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Danish version of the National Institutes of Health - Chronic Prostatitis Symptom Index (NIH-CPSI) questionnaire: a linguistic translation, cross-cultural adaptation, and test-retest reliability study

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Danish version of the National Institutes of Health - Chronic Prostatitis Symptom Index (NIH-CPSI) questionnaire: a linguistic translation, cross-cultural adaptation, and test-retest reliability study

**Objective:** To translate and cross-culturally adapt the National Institutes of Health - Chronic Prostatitis Symptom Index (NIH-CPSI) into Danish and assess the reliability of the translated version.

**Methods:** The NIH-CPSI was translated into Danish by a formalized translation procedure. Study participants suffering from Chronic Prostatitis/Chronic Pelvic Pain Syndrome (CP/CPPS) were recruited from a CP/CPPS newsletter email-list. The translated questionnaire was tested for face validity by interviewing men (n=7) suffering from CP/CPPS. Relative reliability (interclass correlations coefficient - ICC) and absolute reliability (minimal detectable change – MDC; and standard error of measurement - SEM) was assessed on an electronic version of the Danish NIH-CPSI, including a general response assessment of symptom stability at the second assessment.

**Results:** 129 men volunteered for the test-retest study, 43 did not fit the eligibility criteria or had incomplete tests, 27 was excluded due to symptom changes between test and retest, leaving 59 participants for the reliability study. The relative reliability for the total NIH-CPSI score was found to be an excellent ICC of 0.93 (95% CI 0.91-0.96). The absolute reliability for the total NIH-CPSI score revealed an MDC of 5.0 and a SEM of 1.8 corresponding to 12% and 4% respectively of the maximal obtainable NIH-CPSI score.

**Conclusion:** The NIH-CPSI questionnaire was successfully translated and cross culturally adapted into a Danish version. An electronic version of the Danish NIH-CPSI showed excellent reliability. The questionnaire is suitable for use as an outcome measure in research studies and may also be a useful tool in the clinical setting.

**Keywords:** pelvic pain; chronic prostatitis: questionnaire; reliability; NIH-CPSI
Introduction

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is a common complex pain syndrome among men with a prevalence around 8% among men aged 20 – 79 years.\textsuperscript{1} CP/CPPS is defined as chronic pelvic pain not caused by other identifiable pathologies, and is often described as having genital pain, ejaculatory pain, abdominal pain, lower urinary tract symptoms and erectile dysfunction.\textsuperscript{2,3} CP/CPPS is typically diagnosed by excluding other diagnoses such as urinary tract infection, cancer, anatomic abnormalities, or neurologic disorders.\textsuperscript{3} The etiology of CP/CPPS is often unknown but a wide range of potential triggers such as inflammation, infection, sexually transmitted disease, psychological factors, and muscle tension in the pelvic region have been identified.\textsuperscript{3,4} Treatment of patients with CP/CPPS remain a challenge due to the diverse clinical signs, complex etiology and poor response to monotherapies.\textsuperscript{2} Multimodal treatments such as cognitive behavioral therapy (CBT), pelvic floor physical therapy and ‘pain education’ are recommended in several guidelines, including The European Association of Urology (EAU) guidelines on chronic pelvic pain.\textsuperscript{5} However, these treatments are sparsely investigated in randomized controlled trials, therefore further investigations are warranted in order to offer better treatment options for men with CP/CPPS.\textsuperscript{6-9} To further investigate multimodal treatments a measuring tool is needed. The self-administered questionnaire The National Institutes of Health - Chronic Prostatitis Symptom Index (NIH-CPSI) was developed and published by Litwin and co-workers in 1999.\textsuperscript{10,11} The NIH-CPSI is designed to assess patient reported symptoms in patients with CP/CPPS and contain three domains: pain (8 items), urinary symptoms (2 items), and quality of life (3 items). The maximum score of the thirteen items of the NIH-CPSI is 43.\textsuperscript{12,13} The questionnaire has been translated into several languages\textsuperscript{14-18} and proven to
be a useful psychometric tool for research on male patients with pelvic pain with good psychometric properties (i.e. validity, reliability, and responsiveness).\textsuperscript{10,19,20}

Currently, no Danish version of the NIH-CPSI exist. Therefore, the objective of this study was to translate and cross-culturally adapt the NIH-CPSI into Danish and assess the reliability of an electronic version of the translated questionnaire.

