center identified potential participants during routine visits and informed the researcher, who further screened them for eligibility. Eligible and interested patients provided written informed consent and were given a link to a secure website (or paper forms if needed), on which they completed baseline measures from home. After baseline measures were completed, participants were telephoned and asked if they were still interested in participating. If so, the researcher opened a sealed randomization document and informed the patient of her assignment. Before trial recruitment, the randomization schedule was created by an independent investigator using the website randomization.com. Patients were assigned to the interview or control condition in a 2:1 ratio to provide a larger sample of interview patients for later interview content analyses. Randomization was stratified by interviewer and conducted in randomized blocks of three or six. Both researcher and patient were blinded to condition through the baseline assessment.

Those patients randomized to the interview condition returned to the urology center as soon as possible after randomization to receive the interview (which occurred a mean of 10.7 days after randomization). The follow-up assessment was scheduled for six weeks after randomization for patients in both conditions (and actually occurred at a mean of 57.9 and 57.7 days after randomization for the interview and control conditions, respectively, or about 6.5 weeks after the interview). All patients continued their usual medical, behavioral, or psychiatric care throughout the trial, and patients were paid for their time.

Life Stress Emotional Awareness and Expression Interview

One of two trained interviewers (female doctoral students in clinical psychology) conducted the 90-minute patient interviews, which were audio-recorded for supervision by a licensed clinical psychologist. The goal of the interview was to provide patients with a greater awareness of their physical and psychological health throughout their lives and the role stress has played in their health and urogenital symptoms. The interview consisted of four phases:

1. The first phase (~10–15 minutes) involved obtaining a life course history of health and physical symptoms. Patients described any significant medical conditions they had experienced throughout their lives, including major illnesses, surgeries, and chronic diseases. Interviewers took notes by creating a visual timeline or graph of the patient's medical history over their lives.
2. In the second phase (~30 minutes), patients added to their graphic timeline any stressful or traumatic life experiences, including a general description of the nature of their childhood, relationships with important people in their lives (e.g., parents, siblings, and romantic partners), and their internal struggles. Patients were also specifically asked if they had had traumatic experiences, including neglect or physical and/or sexual abuse. Throughout this portion of the interview, links between stressors and physical health issues reported in phase 1 were pointed out to the patient.
3. The third phase (~30 minutes) was an experiential component during which patients were asked to try to express two important relational emotions or needs: a) empowerment/autonomy, including anger, and b) connection/caring, including sadness, love, and healthy guilt. Patients were encouraged to express these emotions toward key people in their lives with whom they had a conflictual relationship (identified in phase 2 of the interview) as if the other person were present (i.e., to an empty chair). The interviewer coached patients to make their expression of these key emotions as complete and genuine as possible, including tone of voice, posture, and language. Several times during the interview, patients explored their current physical symptoms, noting how changes in symptoms might reflect their engagement with or avoidance of important emotions.
4. In the final phase (~10–15 minutes), patients explored what they learned about themselves during the interview, and the

interviewer gave them a summary of their strengths and weaknesses, including issues to consider addressing further. They were also provided with a handout describing the relationship between emotions, emotional suppression, and health, as well as ways to express their emotions both privately and in important relationships to reduce their physical symptoms.

Control Condition

Patients assigned to this condition engaged only in treatment as usual.

Measures

Pain Severity and Pain Interference

These two constructs were assessed with the Brief Pain Inventory [18]. Pain severity was the trial's primary outcome and was assessed with the rather than a four-item subscale: current pain, as well as highest, lowest, and average pain over the past week, which were rated from 0 to 10 and averaged. This subscale had good internal consistency at baseline ($\alpha = 0.87$) and follow-up ($\alpha = 0.90$) in this sample. Pain interference was assessed with seven items, which were rated from 0 to 10 and averaged. This subscale had excellent internal consistency at baseline ($\alpha = 0.94$) and follow-up ($\alpha = 0.94$).

