



Original Article

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Korean Version of the Patient Perception of Study Medication Questionnaire: Translation and Linguistic Validation

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Purpose: The patient perception of study medication (PPSM) questionnaire consists of 12 questions designed to quantify patient satisfaction with the efficacy of study treatment by focusing on specific changes that patients experience during the study period. This study aimed to develop a Korean version of the PPSM questionnaire.

Methods: The linguistic validation process consisted of obtaining permission for translation, forward translation, reconciliation, backward translation, cognitive debriefing, and proofreading. Two independent bilingual translators translated the original version of the questionnaire, and a panel discussed and combined the 2 versions. Another independent translator performed backward translation of the reconciled version, after which 15 patients underwent the cognitive debriefing.

Results: The 12 questions and 4 response scales of the PPSM questionnaire were forward translated into 2 Korean versions. The terms were adjusted to conceptually equivalent expressions in Korean. After backward translation, the panel made minor changes to the forward translations for brevity and better readability. No difficulties were experienced during cognitive debriefing by 15 patients, and all items were reported to be generally easy to understand.

Conclusions: The Korean version of the PPSM questionnaire has been successfully translated and validated. The questionnaire is appropriate for assessing symptom satisfaction in patients that undergo benign prostatic hyperplasia pharmacotherapy.

Keywords: Patient-Reported Outcomes Measures; Prostatic hyperplasia; Surveys and questionnaires; Translations


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INTRODUCTION

Physiologically, with increasing age, the prostate enlarges and can obstruct the prostatic urethra and induce a functional decline of the urethral sphincter. Benign prostatic hyperplasia (BPH) is one of the most common benign neoplasms in the elderly male population, with symptoms reported in approximately half of men by 60 years of age [1,2]. Lower urinary tract symptoms (LUTS) such as frequency, incontinence, urgency,

and nocturia are due to a combination of BPH and the anatomical and physiological responses of the bladder to urinary outflow obstruction [3]. Moreover, the progression of BPH with LUTS increases the risk of acute urinary retention (AUR) and decreases maximum urinary flow rate, which ultimately leads to a reduction in patient quality-of-life [4].

Various patient-reported outcome (PRO) questionnaires have been developed to address the increasing need for disease-specific and validated means to measure PROs to objectively

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analyze and assess BPH with LUTS. In the clinical spectrum of BPH, patient outcome measures such as Boyarsky Score [5], International Prostate Symptom Score (IPSS) [6], and BPH Impact Index (BII) [7] are standard assessment tools. However, these questionnaires show limited efficacy for evaluating treatment satisfaction in patients with BPH. Treatment satisfaction, which includes evaluation of the treatment process and patient outcomes, is rapidly gaining importance in clinical trials and disease-management programs [8,9]. However, the rarity of questionnaires or clinical studies that focus on treatment satisfaction in patients with BPH indicates a need to develop a valid, reliable treatment satisfaction assessment or questionnaire.

The Patient Perception of Study Medication (PPSM) questionnaire was developed to evaluate the satisfaction levels of BPH treatments in clinical studies to provide additional insight to clinical practice [10]. The PPSM questionnaire consists of items on the approval levels of the patient for study medication and the patient's final decision after weighing the side effects against the therapeutic advantages and the voluntary compliance in continued administration of the medication [10]. The PPSM questionnaire has been verified to be clinically relevant in several clinical trials [10,11]. The objective of this study was to translate the English version of the PPSM questionnaire into Korean, along with consequent linguistic validation in the Korean BPH patient population.

MATERIALS AND METHODS

Original PPSM Questionnaire

The PPSM questionnaire was developed by GlaxoSmithKline (GSK) for use in the CombAT (Combination of Avodart and Tamsulosin) trial to determine whether questions addressing satisfaction with individual symptoms provided additional useful information on patient satisfaction with BPH pharmacotherapy (Supplementary materials 1-3). The questionnaire consists of 12 questions designed to quantify patient satisfaction with the effect of the study treatment by focusing on specific changes experienced by patients during the study period. The PPSM questionnaire focuses on 4 areas: control of urinary symptoms (2 items), strength of urinary stream (2 items), 2 aspects of pain with urination (2 items each), effect on usual activities (2 items), and a single item about overall satisfaction. The final item asks whether the respondent would request a prescription of the study medication.