**Materials and methods**

**Study design**

A translation and cross-cultural adaptation of the NIH-CPSI was performed by following at formalized linguistic translation procedure recommended by Beaton et al.\textsuperscript{21}

The translated version was tested for face validity by interviews of 7 participants. Subsequently an electronic version of the Danish NIH-CPSI was tested on 59 participants for test-retest reliability. The Cosmin Checklist was used as a guideline\textsuperscript{22}.

For a graphical overview of the study design for cross-cultural translation of the NIH-CPSI and test-retest reliability of the Danish electronic version of NIH-CPSI please refer to Figure 1.

**Participants**

The Ethical Committee of the Region of Southern Denmark (Project-ID: S-20172000-175) waived the need for ethical approval as the study only pertained self-reported information. All participants provided informed consent for participation in the study.

*Interview participants (step 5 in the translation procedure)*
Recruitment for interviews for the final step of the translation procedure took place at a private physiotherapy clinic treating men with CP/CPPS. The interview was planned at the end of a physiotherapy session.

*Test-retest participants*

For the test-retest study participants were recruited from an e-mail list from a private physiotherapy clinic treating men with CP/CPPS. The participants were introduced to the study in an e-mail newsletter from the physiotherapy clinic, and men interested in the study, volunteered for the study, by registering their e-mail address.

*Inclusion and exclusion criteria*

To ensure that only men with CP/CPPS-like symptoms were included in the test-retest study and for the interviews a number of in- and exclusion criteria had to be fulfilled. The inclusion criteria were: CP/CPPS symptoms for at least 3 months, examined by a urologist and diagnosed by a urologist with one of the following diagnoses: Chronic pelvic pain syndrome; Chronic prostatitis; Unexplainable/unaccountable pain in the pelvic region; Muscle tensions in the pelvic region; Another diagnosis/explanation which can be interpreted as CP/CPPS. Patients were excluded if they were under 18 years of age, had other diagnosis than CP/CPPS requiring treatment or changed their symptom status between test 1 and test 2.

*Linguistic translation and cross-cultural adaptation of the NIH-CPSI questionnaire*

Before starting the translation procedure, permission was obtained to perform a Danish translation and cross-cultural adaptation from the authors of the original NIH-CPSI. The
NIH-CPSI is a self-administered questionnaire with thirteen questions which takes less than five minutes to complete by the patient. A formalized 5 step translation procedure was performed as suggested by Beaton et al.\textsuperscript{21}:

(1) Three separate translations into Danish was completed by a urologist, a physiotherapist, and a naive male translator, who did not have any medical background.

(2) The three Danish translations were discussed between the 3 translators, and any discrepancies were addressed, and a synthesis version was agreed upon in the group.

(3) A backtranslation of the translated synthesis version from step 2, was performed by two independent translators living in Denmark speaking Danish, with American as native language. The 2 translators were not aware of the construct being measured and were not medically trained. The 2 American backtranslations were sent to the authors of the original NIH-CPSI for approval.

(4) An expert committee with all translators, two urologists and a Danish language specialist discussed disagreements with wordings, sentence structures etc. The committee came to an agreement on a pre-final version for pretesting.

(5) The pre-final version of the questionnaire was tested for face validity by a semi-structured interview with male CP/CPPS patients.

\textit{Test-retest reliability of the Danish NIH-CPSI}

\textit{NIH-CPSI - test (test 1) and retest (test 2)}

All participants volunteering to participate received an email with a link to the first questionnaire. The questionnaire contained questions on descriptive characteristics as
well as the final version of the Danish NIH-CPSI. Four days later participants received another email from the study coordinator with a link to the second questionnaire. If the second (retest) questionnaire was not answered within four days, the participant received an email-reminder each day until they replied to the questionnaire or until day 10 (Figure 1).

Global Response Assessment (GRA) for symptom assessment

To ensure symptom stability between test and retest participants were asked to reply to a Global Response Assessment (GRA) question regarding change in symptoms from test to retest. The GRA was included in the retest questionnaire: ‘Compared to the last time you answered this questionnaire, how would you rate your pelvic symptoms now’, with the following response options: ‘markedly worse’, ‘moderately worse’, ‘mildly worse’, ‘no change’, ‘mildly improved’, ‘moderately improved’, and ‘markedly improved’. Only men with “no change” in symptom status from test to retest were included in the assessment of reliability.