Pelvic Floor Symptoms

This was measured using the Pelvic Floor Distress Inventory–Short Form–20 [19], a 20-item measure that examines pelvic floor disorder symptoms in three domains: pelvic organ prolapse (e.g., “heaviness or dullness in the lower abdomen”), colorectal–anal (e.g., “need to strain too hard to have a bowel movement”), and urinary (e.g., “urine leakage related to laughing, coughing, or sneezing”). Patients indicated which symptoms they had experienced, and they rated each symptom for how much it bothered them, from 1 (not at all) to 4 (quite a bit). Ratings were totaled; higher scores indicate more bothersome pelvic floor symptoms. For the current study, reliability was good at baseline (total $\alpha = 0.85$) and follow-up (total $\alpha = 0.85$).

Depression and Anxiety Symptoms

These were assessed with the Brief Symptom Inventory–18, [20], which assesses symptoms during the past seven days. Items assessing typical depressive symptoms (e.g., “feeling no interest in things”) and anxiety symptoms (e.g., “feeling tense or keyed up”) were rated from 0 (not at all) to 4 (severely) and averaged for each scale; higher scores indicate more symptoms. Reliability was good for each subscale at baseline (depression $\alpha = 0.91$, anxiety $\alpha = 0.85$) and follow-up (depression $\alpha = 0.90$, anxiety $\alpha = 0.81$).

Statistical Analyses

Data were analyzed using SPSS 22. A power analysis (G-Power 3.1) indicated that a total sample size of 61 would

yield 70% power to detect an effect estimated at medium to large (based on prior studies [21,22]) when the interview was compared with control using analysis of covariance (ANCOVA) with a two-tailed alpha of 0.05. Distributions of outcome measures were examined and found to be acceptable for parametric analyses. To accomplish intent-to-treat outcome analyses, any missing outcome values were replaced by the patient's baseline value. Primary analyses of outcomes were conducted using ANCOVAs to compare the two conditions on each outcome, controlling for the baseline level of the outcome measure as well as baseline depression symptoms (discussed below). Between-condition effect sizes were calculated as partial eta squared (variance accounted for by condition, beyond effect of covariates); values of 0.01, 0.06, and 0.14 are considered small, medium, and large, respectively. To clarify how each condition alone changed over time, paired-samples *t* tests were conducted, and within-condition effect sizes were calculated in standard deviation units: $d = (\text{follow-up } M - \text{baseline } M) / \text{SD of change scores}$. All significance tests were two-tailed, with an alpha of 0.05.

Results

As shown in Figure 1, a total of 106 patients were screened, and 70 were randomized. Eight patients assigned to the interview condition, however, did not receive the interview: four could not be contacted to schedule it, three had no time to participate, and one's health had deteriorated too much to participate. These eight participants were excluded from analyses, consistent with the approach used by Thorn et al. [23]. Thus, 37 patients comprised the interview condition, and they all completed the follow-up assessment. There were 25 control patients; all but four completed follow-up measures. The four patients missing follow-up data did not differ from the 58 patients with follow-up data on any baseline measure or demographic variables. As shown in Table 1, the 62 patients of the analyzed sample averaged 45 years old, were primarily Caucasian and relatively well educated, and more than half (58.9%) were married or in a committed relationship.

Baseline Differences Between Conditions

Interview and control conditions were compared on baseline and demographic variables. There were no significant differences between conditions on demographic variables; however, by chance, the control condition had higher baseline pain interference ($t(60) = -2.88$, $P = 0.006$) and depression ($t(60) = -2.87$, $P = 0.006$) than the interview condition. Baseline depression was positively correlated with pain interference ($r = 0.51$, $P < 0.001$), and after controlling for baseline depression, differences between the two conditions on pain interference were eliminated. Thus, we controlled for both baseline

depression and the baseline of the outcome measure in subsequent ANCOVAs, but no other baseline measures needed to be controlled. Note that, as expected, all five outcome measures were positively correlated with each other at baseline. Correlations ranged from large ($r = 0.70$ between depression and anxiety, and $r = 0.60$ between pain severity and interference) to small ($r = 0.17$ and $r = 0.18$ between pain severity and anxiety and depression, respectively). Pelvic floor distress correlated from $r = 0.22$ to $r = 0.47$ with the other four outcomes.