Permission

The corresponding author contacted GSK to request permission to translate and utilize a Korean version of the PPSM questionnaire and was responsible for the overall study process.

Translation and Linguistic Validation

Translation and validation were performed between September and December 2020. The overall study procedure was conceptually similar to previous studies designed to translate non-Korean questionnaires into Korean versions [12,13]. The linguistic validation consisted of forward translation, reconciliation, backward translation, cognitive debriefing, and proofreading.

Forward Translation

Two bilingual translators who were blinded to the individual translation process independently translated the original version of the PPSM questionnaire into Korean (versions 1.0A and 1.0B). During the process, each translator provided comments and feedback on translation difficulties and various translation options. The IPSS and the Overactive Bladder Symptom Score questionnaires were provided as a reference in unifying medical terminologies regarding voiding symptoms.

Reconciliation

A panel of 5 urologists and 3 physician assistant nurses reviewed versions 1.0A and 1.0B and integrated the differences between the 2 versions to create a single new version (ver. 1.1).

Backward Translation

Version 1.1 was back translated into English by a third independent editor from an English proofreading and editing service. The panel compared the back-translated version with the original version, and alternative translation options were discussed. Discordant phrases were reviewed and revised (ver. 1.2).

Cognitive Debriefing

The questionnaire (ver. 1.2) was administered to 15 Korean-speaking patients older than 50 years with different educational backgrounds after informed consent. On completion of the questionnaire, survey interviews were performed by a single certified clinical research coordinator to receive feedback on whether and why there were difficulties in understanding the questions. An opportunity was given to patients to provide alternative phrasing options for better readability and understanding. Based on the interview results, the panel reconvened

to discuss and agree on a new version (ver. 1.3).

Proofreading

The final Korean version of the PPSM questionnaire was proofread by the panel for errors in spelling and format.

RESULTS

Forward Translation and Reconciliation

The translated 12 questions and 4 response scales of the PPSM questionnaire are presented in Table 1. The “PPSM questionnaire” was translated without disagreement by both translators as yeonguyagmule daehan insig seolmunji.

In question 1, “how has control of your urinary problems changed” was translated as *baenyojeungsang-eun eolmana jal jojeoldoego isseubnikka* (well controlled) and *baenyojeungsang-eun eolmana hojeondoeosseubnikka* (improved). “Baenyo” was considered a formal term in the Korean language, and the panel suggested that the usage of “*sobyeon*” which is a more common Korean term for “urination” would be better approach considering the various education levels of the patient population. Although cognitive feedback showed no difficulties in understanding the question, the panel agreed to the translation usage of *sobyeon-eul bol ttaeui bulpyeonham* instead of *baenyojeungsang* for urinary problems.

In question 3, “strength of your urinary stream” was translated to *sobyeon julgi* (stream) and *sobyeon segi* (strength). The panel agreed on *sobyeon julgi* in accordance with the terminology used in the Korean version of the IPSS questionnaire.

In question 9, “how has the way your urinary problems interfere with your ability to go about your usual activities” was translated to *ilsangsaenghwal-e yeonghyang-eul juneun jeongdoga eotteohge dallajyeosseubnikka* (degree of interference) and *ilsangsaenghwal-e michineun yeonghyang-eun eotteohge dallajyeosseubnikka* (interference). However, feedback results from the translation showed that “interfere” was not directly mentioned in the Korean translation. The option of “*jijang*” in as a direct substitute for “interfere” in the Korean version was considered, and question 9 was edited to *sobyeon jeungsang-eulo inhae jijangbaddeon ilsangsaenghwal-eun eotteohge dallajyeosseubnikka*. The panel discussed differences and agreed on the latter translation considering its brevity and better readability.