Statistics

Paired t-tests were used to examine any systematic difference between test and retest. Relative reliability was assessed by calculating the Interclass Correlation Coefficient (ICC) with 95% Confidence Intervals (CI) based on variance components obtained using a mixed model approach with time (i.e. test and retest) as fixed effect and ID (person) as random effect (3.1).\textsuperscript{23-26} ICC was interpreted as follows: >0.40 = poor, 0.41 to 0.60 moderate, 0.61 to 0.80 substantial agreement and 0.81 to 1.00 almost perfect agreement or excellent reliability.\textsuperscript{24} Absolute reliability was expressed as the Standard Error of Measurement (SEM) calculated as: SEM = SD of the mean difference (SD \textsubscript{diff}) / \sqrt{2} \textsuperscript{24} and the Minimal Detectable Change (MDC) calculated as SEM x 1.96 x \sqrt{2}.\textsuperscript{24,27-29}
Furthermore, SEM and MDC are presented as absolute values and percentages of the maximal obtainable scores (actual score / maximal score x 100). A Bland Altman Plot was generated to provide a visual indication of the absolute reliability. A visual inspection of the Bland-Altman plot was performed to assess funnel effects and systematic bias. Statistical analysis was performed using STATA 14.2 software, and significance levels was set at p<0.05.

**Results**

A total of 129 men volunteered to participate in the study. Of these 112 completed the first questionnaire (test). 26 participants did not fulfill the pre-defined eligibility criteria or did not complete the second questionnaire (retest) and 27 participants experienced symptom changes between test and retest leaving 59 participants for the assessment of reliability (Figure 2).

**Participant characteristics**

Participant were on average middle-aged (mean age 56.6 years SD ±10.9) who had suffered from CP/CPPS for several years (mean symptom duration 9.3 years SD ±11.7). More than a third self-reported an education equal to a bachelor’s degree or higher. About two thirds had a sedentary job (i.e. ‘very little’ or ‘little’ activity at work) (Table 1).

**Linguistic translation and cross-cultural adaptation**

No major issues were encountered in the translation of the NIH-CPSI from English to Danish. Only minor discrepancies between the three Danish translations were observed and resolved by consensus. The word ‘burning’ in question number 2a was subject for a
more thorough discussion. The word ‘stinging’ was chosen by consensus instead of burning, for the Danish version.

The synthesis of the backtranslation into English by two independent translators with American as their first language was approved by the authors of the original version of the NIH-CPSI. One minor issue was noted in the approval by the original authors. The word delighted, had been translated into ‘very pleased’ and ‘excited’ in the two backtranslations. In the expert committee the issue with the translation of the word “delighted” was discussed. The expert committee agreed to use the word ‘very pleased’ instead. Finally, a Danish language specialist made corrections for grammar and spelling issues.

Lastly, seven men were interviewed to investigate if any problems showed up in the process of filling out the questionnaire (i.e. face validity). A theoretical saturation, regarding linguistic content and understanding of the Danish NIH-CPSI was reached. The interviews revealed no difficulties in understanding the questionnaire, and no conceptual problems was reported by the men. The translated Danish version of the NIH-CPSI is shown in Figure 3.

**Test re-test reliability**

Relative reliability was found to be excellent with an ICC of 0.93 (95% CI 0.91-0.96) for the total NIH-CPSI score, and subdomain ICCs varying between 0.88 and 0.93 (Table 2). For the total NIH-CPSI score SEM was 1.8 and MDC was 5.0, corresponding to 4% and 12%, respectively of the maximal obtainable NIH-CPSI score. For each of the three domains SEM ranged between 1.0-1.4, and MDC from 2.7-3.9, corresponding to 19%-32% of the maximal obtainable score of the individual NIH-CPSI domains. There was a significant difference between test 1 and 2 for the subdomain urinary
symptoms (p=0.043). The remaining domains and the total scores showed no significant
difference between test and retest (Table 2).