Primary Analyses

Table 2 presents baseline and outcome data for each condition, adjusted follow-up means, the results of the ANCOVAs, and effect sizes. Pain severity was significantly lower at follow-up in the interview condition than the control condition ($F(1, 58) = 4.52$, $P = 0.038$), with a medium effect size. Within the interview condition, there was a nonsignificant decrease in pain over time, whereas among controls, there was a nonsignificant increase in pain.

Pelvic floor symptoms were significantly lower at follow-up for the interview condition than the control condition ($F(1, 58) = 8.01$, $P = 0.006$), with a large effect size. The interview condition had a significant reduction in pelvic floor symptoms over time ($t(36) = 2.95$, $P = 0.006$), but controls did not change ($t(24) = 0.09$, $P = 0.93$).

Finally, the two conditions did not differ at follow-up on pain interference ($F(1, 58) = 1.02$, $P = 0.62$), anxiety symptoms ($F(1, 58) = 0.30$, $P = 0.59$), or depression symptoms ($F(1, 59) = 0.20$, $P = 0.66$).

Discussion

This clinical trial tested the effects of a single 90-minute life stress emotional awareness and expression interview on somatic and psychological symptoms among women with CUP. We found that the interview led to lower pain severity and lower pelvic floor symptoms at six-week follow-up, compared with a treatment-as-usual control condition. The interview, however, had no effect on pain interference or the psychological symptoms of depression or anxiety.

Our finding that the emotion-focused life stress interview reduced somatic symptoms is consistent with several other studies of similar psychological interventions that our group has conducted. In an uncontrolled case series, we found that emotional awareness and reattribution therapy substantially reduced musculoskeletal pain [21], and a controlled trial of that therapy improved fibromyalgia [22]. In another controlled trial, we showed that three sessions of emotional awareness and expression training improved irritable bowel syndrome [16]. We also recently demonstrated that emotional awareness and expression therapy (EAET) delivered in a group

Figure 1. Flow of patients through the trial.

Table 1. Demographics and medical background of full sample and two conditions

	Full Sample (N = 62)	Interview Condition (N = 37)	Control Condition (N = 25)
Age, M (SD), y	46.03 (15.10)	44.89 (15.34)	47.72 (14.88)
Duration of pelvic symptoms, M (SD), y	7.93 (9.66)	8.33 (10.29)	7.36 (8.83)
Race, %			
Caucasian	87.1	91.9	80.0
African American	8.1	5.4	12.0
Other	4.8	2.7	8.0
Education, %			
Less than high school	1.6	0.0	4.0
High school or GED	11.3	13.5	8.0
Some college	30.6	35.1	24.0
Bachelor's	29.0	21.6	40.0
Master's	24.2	24.3	24.0
Doctoral	3.2	5.4	0.0
Relationship status, %			
Married/partnered	58.1	56.7	60.0
Widowed	6.5	8.1	4.0
Divorced	16.1	13.5	20.0
Never married	17.7	21.6	12.0

Table 2. Effects of interview vs treatment-as-usual control condition on outcomes from baseline to six-week follow-up