The response scale for questions 1, 3, and 9, “much improved; improved; somewhat improved; no change; somewhat worse; worse; much worse/much less control” was translated by both

translators without discordance to *maeu joh-ajyeosdda; joh-ajyeosdda; yaggan joh-ajyeosdda; byeonhwa-eobsda; yaggan nappajyeosdda; maeu nappajyeosdda/maeu jojeol-i eolyeobda*, respectively.

In questions 2, 4, and 6, “how satisfied are you” was translated to *eolmana manjoghasibnikka* (how much satisfied) and *manjogdoneun eoneu jeongdoibnikka* (degree of satisfaction). The panel agreed on *eolmana manjoghasibnikka* as it is a more familiar and communicative expression in the Korean language. Translations and agreements regarding “the effect of the study medication on control of your urinary problems” in question 2 and “strength of your urinary stream” in question 4 followed the same principle as in questions 1 and 3.

In question 8, “on your pain during urination” was translated to *baenyo jung tongjeung* (pain during urination) and *baenyo tongjeung* (urination pain). The panel agreed on *sobyeon-eul bol ttae* to maintain the nuance of the question.

In question 10, “the effect the study medication has on your ability to go about your usual activities without interference from your urinary problems,” was translated to *baenyojeungsang-e uihan jijang-eobs-i ilsangjeog-in saenghwal-eul hage haejuneun yeonghyang* (ability) and *baenyojeungsang-eulo uihan jijang eobs-i ilsangjeog-in saenghwal-eul ganeunghage haejuneun yeonghyang* (ability to make it possible). Again, the panel agreed on *sobyeon* instead of *baenyo* to maintain the nuance of the question. As a result, the panel discussed and decided on *sobyeon jeungsang-eulo inhan jijang-eobs-i ilsangjeog-in hwaldong-eul ganeunghage haejuneun* due to better readability.

In question 11, “overall, how satisfied are you with the study medication and its effects on your urinary problems,” was translated by both translators without discordance to *jeonbanjeog-eulo yeongu yagmulgwa baenyojeungsang-e michineun yeonghyang-e daehae eolmana manjoghasibnikka*. However, the panel again agreed on *sobyeonjeungsang* instead of *baenyojeungsang*.

The response scale for questions 2, 4, 6, 8, 10, and 11, “very satisfied; satisfied; somewhat satisfied; neutral (neither satisfied nor dissatisfied); somewhat dissatisfied; dissatisfied; very dissatisfied,” was translated without discordance to *maeu manjogseuleobda; manjogseuleobda; yaggan manjogseuleobda; junglib (manjogdo bulmanjogdo anim); yaggan bulmanjogseuleobda; bulmanjogseuleobda; maeu bulmanjogseuleobda*.

In questions 5 and 7, “pain prior to urinating” and “pain during urination” was translated to *baenyo jeon tongjeung* (pain during urination) and to *baenyo si tongjeung* (pain at urination), respectively. Again, “pain prior to urinating” and “pain during

Table 1. Grid for the first forward Korean translation and reconciliation of the patient perception of study medication questionnaire