The absolute reliability for the total NIH-CPSI score showed no funnel effects or signs
of systematic bias in the Bland Altman Plot. Data were equally distributed and closely
located to the line of perfect agreement with no statistical test re-test difference. (Figure
4).

Discussion

The NIH-CPSI is a patient reported outcome measure designed to evaluate symptoms in
patients with the complex pain syndrome CP/CPPS. To facilitate use of the NIH-CPSI
in clinical practice and research in Denmark, we performed a formalized translation and
cross-cultural validation and tested the reliability of the translated Danish version. The
NIH-CPSI questionnaire was successfully translated and cross culturally adapted for use
in Danish males experiencing symptoms of CP/CPPS. An electronic version of the
Danish NIH-CPSI showed excellent relative reliability, and an absolute MDC of 5
points, corresponding to 12% of the total score.

The American version of the NIH-CPSI was successfully translated and culturally
adapted into Danish. Only minor issues were encountered during the translation process.
For instance, the word ‘burning’ (i.e. question 2a) was culturally adapted to Danish by
using the word ‘stinging’, which is the word commonly used with regards to pain during
urination in Denmark. Similar to previous translations of the NIH-CPSI into other
languages\textsuperscript{16} the word ‘delighted’ caused some minor issues, which were resolved by the
expert committee in step 4 of the formalized translation procedure. In the Danish
version ‘delighted’ was translated into ‘very pleased’.
In this study we found excellent relative reliability in the electronic version of the
Danish NIH-CPSI with ICC values of 0.88 or higher for the individual domains and
0.93 for the total score. In comparison one previous study have tested the relative
reliability of the NIH-CPSI in three different languages.\textsuperscript{18} Similar to the present study
high ICC values were obtained for versions of the NIH-CPSI total score in Chinese
(ICC=0.90), Malaysian (ICC=0.80), and English (0.93). However, the number of
participants in this study was only between 14-18.\textsuperscript{18}
Some additional studies investigating the original version and the Italian translation
have also reported on test-retest reliability on NIH-CPSI. These studies reported a
strong correlation between results in test and retest for the original version (Person
$r=0.86-0.91$)\textsuperscript{10} and the Italian version (Person $r=0.82-0.93$).\textsuperscript{17} However, Person’s $r$ is
not a very stringent parameter to assess reliability, because it does not take systematic
and random errors into account and is therefore not recommended for assessment of
reliability.\textsuperscript{24}
When assessing the test-retest reliability, it is assumed that patients have similar
symptom status at the test and retest session. However, this may not always be the case.
To ensure that the symptom status was not changed for individual patients from test to
retest, we used a single item global response assessment question. This approach has not
been used in previous assessments of reliability for the NIH-CPSI. We excluded twenty-
seven patients due to change in symptoms even though there was only 5 days (median
time) between test and retest in the present study, highlighting the importance of this
approach.
In contrast to previous studies we also assessed absolute reliability of the NIH-CPSI, which was reported as MDC and SEM. The MDC denote the minimal detectable change on an individual patient level that can be attributed to a real change beyond the measurement error of the measurement tool\textsuperscript{30} This is important for clinicians if considering using the NIH-CPSI for individual patients. The MDC for the total NIH-CPSI score was 5, indicating that a change score of 5 or more is necessary on an individual patient level to rule out the risk of the change being due to measurement error. It is important to consider that a 5-point change may however not constitute a large enough change to be clinically meaningful for the patient. The minimal clinically meaningful change was not assessed in the present study. However, in one study assessing the responsiveness of the original version of the NIH-CPSI a 6-point change in total NIH-CPSI score was suggested to be enough to constitute a ‘clinically meaningful’ improvement in men with CP/CPPS.\textsuperscript{19} Further work is needed to confirm this cut-off value.