	Interview Condition (N = 37)		Control Condition (N = 25)		Condition Effect	
	M (SD)	d _{within}	M (SD)	d _{within}	F	Partial η^2
Pain severity						
Baseline, M (SD)	3.87 (2.03)		4.24 (1.65)			
Follow-up, M (SD)	3.30 (2.24)	−0.29	4.51 (1.61)	0.15		
Adjusted follow-up, M (SE)	3.42 (0.26)		4.33 (0.32)		4.52*	0.07
Pain interference						
Baseline, M (SD)	3.85 (2.47)		5.92 (3.19)			
Follow-up, M (SD)	3.31 (2.50)	−0.26	4.84 (2.72)	−0.45		
Adjusted follow-up, M (SE)	3.81 (0.34)		4.01 (0.42)		0.26	0.004
Pelvic floor symptoms						
Baseline, M (SD)	20.37 (12.48)		27.63 (14.24)			
Follow-up, M (SD)	15.86 (11.69)	−0.48**	27.46 (15.20)	−0.02		
Adjusted follow-up, M (SE)	17.74 (1.49)		24.67 (1.84)		8.01**	0.12
Depression symptoms						
Baseline, M (SD)	0.61 (0.76)		1.27 (1.05)			
Follow-up, M (SD)	0.64 (0.73)	0.04	1.04 (1.03)	−0.36		
Adjusted follow-up, M (SE)	0.83 (0.10)		0.75 (0.12)		0.20	0.003
Anxiety symptoms						
Baseline, M (SD)	0.79 (0.77)		1.18 (0.87)			
Follow-up, M (SD)	0.72 (0.67)	−0.15	1.05 (0.87)	−0.20		
Adjusted follow-up, M (SE)	0.82 (0.09)		0.90 (0.11)		0.30	0.01

Adjusted follow-up M (SE) from analyses of covariance comparing conditions, controlling for baseline depression symptoms and baseline of the outcome measure.

d within-condition = (follow-up M – baseline M)/SD of the change scores.

* $P < 0.05$;

** $P < 0.01$.

format for eight sessions improved pain and other outcomes, compared with education, among women with fibromyalgia, and EAET was superior to cognitive behavioral therapy on several pain-related outcomes [17]. Our research is supported by studies conducted by others. Intensive short-term psychodynamic psychotherapies—and specifically those therapies that elicit greater emotional experiencing—have been found to improve the health of patients with somatic symptom disorders [6], as have other trauma-focused therapies for patients with chronic pain [15].

The current study found that reductions in pain and pelvic floor symptoms can be achieved after only a single, 90-minute session, suggesting that improvement in CUP symptoms can occur more rapidly than might be expected and does not necessarily require long-term psychological intervention. This conclusion is supported by that of a separate trial with the same design that we recently conducted, which found that the life stress emotional awareness and expression interview reduced pain and improved other health indices in family medicine patients who had medically unexplained, usually pain-related symptoms [24]. Moreover, our findings are consistent with those from a large cohort of patients who had a single-session trial interview of intensive short-term dynamic psychotherapy; the interview reduced symptoms and interpersonal problems, and the effects were strongest for patients who had a major “unlocking

of the unconscious,” as indicated by a high level of emotional activation and reduction in defensiveness against both anger and emotional closeness [25].

What are the mechanisms by which such an interview achieves its benefits? We suspect that several processes are involved. First, the interview attempted to shift patients’ attributions for their pain from peripheral tissues to the central nervous system; that is, the interview sought to help patients re-interpret or re-appraise their pain as stemming, at least in part, from brain-based cognitive and emotional processes, rather than solely from peripheral tissue damage. This re-interpretation of pain as nonthreatening is thought to reduce the experience of pain, which has been documented in several clinical trials of pain neuroscience education or the “explaining pain” model by Moseley and Butler [26]. Second, the interview encouraged patients to disclose rather than keep private their stressful life experiences. Whereas secrecy or inhibition is generally detrimental to one’s health [27–30], disclosing such experiences has a range of health benefits, such as improved somatic symptoms, immune functioning, and health care utilization [31–33]. Third, the interview sought to elicit the expression of specific emotions related to stressful or conflictual experiences, particularly anger, but also vulnerable emotions such as sadness, guilt, or love. Such emotional expression, even when done in a private and safe venue with an empathic interviewer, is often difficult for patients, who may experience

temporary exacerbations in pain and anxiety in the process. But such expression likely helps patients more clearly acknowledge their own emotional struggles, recognize links between emotions and physical symptoms, and overcome fear of their emotions. Patients occasionally proceed to make healthy changes in troubled interpersonal relationships, which can also reduce stress and improve health.