Original English version	First forward Korean translation (versions 1.0A and 1.0B)	Reconciled Korean version (ver. 1.1)	Comments on translational difficulties and alternative options
Patient Perception of Study Medication questionnaire	연구약물에 대한 인식 설문지 연구약물에 대한 인식 설문지	연구약물에 대한 인식 설문지	현재 번역으로 사용 가능.
Q1. Since you began taking the study medication, how has control of your urinary problems changed?	연구약물을 복용한 이후로, 배뇨증상은 얼마나 잘 조절되고 있습니까? 연구약물을 복용 후, 배뇨증상은 얼마나 호전되었습니까?	소변 볼 때의 불편함은 연구 약물을 복용한 이후로 어떻게 달라졌습니까?	배뇨증상은 이해에 어려움이 있을 수 있으므로 '소변 볼 때의 불편함'으로 표기.
Q3. Since you began taking the study medication, how has the strength of your urinary stream changed?	연구약물을 복용한 이후로, 소변 줄기는 어떻게 달라졌습니까? 연구약물을 복용 후, 소변 세기는 어떻게 달라졌습니까?	소변 줄기의 세기는 연구 약물을 복용한 이후로 어떻게 달라졌습니까?	한국 번역판 PPSM 설문지를 토대로 '소변 줄기 표현' 사용.
Q9 (5). Since you began taking the study medication, how has the way your urinary problems interfere with your ability to go about your usual activities changed?	연구약물을 복용한 이후로, 귀하의 배뇨증상이 일상생활에 영향을 주는 정도가 어떻게 달라졌습니까? 연구약물을 복용 후, 귀하의 배뇨증상이 일상생활에 미치는 영향은 어떻게 달라졌습니까?	연구약물을 복용한 후, 소변 증상으로 인해 지장받던 일상생활은 어떻게 달라졌습니까?	'영향' 보다는 '지장' 표현이 더욱 정확하고 객관적으로 인식된다. 'Interfere'는 '지장'으로 번역함.
<i>Response Scale: Much improved; Improved; Somewhat improved; No change; Somewhat worse; Worse; Much worse/much less control</i>	매우 좋아졌다; 좋아졌다; 약간 좋아졌다; 변화없다; 약간 나빠졌다; 나빠졌다; 매우 나빠졌다/매우 조절이 어렵다 매우 좋아졌다; 좋아졌다; 약간 좋아졌다; 변화없다; 약간 나빠졌다; 나빠졌다; 매우 나빠졌다/매우 조절이 어렵다	매우 좋아졌다; 좋아졌다; 약간 좋아졌다; 변화없다; 약간 나빠졌다; 나빠졌다; 매우 나빠졌다/매우 조절이 어렵다	현재 해석으로 사용 가능.
Q2. How satisfied are you with the effect of the study medication on control of your urinary problems?	연구약물이 소변 증상에 미치는 영향에 대해 얼마나 만족하십니까? 연구약물이 소변 증상에 미치는 영향에 대해 만족도는 어느 정도입니까?	소변 증상의 조절에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	'배뇨 증상' 단어는 이해에 어려움이 있을 수 있으므로 '소변 증상으로 표기. 만족도 보다는 '만족'으로 표현하는 것이 환자들에게 익숙한 표현.
Q4. How satisfied are you with the effect of the study medication on the strength of your urinary stream?	연구약물이 소변 줄기에 미치는 영향에 대해 얼마나 만족하십니까? 연구약물이 소변 세기에 미치는 영향에 대해 만족도는 어느 정도입니까?	소변 줄기의 세기에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	한국판 PPSM을 바탕으로 하여 '소변 줄기' 표현 사용.
Q6 (-). How satisfied are you with the effect the study medication has on your pain prior to urinating?	연구약물이 배뇨 전 통증에 미치는 영향에 대해 얼마나 만족하십니까? 연구약물이 배뇨 전 통증에 미치는 영향에 대해 만족도는 어느 정도입니까?	소변을 보기 전 통증에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	배뇨라는 단어가 생소해서 소변으로 변경 고려.
Q8 (-). How satisfied are you with the effect the study medication has on your pain during urination?	연구약물이 배뇨 중 통증에 미치는 영향에 대해 얼마나 만족하십니까? 연구약물이 배뇨통증에 미치는 영향에 대해 만족도는 어느 정도입니까?	소변을 볼 때 통증에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	'배뇨' 단어에 이해가 어려운 환자들이 있을 것으로 사료됨. '소변을 볼 때'로 번역함.
Q10 (6). How satisfied are you with the effect the study medication has on your ability to go about your usual activities without interference from your urinary problems?	연구약물이 배뇨증상에 의한 지장없이 일상적인 생활을 하게 해주는 영향에 대해 얼마나 만족하십니까? 연구약물이 배뇨증상으로 인한 지장없이 일상적인 생활을 가능하게 해주는 영향에 대해 만족도는 어느 정도입니까?	소변 증상으로 인한 지장없이 일상적인 활동을 가능하게 해주는 약물의 효과에 대해 얼마나 만족하십니까?	'배뇨' 단어에 이해가 어려운 환자들이 있을 것으로 사료됨. '소변을 볼 때'로 번역함. '일상적인 생활' 표현 보다는 '일상적인 활동'이라고 표현하는 것이 적함함.