Despite high relative reliability for the total score and the three individual domains of the NIH-CPSI a significant higher score was found for the ‘urinary symptoms’ domain at the retest. Other studies have also reported issues with the psychometric properties of this subdomain in relation to responsiveness, which was not observed for the total score or the other domains of the NIH-CPSI.\textsuperscript{19,20} The exact reason for the significantly higher scores for the ‘urinary symptoms’ domain is unclear. One potential explanation could be the nature of the questions for this domain. Participants are asked to evaluate the sensation of emptying their bladder and their need to urinate again less than 2 hours after urination with 6 response options ranging from ‘not at all’ to ‘almost always’, which may be more prone to recall bias than questions on the ‘pain’ and ‘quality of life’ domains.
This study has limitations. In this study participants were recruited from an email-list of men receiving a newsletter regarding CP/CPPS from a single practice. To ensure that included participants suffered from CP/CPPS we requested patients to reply to a number of questions to increase the likelihood of participants having a diagnosis of CP/CPPS, including a question to ensure that participants had been examined by a urologist in relation to their symptoms. Another concern in relation to the recruitment strategy is the generalizability of the study population. However, comparing to previous studies assessing reliability of the original and the Italian version of the NIH-CPSI our population were of similar age and reported similar NIH-CPSI scores and had a larger sample size.\textsuperscript{10,17}

We also included a Global Response Assessment (GRA) question at the retest to ensure that participants did not have a change in symptom status, which is necessary when assessing the reliability of an instrument. This led to exclusion of 27 of 86 participants highlighting that it cannot be assumed that symptoms are the same in this patient group even with a short test-retest time frame (i.e. median of 5 days).

In this study we tested the reliability of an electronic version (which is the most frequent used method today) of the Danish NIH-CPSI in contrast to paper versions in previous studies. The use of the electronic version resulted in no missing data, nor any incorrectly completed items, which can often be observed when using the paper version of the NIH-CPSI. We did not investigate if the paper version and the electronic version may potentially yield different outcomes in the same group of participants, but we observed similar reliability characteristics of the instrument as previously reported.\textsuperscript{18}

In conclusion we translated and cross-culturally adapted the original version of the NIH-CPSI questionnaire into Danish and tested the test-retest reliability of an electronic version of the Danish NIH-CPSI in Danish speaking men with CP/CPPS. The Danish
version of the NIH-CPSI revealed excellent relative reliability and low MDC. The questionnaire will be important for reliable assessment of change in symptoms in future studies. The low MDC also show promise for individual patient use in the clinic, though further research is still needed to establish the ‘minimal clinical meaningful change’ of the NIH-CPSI.

**Acknowledgements**

We would like to thank the authors of the original NIH-CPSI Mark Litwin and J. Curtis Nickel; the translators Michael Thinggaard, Gordon Roberts and Lisa Hansson and the Danish specialist Tina Jensen for help during the translation procedure. We would also like to thank all men participating in the study.

**Disclosure statement**

The authors report no conflicts of interest.
References

Table 1: Participant characteristics of men with CP/CPPS included in assessment of test-retest reliability study of the Danish NIH-CPSI.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of participants</td>
<td>59</td>
</tr>
<tr>
<td>Age, years (SD)</td>
<td>56.6 (10.9)</td>
</tr>
<tr>
<td>Height, cm (SD)</td>
<td>181.3 (5.2)</td>
</tr>
<tr>
<td>Weight, kg (SD)</td>
<td>85 (12.4)</td>
</tr>
<tr>
<td>BMI, kg/m² (SD)</td>
<td>25.8 (3.3)</td>
</tr>
<tr>
<td>Duration of CP/CPPS symptoms, years (SD)</td>
<td>9.3 (11.7)</td>
</tr>
<tr>
<td>Civil status: no. (%)</td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>7 (12%)</td>
</tr>
<tr>
<td>Living with a partner</td>
<td>52 (88%)</td>
</tr>
<tr>
<td>Education level: no. (%)</td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>High school</td>
<td>4 (7%)</td>
</tr>
<tr>
<td>Craftsman’s education</td>
<td>12 (20%)</td>
</tr>
<tr>
<td>Community college</td>
<td>4 (7%)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>20 (34%)</td>
</tr>
<tr>
<td>Master and Ph.D. degrees or similar.</td>
<td>16 (27%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Work situation: no. (%)</td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>36 (61%)</td>
</tr>
<tr>
<td>Part time</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Retired</td>
<td>19 (32%)</td>
</tr>
<tr>
<td>Other (student, sick leave mm.)</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Physical activity at work: no. (%)</td>
<td></td>
</tr>
<tr>
<td>Very little activity (mostly sitting down)</td>
<td>21 (36%)</td>
</tr>
<tr>
<td>Little activity (light work- sales job – desk job)</td>
<td>14 (24%)</td>
</tr>
<tr>
<td>Moderate activity (cleaning- kitchen work – mail carrier)</td>
<td>10 (17%)</td>
</tr>
<tr>
<td>Hard activity (heavy industrial work- construction worker)</td>
<td>6 (10%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>8 (14%)</td>
</tr>
<tr>
<td>Physical activity during leisure time: no. (%)</td>
<td></td>
</tr>
<tr>
<td>Very little activity (almost no activity)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Little activity (Walking once a week)</td>
<td>7 (12%)</td>
</tr>
<tr>
<td>Moderate activity (regularly activity at least once a week biking, gardening)</td>
<td>22 (37%)</td>
</tr>
<tr>
<td>Active (regularly active with high intensity of some sort once a week)</td>
<td>21 (36%)</td>
</tr>
<tr>
<td>Very active (physically demanding activity several times a week)</td>
<td>8 (14%)</td>
</tr>
<tr>
<td>Number of days between test re-test: Median (range)</td>
<td>5.0 (4 – 10)</td>
</tr>
</tbody>
</table>