In contrast to reduced pain and pelvic floor symptoms, the life stress interview did not reduce patients' depression or anxiety. Although some studies have shown that emotion-focused interventions improve psychological and emotional symptoms for patients with medically unexplained illnesses [6,22], a meta-analysis of the effects of written emotional disclosure (expressive writing) among patients with medical illnesses found smaller effects on psychological than physical symptoms [13]. It is possible that our emotionally evocative interview caused some increase in symptoms of anxiety and depression as patients became aware of and acknowledged difficult issues in their lives, as has been found in a study of emotional disclosure in fibromyalgia [34]. Also, some models of somatization suggest that it is the inhibition or denial of negative emotions that drives physical symptoms, so that reversing the process—experiencing and labeling one's negative emotions—might simultaneously decrease one's somatic symptoms but increase consciously recognized and reported negative affect [6,31,32]. Future studies should examine short-term emotional reactions to the interview to test this idea. Another possibility is that improvements in emotional functioning simply take longer to manifest than improvements in somatic symptoms in this population; additional follow-up time periods are needed to examine this hypothesis.

This trial is a promising first step into the relatively uncharted territory of brief, clinic-based techniques that directly target trauma, emotional conflict, and relational problems in patients with chronic pain and related disorders. Yet the study has a number of limitations, suggesting directions for future research. First, the life stress interview was compared only with a treatment-as-usual control condition; however, to test specific processes involved in change and to ensure that results are not due to the demand characteristics of the interview, better controls are needed, such as an active control condition (e.g., an emotionally neutral interview). It also would be valuable to compare this interview with cognitive behavioral or other skills-based brief interventions. Second, the sample size was relatively small, analyses did not control for multiple statistical testing, and symptoms fluctuated in this population; thus, replication on a larger sample is needed to be confident that this intervention can improve pain severity and pelvic floor dysfunction. Third, we acknowledge that the clinical effects of the interview may be limited, in that pain severity decreased only about a half-point (on a 0–10 scale) in the interview condition,

and one point when compared with controls, although effects on pelvic floor symptoms were larger. Fourth, we examined only self-reported outcomes, and it would be ideal to determine the interview's effects on more objective measures such as medication use, stress hormones, and experimental pain testing. Fifth, this study examined only women with CUP conditions, so the results may not generalize to other medical conditions or men. We suspect, however, that patients with other “centralized” or “functional” conditions (e.g., irritable bowel syndrome, tension-type or migraine headaches, fibromyalgia, temporomandibular disorder), all of which are linked to elevated post-traumatic stress and psychosocial adversity [35], will also benefit from this approach. Sixth, women with CUP are heterogeneous with respect to histories of trauma or emotional conflict [36], and like written emotional disclosure [37], it is likely that this interview will be useful only for some women. Because we sought to minimize patient burden, we did not collect data on patients' trauma histories or emotional conflicts, which could have been tested as moderators of the interview's effects. Finally, we also did not assess possible mediators, such as changes in attributions, emotions, interpersonal relations, or sleep quality, which could have linked the interview to symptom reductions. Thus, ideas about mechanisms remain speculative and await further study.

Conclusions

Currently, cognitive behavioral and mindfulness techniques appear to be the most commonly recommended and used approaches for patients with chronic pain disorders. Results from this study, however, in conjunction with support from numerous other studies [6,13,15–17,21,22,24,25,33,34,38], provide evidence that emotion-focused and experientially based techniques may also be effective for various chronic pain conditions. Targeting and resolving the underlying emotional and relational problems that appear to contribute to somatic symptoms in some patients may lead to meaningful and enduring benefits for these patients. Future studies are needed to examine how emotion-focused interventions compare with cognitive behavioral techniques and the duration of effects over time. Yet, we believe that now is the time for clinicians to attend to the emotional issues of these patients, and one option may be conducting a relatively brief emotional awareness and expression interview.

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