(Continued)

Table 1. Grid for the first forward Korean translation and reconciliation of the patient perception of medication questionnaire (Continued)

Original English version	First forward Korean translation (versions 1.0A and 1.0B)	Reconciled Korean version (ver. 1.1)	Comments on translational difficulties and alternative options
Q11 (7). Overall, how satisfied are you with the study medication and its effects on your urinary problems?	전반적으로 연구 약물과 배뇨증상에 미치는 영향에 대해 얼마나 만족하십니까? 전반적으로 연구 약물과 배뇨증상에 미치는 영향에 대해 얼마나 만족하십니까?	전반적으로 연구 약물과 소변 증상에 미치는 영향에 대해 얼마나 만족하십니까?	'배뇨' 단어에 이해가 어려운 환자들이 있을 것으로 사료됨. 소변을 볼 때로 번역함.
<i>Response scale: Very satisfied; Satisfied; Somewhat satisfied; Neutral (neither satisfied nor dissatisfied); Somewhat dissatisfied; Dissatisfied; Very dissatisfied</i>	매우 만족; 만족; 약간 만족; 중립 (만족도 불만족도 아님); 약간 불만족; 불만족; 매우 불만족 매우 만족; 만족; 약간 만족; 중립 (만족도 불만족도 아님); 약간 불만족; 불만족; 매우 불만족	매우 만족; 만족; 약간 만족; 중립 (만족도 불만족도 아님); 약간 불만족; 불만족; 매우 불만족	현재 해석으로 사용 가능.
Q5 (-). Since you began taking the study medication, how has your pain prior to urinating changed?	연구약물을 복용한 이후로, 배뇨 전 통증이 어떻게 달라졌습니까? 연구약물을 복용 후, 배뇨 전 통증이 어떻게 달라졌습니까?	연구 약물을 복용한 이후로, 소변보기 전 통증이 어떻게 달라졌습니까?	해석에는 이견이 없지만, '배뇨'라는 표현에 대해서 소변으로 변경 고려
Q7 (-). Since you began taking the study medication, how has your pain during urination changed?	연구약물을 복용한 이후로, 배뇨 중 통증이 어떻게 달라졌습니까? 연구약물을 복용 후, 배뇨통증이 어떻게 달라졌습니까?	연구 약물을 복용한 이후로, 소변을 볼 때의 통증은 어떻게 달라졌습니까?	복용 이후 보다는 '복용 후' 표현이 사용하기 적함. 해석에는 이견이 없지만, '배뇨'라는 표현에 대해서 소변으로 변경함.
<i>Response scale: Much improved/much less pain; Improved; Somewhat improved; No change; Somewhat worse; Worse; Much worse/much more pain; Not applicable</i>	매우 좋아졌다/매우 덜 아프다; 좋아졌다; 약간 좋아졌다; 변화없다; 약간 나빠졌다; 나빠졌다; 매우 나빠졌다/매우 더 아프다; 해당 없음 매우 좋아졌다/통증감; 좋아졌다; 약간 좋아졌다; 변화없다; 약간 나빠졌다; 나빠졌다; 매우 나빠졌다/통증증가; 해당 없음	매우 좋아졌다/통증감; 좋아졌다; 약간 좋아졌다; 변화없다; 약간 나빠졌다; 나빠졌다; 매우 나빠졌다/통증증가; 해당 없음	현재 해석으로 사용 가능.
Q12 (8). Would you ask your doctor for the medication you received in this study?	이 연구에서 받으신 약물을 의사에게 요청 하시겠습니까? 이 연구에서 받으신 약물을 의사에게 요청 하시겠습니까?	이 연구에서 받으신 약물을 의사에게 요청 하시겠습니까?	현재 해석으로 사용 가능.
<i>Response scale: Yes; No; Not sure</i>	네; 아니요; 모르겠다 네; 아니요; 모르겠다	네; 아니요; 모르겠다	현재 해석으로 사용 가능.

urination” were respectively translated into “*sobyun bogee jeon tongjeung*” and “*sobyun-eul bol ttaeui tongjeung*.” The translations were based on the same principle as in questions 6 and 8.

In the response scale for questions 5 and 7, “less pain” and “more pain” were translated to *deol apeuda* (less pain) and *tongjeung-gyeong-gam* (pain reduction), and *deo apeuda* (more pain) and *tongjeungjeung-ga* (pain escalation), respectively. The panel agreed on *tongjeung-gyeong-gam* and *tongjeung-jeung-ga* for brevity.

In question 12, “would you ask your doctor for the medication you received in this study” and the response scale, “yes; no; not sure,” were translated by both translators without discordance to *i yeongueseo bad-eusin yagmul-eul uisa-ege yocheong hasigessseubnikka* and *ne; aniyo; moleugessda*, respectively.

Backward Translation and Second Reconciliation

An independent editor from an English proofreading and editing service performed backward translation of the Korean ver. 1.1 (Table 2). In question 9, “interfere” was backward translated to “influence.” In the reconciled version (ver. 1.1), “interfere” was translated into Korean, “*yeonghyang*.” In English, interfere and influence has different meanings. The panels concluded that there were no proper Korean words to represent “interfere” based on the context used in the question. However, after a group panel discussion, the usage of “*jijang*” as a direct substitute for “interfere” was suggested. Considering the expressions used in the Korean version of the IPSS questionnaire, the panels agreed that this modification was necessary and increased literary fluency.

In questions 1, 3, 5, 7, and 9, there were discordances in sentence structure involving subject, verb, and object. The panel agreed on the reconciled version for better readability in the Korean language. Otherwise, backward translation of the reconciled version was accepted by all panel members without significant objection.

Cognitive Debriefing

The translated PPSM questionnaire was administered to 15 Korean-speaking male patients who routinely underwent follow-up in the urology department due to BPH. The median age was 62.5 years (57.0–67.8 years), and the level of education ranged from high school to university degrees. All patients completed the questionnaire within 6 minutes and stated that all items were generally easy to understand. The final version is presented in Fig. 1.

DISCUSSION

Patient satisfaction is being recognized as a prerequisite to successful outcomes of medical treatment. The 12-item PPSM questionnaire is intended to quantify overall patient satisfaction with the study medication by focusing on specific changes that the patient perceives during the given study period [10]. Our translation and linguistic validation of the PPSM questionnaire support its feasibility as a useful clinical measurement modality for assessing Korean patients with BPH who are undergoing pharmaceutical treatment.

The Korean version of the PPSM questionnaire was translated as closely as possible to the original English version. The translation and validation processes of this study involved complex planning and validation. During the initial forward translation phase, various sections and items of the questionnaire were translated differently in versions 1.0A and 1.0B. Although English and Korean languages have similar sentence structures and share words that convey the same meaning, the variation in expression of context and nuances results in discrepancies in the exact wording of the translation. Alterations in translations between the 2 translators were noted. In the forward translation stage, discrepancies between the 2 translators included the following terms: “urinary control” in question 1, “urinary stream” in question 3, and “interfere” in question 9, while slight differences were noted in the translation of “satisfaction” in items 2, 4, and 8.

After analyzing the backward translation through a panel discussion during the reconciliation phase, the discrepancies between version 1.0A and 1.0B were reduced in the reconciled Korean translation of the PPSM. The panels concluded that there were no substitute Korean words to represent “interfere” in the proper context used in the English version. The terminology in the Korean version of the IPSS questionnaire was used as a reference, and the panel agreed that paraphrasing “interfere” into “influence” was adequate for the questionnaire [14].

Measuring patient satisfaction with medication from the perspective of the patient based on experience and willingness to ask the physician for continued treatment provides valuable clinical information. The importance of assessing PROs, along with objective clinical parameters, is recognized by the U.S. Food and Drug Administration (FDA) [15] and recommended in various clinical practice guidelines for managing BPH patients [16,17]. Subjective outcome measures such as BII are extensively used to assess the efficacy of interventions for BPH

Table 2. Grid for the backward translation of the patient perception of study medication questionnaire

Original English version	Backward translation (ver. 1.2)
Patient Perception of Study Medication questionnaire	Patient Perception of Study Medication questionnaire
Q1. Since you began taking the study medication, how has control of your urinary problems changed?	How did the problems during urination change after taking the study medication?
Q3. Since you began taking the study medication, how has the strength of your urinary stream changed?	How did your strength of urinary flow change after taking the study medication?
Q9 (5). Since you began taking the study medication, how has the way your urinary problems interfere with your ability to go about your usual activities changed?	How did the urinary symptoms that interfered your daily life change after taking the study medication?
<i>Response Scale: Much improved; Improved; Somewhat improved; No change; Somewhat worse; Worse; Much worse/much less control</i>	Significantly improved; improved; mildly improved; same as before; mildly worsened; significantly worsened/highly difficult in control
Q2. How satisfied are you with the effect of the study medication on control of your urinary problems?	How satisfied are you with the effect of the study medication on controlling the urinary symptoms?
Q4. How satisfied are you with the effect of the study medication on the strength of your urinary stream?	How satisfied are you with the effect of the study medication on your strength of urinary flow?
Q6 (-). How satisfied are you with the effect the study medication has on your pain prior to urinating?	How satisfied are you with the effect of the study medication on your pain before urination?
Q8 (-). How satisfied are you with the effect the study medication has on your pain during urination?	How satisfied are you with the effect of the study medication on your pain during urination?
Q10 (6). How satisfied are you with the effect the study medication has on your ability to go about your usual activities without interference from your urinary problems?	How satisfied are you with the effect of the study medication on facilitating your usual activities without interference from urination symptoms?
Q11 (7). Overall, how satisfied are you with the study medication and its effects on your urinary problems?	Overall, how satisfied are you with the effect of the study medication on your urination symptoms?
<i>Response scale: Very satisfied; Satisfied; Somewhat satisfied; Neutral (neither satisfied nor dissatisfied); Somewhat dissatisfied; Dissatisfied; Very dissatisfied</i>	Highly satisfied; satisfied; slightly satisfied; neutral (neither satisfied nor dissatisfied); slightly dissatisfied; dissatisfied; highly dissatisfied
Q5 (-). Since you began taking the study medication, how has your pain prior to urinating changed?	How did your pain before urination change after taking the study medication?
Q7 (-). Since you began taking the study medication, how has your pain during urination changed?	How did your pain during urination change after taking the study medication?
<i>Response scale: Much improved/much less pain; Improved; Somewhat improved; No change; Somewhat worse; Worse; Much worse/much more pain; Not applicable</i>	Significantly improved/pain relieved; improved; mildly improved; same as before; mildly worsened; worsened/pain escalated; not applicable
Q12 (8). Would you ask your doctor for the medication you received in this study?	Do you intend to request the received study medication from your doctor?
<i>Response scale: Yes; No; Not sure</i>	Yes; No; Not sure

연구약물에 대한 인식 설문지

질문 1	매우 좋아졌다	좋아졌다	약간 좋아졌다	변화없다	약간 나빠졌다	나빠졌다	매우 나빠졌다/ 매우 조절이 어렵다	
소변 볼 때의 불편함은 연구 약물을 복용한 이후로 어떻게 달라졌습니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 2	매우 만족	만족	약간 만족	중립 (만족도 불만족도 아님)	약간 불만족	불만족	매우 불만족	
소변 증상의 조절에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 3	매우 좋아졌다	좋아졌다	약간 좋아졌다	변화없다	약간 나빠졌다	나빠졌다	매우 나빠졌다/ 매우 조절이 어렵다	
소변 줄기의 세기는 연구 약물을 복용한 이후로 어떻게 달라졌습니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 4	매우 만족	만족	약간 만족	중립 (만족도 불만족도 아님)	약간 불만족	불만족	매우 불만족	
소변 줄기의 세기에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 5	매우 좋아졌다/ 매우 덜 아프다	좋아졌다	약간 좋아졌다	변화없다	약간 나빠졌다	나빠졌다	매우 나빠졌다/ 매우 더 아프다	해당 없음
연구 약물을 복용한 이후로, 소변보기 전 통증이 어떻게 달라졌습니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
질문 6	매우 만족	만족	약간 만족	중립 (만족도 불만족도 아님)	약간 불만족	불만족	매우 불만족	
소변을 보기 전 통증에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 7	매우 좋아졌다/ 매우 덜 아프다	좋아졌다	약간 좋아졌다	변화없다	약간 나빠졌다	나빠졌다	매우 나빠졌다/ 매우 더 아프다	해당 없음
연구 약물을 복용한 이후로, 소변을 볼 때의 통증은 어떻게 달라졌습니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
질문 8	매우 만족	만족	약간 만족	중립 (만족도 불만족도 아님)	약간 불만족	불만족	매우 불만족	
소변을 볼 때 통증에 미치는 연구 약물의 효과에 대해 얼마나 만족하십니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 9	매우 좋아졌다	좋아졌다	약간 좋아졌다	변화없다	약간 나빠졌다	나빠졌다	매우 나빠졌다/ 매우 조절이 어렵다	
연구약물을 복용한 후, 소변 증상으로 인해 지장받던 일상생활은 어떻게 달라졌습니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 10	매우 만족	만족	약간 만족	중립 (만족도 불만족도 아님)	약간 불만족	불만족	매우 불만족	
소변 증상으로 인한 지장없이 일상적인 활동을 가능하게 해주는 약물의 효과에 대해 얼마나 만족하십니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 11	매우 만족	만족	약간 만족	중립 (만족도 불만족도 아님)	약간 불만족	불만족	매우 불만족	
전반적으로 연구 약물과 소변 증상에 미치는 영향에 대해 얼마나 만족하십니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
질문 12	네	아니요	모르겠음					
이 연구에서 받으신 약물을 의사에게 요청 하시겠습니까?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Fig. 1. Final Korean version of the patient perception of study medication questionnaire.

with LUTS [7]. However, the relationships between the change in outcome scores and patient perception and satisfaction with change have not been well studied [18]. Therefore, the main objective of our study was to implement a questionnaire that includes relevant items and domains that are necessary for assessing treatment satisfaction in the Korean population. After translation and reconciliation of the original PPSM questionnaire, the Korean version was verified for validity and suitability for usage in the clinical setting. However, the differences in English and Korean expressions had to be adjusted based on cultural context and language nuances, and appropriate modifications were made to improve the implied nuances and relevance suitable to Korean culture. Another limitation of the study was the small number of participants in the study population; therefore, the need for future larger-scale studies is warranted to assess and confirm the reliability and validity of the Korean version. Nevertheless, this study suggests that the Korean translation version of the PPSM questionnaire is a relevant work tool that can be used in the clinical field to evaluate patients with BPH with LUTS.

Based on the results and patient feedback, this study suggests that the Korean translation version of the PPSM questionnaire is a relevant tool that can be used in the clinic to evaluate patients with BPH and LUTS.

SUPPLEMENTARY MATERIALS

Supplementary materials 1-3 can be found via <https://doi.org/10.5213/inj.2040476.238>. Supplementary material 1. Interview Form. Supplementary material 2. Patient Perception of Study Medication. Supplementary material 3. Cognitive debriefing.

AUTHOR CONTRIBUTION STATEMENT

- Conceptualization: KCK
- Data curation: KSL, HKA, JWY
- Formal analysis: TJK
- Funding acquisition: KCK
- Methodology: TJK, KCK
- Project administration: KCK
- Visualization: KCK
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