% may not add up to 100% due to rounding.
Table 2: Test-retest reliability results, n=59

<table>
<thead>
<tr>
<th>NIH-CPSI Score</th>
<th>Test Mean (SD)</th>
<th>Retest Mean (SD)</th>
<th>Difference Mean (CI 95%)</th>
<th>Paired t-test</th>
<th>ICC (CI 95%)</th>
<th>Absolut SEM 95% (Relative)</th>
<th>Absolut MDC 95% (Relative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain (0-21)</td>
<td>10.0 (3.7)</td>
<td>9.9 (4.3)</td>
<td>0.10 (-0.42-0.62)</td>
<td>0.697</td>
<td>0.88 (0.84-0.92)</td>
<td>1.4 (7%)</td>
<td>3.9 (19%)</td>
</tr>
<tr>
<td>Urinary sympt. (0-10)</td>
<td>4.1 (3.0)</td>
<td>4.4 (3.2)</td>
<td>-0.36 (-0.70-0.01)</td>
<td>0.043</td>
<td>0.91 (0.88-0.94)</td>
<td>1.2 (12%)</td>
<td>3.2 (32%)</td>
</tr>
<tr>
<td>Quality of life (0-12)</td>
<td>6.9 (2.6)</td>
<td>6.9 (2.5)</td>
<td>-0.02 (-0.27-0.23)</td>
<td>0.892</td>
<td>0.93 (0.91-0.96)</td>
<td>1.0 (8%)</td>
<td>2.7 (23%)</td>
</tr>
<tr>
<td>Total score (0-43)</td>
<td>21.0 (6.8)</td>
<td>21.3 (7.1)</td>
<td>-0.27 (-0.94-0.40)</td>
<td>0.420</td>
<td>0.93 (0.91-0.96)</td>
<td>1.8 (4%)</td>
<td>5.0 (12%)</td>
</tr>
</tbody>
</table>

**Abbreviations:** SD = standard deviation; CI = confidence interval; ICC = interclass correlation coefficient; SEM = standard error of measurement; SEM 95%, absolute value of SEM with a CI of 95%; MDC = minimal detectable change; MDC 95%, absolute value of MDC with a CI of 95%; Relative %, relative SEM or MDC respectively at 95 % CI.
FIGURE LEGENDS

Figure 1: Study design overview.

Figure 2: Study flowchart for the reliability study.

Figure 3: Danish version of the NIH-CPSI

Figure 4: Bland Altman Plot of the reliability of the Danish version of the NIH-CPSI. The black horizontal line (intersecting zero at the y-axis) indicates perfect agreement, whereas the dotted horizontal line represents the observed mean difference. The closer the dotted line is to the black line the less disagreement between measurements one and two. This distance was tested for systematic bias by a paired t-test.
Figure 1

Cross-cultural translation and adaptation of NIH-CPSI

Translation step 1-4

Recruitment for interview

Interview face validity step 5

Test-retest reliability

Recruitment for test-retest

Test 1

Test 2

August 2017

January 2018

March 2018

4-7 days
Figure 2

- **n = 129**
  - Self registered to participate in the study.

- **n = 112**
  - Completed questionnaire/test 1

- **n = 86**
  - Completed questionnaire/test nr. 2

- **N = 17**
  - Did not complete the questionnaire

- **Excluded:**
  - **n = 18**
    - Have not been examined by a urologist.
  - **n = 2**
    - Have differential diagnoses such as prostate cancer.
  - **n = 6**
    - Did not complete test 2.

- **n = 27**
  - Had change in symptoms after 4-7 days.

- **N = 59**
  - Included in the study
Figure 3

**SYMPTOM INDEX TIL MÆND MED UNDERLIVSSMERTER**
- tidligere også kendt under diagnosen kronisk prostatitis

**SMERTER ELLER UBEHAG**

1. Har du i den sidste uge, oplevet smertes eller ubehag i de følgende områder?
   - a. Området mellem endetarm og testiklerne (mellemkødet)  
     Ja ☐, Nej ☐
   - b. Testiklerne
     Ja ☐, Nej ☐
   - c. Spidsen af penis (ikke relateret til vandlådnings)
     Ja ☐, Nej ☐
   - d. Under bælteområdet, ved dit kønsorgan eller blærerkønsområde
     Ja ☐, Nej ☐

2. Har du i den seneste uge oplevet?
   - a. Smerter eller svie ved vandlådnings?
     Ja ☐, Nej ☐
   - b. Smerter eller ubehag under eller efter seksuel klimaks (udløsning)?
     Ja ☐, Nej ☐

3. Hvor ofte har du i løbet af den seneste uge, følt smerte eller ubehag i disse områder?
   - Aldrig ☐
   - Sjældent ☐
   - Af og til ☐
   - Ofte ☐
   - For det meste ☐
   - Altid ☐

   - 0 ☐
   - 1 ☐
   - 2 ☐
   - 3 ☐
   - 4 ☐
   - 5 ☐
   - 6 ☐
   - 7 ☐
   - 8 ☐
   - 9 ☐
   - 10 ☐

   Ingen smerte ☐
   Værste smerte der kan forekomme ☐

**VANDLÅDNING**

5. Hvor ofte, i løbet af den seneste uge, har du haft fornemmelser af, at du ikke har tømt din blære helt efter en vandlådnings?
   - Slet ikke ☐
   - Mindre end en 1 ud af 5 gange ☐
   - Mindre end halvdelen af gangene ☐
   - Omtrent halvdelen af gangene ☐
   - Mere end halvdelen af gangene ☐
   - Næsten altid ☐

6. Hvor ofte har du haft behov for at lade vandet igen, mindre end to timer efter din sidste vandlådnings, inden for den sidste uge?
   - Slet ikke ☐
   - Mindre end et af 5 gange ☐
   - Mindre end halvdelen af gangene ☐
   - Omtrent halvdelen af gangene ☐
   - Mere end halvdelen af gangene ☐
   - Næsten altid ☐

**SYMPTOMERMES PÅVIRKNING**

7. I hvor stor grad har dine symptomer afholdt dig fra at gøre de ting, du normalt gør, inden for den seneste uge?
   - Aldrig ☐
   - Lidt ☐
   - I nogen grad ☐
   - Meget ☐

8. Hvor meget har du tændt på dine symptomer i løbet af den sidste uge?
   - Aldrig ☐
   - Lidt ☐
   - Af og til ☐
   - Meget ☐

**LIVSKVALITET**

9. Hvis du resten af livet skulle leve med dine symptomer, som de har været i den seneste uge, hvordan ville det føles for dig?
   - Meget tilfreds ☐
   - Tilfreds ☐
   - Overvejende tilfreds ☐
   - Blandet (Lige dele tilfreds og utilfreds) ☐
   - Overvejende utilfreds ☐
   - Ulykkelig ☐
   - Forfærdeligt ☐

**SCORING AF NIH-CPSI DOMÆNERNE**

Smerter: Total score af sp. 1a, 1b, 1c, 1d, 2a, 2b, 3 og 4 = ☐

Vandlådnings: Total score af sp. 5 og 6 = ☐

Livskvalitet: Total score af sp. 7, 8 og 9 = ☐

Total Score = ☐

Danish version of National Institutes of Health - Chronic Prostatitis Symptom Index (NIH-CPSI)
Figure 4: