Translation and Linguistic Validation of Korean Version of the Expanded Prostate Cancer Index Composite for Clinical Practice for Patients With Prostate Cancer

Young Cheol Hwang¹, Sung Yong Cho¹, Ja Hyun Ku¹, Seong Jin Jeong², Seung-June Oh³

¹Department of Urology, Seoul National University Hospital, Seoul National University College of Medicine, Seoul, Korea
²Department of Urology, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnaam, Korea

**Purpose:** Advances in the diagnosis and treatment of prostate cancer have increased the patients’ stress level and decreased the quality of life. A variety of instruments are currently available to evaluate patients with prostate cancer. However, only a few tools are available to assess Korean patients, and therefore we demonstrated a linguistic validation of Korean Expanded Prostate Cancer Index Composite for Clinical Practice (EPIC-CP).

**Methods:** EPIC-CP was translated into Korean and the linguistic validation was evaluated. The evaluation process includes permission for translation, forward translation, reconciliation, backward translation, cognitive debriefing, and proofreading. Two bilingual translators independently translated the original questionnaire, discussed the feasibility and naturalness of initial translation, followed by revision to the reconciled version. Another translator then performed a backward translation into English. Ten patients with prostate cancer completed the translated questionnaire and performed cognitive debriefing.

**Results:** The original EPIC-CP was translated into 2 Korean versions. The different wording in both versions and the ordinary words in the initial translations were changed considering the nuances and meanings of medical terms. During the backward translation, the panels made slight changes to clarify the meaning and nuances of the translated questionnaire. During cognitive debriefing, 10 patients answered the questionnaire and offered their opinions regarding comprehensibility and naturalness. Most patients agreed that the translation was comprehensible in general.

**Conclusions:** Our study provides a successful linguistic validation of the EPIC-CP questionnaire. The translation is a helpful diagnostic tool to ensure the quality of life of patients with prostate cancer attending crowded clinics.

**Keywords:** Prostate cancer; Quality of life; Questionnaires; Linguistic validation; Patient-Reported Outcome

---

*Research Ethics:* This study was approved by the Institutional Review Board of Seoul National University of Hospital (approval number: H-1305-033-487).

*Conflict of Interest:* SYC, a member of the Editorial Board of *International Neuurology Journal*, is the corresponding author of this article. However, he played no role whatsoever in the editorial evaluation of this article or the decision to publish it. No potential conflict of interest relevant to this article was reported.
INTRODUCTION

Since survivorship of patients, diagnosed with prostate cancer, has improved because of developments in diagnosis and treatment, Health-related quality of life (HRQoL) during the treatment of prostate cancer is emphasized. A natural course of HRQoL during treatment of prostate cancer is well documented, but objective analysis of such changes during clinical practice is a challenge [1].

The 50-item Expanded Prostate Cancer Index Composite for Clinical Practice (EPIC-CP) has been used to validate questionnaires. It was designed by UCLA Prostate Cancer Index to objectively evaluate HRQoL after prostate cancer management [2,3]. The 50-item EPIC-CP was reduced into a shorter form (EPIC-26) [4]. However, it was still tedious to administer in a busy clinical setting. Therefore, Chang et al. [5] proposed a simpler version of a validated questionnaire to assess HRQoL after prostate cancer management.

The authors of previous studies developed validated Korean versions of various questionnaires such as ISC-Q (Intermittent Self-Catheterization Questionnaire), BSW (Benefit, Satisfaction, and Willingness to Continue Treatment, and OAB-SAT-q (OverActive Bladder Satisfaction with Treatment Questionnaire) [6-9]. Given the increasing prevalence and social effects of prostate cancer on Korean population, a practical tool is needed to evaluate HRQoL and patient-reported outcomes after prostate cancer treatment. However, instruments to assess them in the Korean population are limited. Therefore, we linguistically validated the Korean version of EPIC-CP, which was first proposed by Chang et al. [5].

MATERIALS AND METHODS

Original Questionnaires
Chang et al. [5] proposed a handier version of the 50-item EPIC-CP and EPIC-26 for use in clinical practice. The questionnaire is categorized by symptoms: urinary incontinence, lower urinary tract symptoms, sexual function, and hormonal problems.

Translation and Linguistic Validation
Our study was approved by the Institutional Review Board of Seoul National University Hospital (approval number: H-1305-033-487). The linguistic validation was conducted to design a Korean version of EPIC-CP questionnaire, which is conceptually similar to the original work. The validation entailed forward translation, reconciliation, backward translation, and cognitive debriefing in order [6-9].

Two bilingual persons took forward translation individually and discussed the difficulties associated with describing the questionnaires in Korean with urologists (SJO and SYC). The experts provided helpful comments to resolve any challenges involving translations and suggested alternative expressions at all steps.

Permission
The panels requested the original authors who developed EPIC-CP for consent to translate and utilize the questionnaire as a Korean version [5].

Forward Translation
Both bilingual translators individually rendered the original questionnaire into Korean. They were separated until the translation was completed.

Reconciliation
The translators and the panels gathered and reviewed 2 forward translated versions and combined it into a single translated questionnaire, for meaning and nuance.

Backward Translation
The other bilingual translator rendered the reconciled Korean version of EPIC-CP into English. The 3 linguistic experts undertook forward or backward translation, and the panels reviewed the original version of the questionnaire and backward translated version, changing indigestible phrases into more digestible expressions. Finally, the revised version was generated for cognitive debriefing.

Cognitive Debriefing
The authors administered the revised version of the questionnaire to 10 patients with prostate cancer, who had different educational and regional backgrounds. They were asked to respond to the questionnaire and then notify any difficulties in completing the questionnaire. Well-trained interviewers gathered patients’ opinions regarding the challenges encountered. The panels examined the patients’ response and then amended the questionnaire accordingly.

Proofreading
The questionnaire after cognitive debriefing was finally proof-
read by panels to identify grammatical errors and availability to assess HRQoL after the management of prostate cancer. As a result, we developed the final Korean version of EPIC-CP.

RESULTS

Forward Translation and Reconciliation
As given in (Table 1), 10 questions of the EPIC-CP were translated into Korean. The questions can be divided into 4 domains: overall urinary problem, bowel, sexual, vitality, or hormonal domains [5]. English expression of the final questionnaires was based on “Revised Romanization of Korean,” proposed by National Academy of the Korean Language

Overall Urinary Problem
Question 1, “Overall, how much of a problem has your urinary function been for you” in the original questionnaire was translated into “jeonbanjeogeuuro gwihauhi sobyongiweungi gwihage eolmana munjega doeotseumnikka.” The expression “urinary function” was translated into “baenyo geoneung” and “yorogineung” by translator 1 and 2 respectively. “baenyo” or “yoro” was considered hard to understand for low-educational persons, so the panels agreed on “sobyon.” “moderate problem” in the original questionnaire was translated into “botong jungdoui munjaega issda” and “munjaega iss da” by translator 1 and 2 respectively, and the panels accepted “junggan jungdoui munjaega issda” because of its nuance.

Urinary Incontinence
Question 2, “Which of the following best describes your urinary control” in the original questionnaire was translated into “daeum jung gwihauhi sobyeon jojeol jeongdoreul gajang jal seohmyonghago inmeun geoseun mueosimnikka.” The expression “urinary control” was translated into “baenyo jojoel jeongdoae” and “binyogi jeoosangtage” by translator 1 and 2 respectively, and the panels accepted “sobyon jojeol jeongdo,” considering patients’ educational status. “0 Total control” was translated into “0 wanjeonghi jojeoldoem,” “1 Occasional dribbling” was translated into “yakkeumsik sobyeon banguri tteoreojim.” “2 Frequent dribbling” was translated into “2 jaju sobyeon banguri tteoreojim.” “4 No urinary control” was translated into “4 jeonhyeo jojoeloalhu su eopseum.”

Question 3, “How many pads or adult diapers per day have you been using for urinary leakage” in the original questionnaire was translated into “sobyoni saegi ttaemune gwihanweun paeedona seonginyong giyeogwireul harse yeot jang sayonghase waterseummikka.” The expression “using for urinary leakage” was translated into “sobyoni saeneun iyuro” and “binyogui nuchul ttaemun” by translator 1 and 2 respectively, and the panel accepted “sobyoni saegi ttaemun.” “0 None /1 One pad per day/2 Two pads per day/4 Three or more pads per day” in the original questionnaire was translated into “0 jeonhyeo sayonghaji anem/1 harue han jang/2 harue du jang/4 harue se jang isang.”

Question 4, “How big a problem, if any, has urinary dripping or leakage been for you” in the original questionnaire was translated into “manyak sobyeon banguri tteoreojigeona saen jeogi itdamyeon igesi gwihage eolmana keun munjyeoteoseumnikka.” The expression “if any” has urinary dripping or leakage” was translated into “manyak sobyeon banguri tteoreojigeona saen jeogi itdamyeon igesi gwihage eolmana keun munjyeoteoseumnikka” and “binyogui nachurina bunbi deungui munjega isseotdamyeon” by translator 1 and 2 respectively, and the panels accepted “manyak sobyeon banguri tteoreojigeona saen jeogi itdamyeon.”

“CLINICIANS: ADD the answers from questions 2–4 to calculate the Urinary Incontinence Symptom Score (out of 12)” in the original questionnaire was translated into “uisa: yosilgeum jeungsang jeomsu (chongjeon 12jeon jung)reul gyesanha chiphae 2beoneseo 4beonkkajiui jilmune daehan daedabeul modu deohae juseyo.” “Clinician” was translated into “jillyoun” and “imsangui” by translator 1 and 2 respectively and the panels accepted “uisa.”

Urinary Irritation/Obstruction
Question 5, “How big a problem, if any, has each of the following been for you” in the original questionnaire was translated into “manyak daeum haedanghanal gakgagui jeungsangi itdamyeon gwihanweun eolmana keun munjyeoteoseumnikka.” “a. Pain or burning with urination” was translated into “baenyooreul halttae oneun tongjeungina ittgaum” and “baenyojagyong jung gotongina ssevararam” by translator 1 and 2 respectively, and the panels accepted “sobyon bol tte tongjeungina hwakkeungeorim” since “ittgaum” means prickling and “hwakkeungeorim” means closer to burning. “b. Weak urine stream/incomplete bladder emptying” in the original questionnaire was translated into “yakan sobyeon julgi/banggwangeul modu biuji motam (jannyogam)” and “yakan gannyo/baenyo” by translator 1 and 2 respectively, and the panels accepted “yakan sobyeon julgi/banggwangeul modu biuji motam” since “jannyogam” (“incomplete bladder emptying”) can be indigestible to low-educational persons. "Need to urinate frequently” in the original questionnaire was translated into “jaju baenyooreul haeya ham” and “jajeun bangnyo” by
Table 1. Forward translation of questionnaire into Korean

| US/English item | First Forward Korean Translation | Second Forward Korean Translation | Reconciled Korean Version |
|-----------------|---------------------------------|---------------------------------|--------------------------|
| **Expanded Prostate Cancer Index Composite for Clinical Practice** | 전립선암 진료를 위한 확장된 통합 목록 | 임상 실습을 위한 확대된 전립선암 지수 구성 요소 | 임상 진료를 위한 Expanded Prostate Cancer Index |
| **Patients: Please answer the following questions by checking the appropriate checkbox** | 환자: 보기에 질문 중 해당하는 사항에 체크해주세요. | 환자들은 다음 질문사항에 대하여 답변에 해당하는 향상의 결과가 바랍니다. // | 환자: 다음 질문에 대하여 해당하는 네모 안에 표시해 주십시오. |
| All questions are about your health and symptoms in the LAST FOUR WEEKS. | 모든 질문들은 지난 4주간의 귀하의 건강과 증상에 대한 것입니다. | 모든 질문 사항들은 지난 4주간의 본인 건강상태와 증상에 해당합니다. | 모든 질문들은 지난 4주간 귀하의 건강상태와 증상에 관한 것입니다. |
| Select one answer for each question. | 각 질문마다 하나의 답변 선택해주세요. | 한 질문당 하나의 답변을 클릭주세요. | 각 질문마다 하나의 답변 선택해주세요. |
| **Overall, how much of a problem has your urinary function been for you?** | 전체적으로 봤을 때 귀하는 배뇨 기능에 있어 어느 정도의 문제를 가지고 계십니까? | 요로 기능의 문제가 전반적으로 얼마나 심각했습니까? | 요로 기능의 문제가 전반적으로 얼마나 심각했습니까? |
| 0 No problem/1 Very small problem/2 Small problem/3 Moderate problem/4 Big problem | 0 아무 문제도 아니었다/1 아주 작은 문제가 없었다/2 작은 문제가 있/3 보통 정도의 문제가 있다/4 큰 문제가 있다 | 0 문제 없음/1 아주 작은 문제가 없음/2 작은 문제가 있/3 중간 정도 문제/4 큰 문제가 있 | 0 문제 없음/1 아주 작은 문제가 없음/2 작은 문제가 있/3 중간 정도 문제/4 큰 문제가 있 |
| Which of the following best describes your urinary control? | 다음의 어떤 보기가 귀하의 배뇨 조절 정도를 가장 잘 설명하고 있습니까? | 다음 중에서 바이러시를 제어 상태에 대하여 본인의 상태를 가장 적절하게 나타내는 사항은 무엇인가요? | 다음 중 귀하의 소변 조절 정도를 가장 잘 설명하고 있는 것은 무엇인가요? |
| 0 Total control/1 Occasional dribbling/2 Frequent dribbling/4 No urinary control | 0 완전히 조절하다/1 가끔씩 소변 방울이 떨어진다/2 자주 소변 방울이 떨어진다/4 전혀 조절할 수 없다 | 0 완전히 제어/1 그물방울 소변 방울이 떨어진다/2 자주 소변 방울이 떨어진다/4 전혀 조절할 수 없다 | 0 완전히 조절됨/1 가끔씩 소변 방울이 떨어진다/2 자주 소변 방울이 떨어진다/4 전혀 조절할 수 없다 |
| How many pads or adult diapers per day have you been using for urinary leakage? | 소변이 새는 이유로 하루에 몇 개의 패드나 어른 기저귀를 사용하시고 계십니까? | 비뇨기의 누출 때문에 하루에 몇 개의 패드나 어른 기저귀를 사용하였습니다. | 비뇨기의 누출 때문에 하루에 몇 개의 패드나 어른 기저귀를 사용하였습니다. |
| 0 None/1 One pad per day/2 Two pads per day/4 Three or more pads per day | 0 전혀 사용하지 않았다/1 하루에 한 개/2 하루에 두 개/4 하루에 세 개 또는 그 이상 | 0 전혀 사용하지 않았다/1 하루에 한 개/2 하루에 두 개/4 하루에 세 개 또는 그 이상 | 0 전혀 사용하지 않았다/1 하루에 한 개/2 하루에 두 개/4 하루에 세 개 또는 그 이상 |

(Continued)
Hwang, et al.  •   Linguistic Validation of Korean Version of the EPIC-CP

Int Neurourol J  December 31, 2021

Table 1. Forward translation of questionnaire into Korean (continued)

| US/English Item                                                                 | First Forward Korean Translation | Reason for Decision                                                                 |
|--------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------|
| How big a problem, if any, has urinary dripping or leakage been for you?      | 만약 소변 방울이 떨어지거나 샌다면 이것은 귀하에게 얼마나 큰 문제였습니까? |
| Weak urine stream/incomplete bladder emptying                                 | 약한 소변줄기/방광을 모두 비우지 못함 (잔뇨감) |
| Rectal pain or urgency of bowel movements                                      | 항문의 통증이나 갑작스런 배변활동 |

CLINICIANS: ADD the answers from questions 2-4 to calculate the Urinary Incontinence Symptom Score (out of 12):

Pain or burning with urination
Weak urine stream/incomplete bladder emptying

Table 1. Forward translation of questionnaire into Korean (continued)

| US/English Item                                                                 | Second Forward Korean Translation | Reason for Decision                                                                 |
|--------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------|
| How big a problem, if any, has each of the following been for you?            | 만약 다음 사항들에 대하여 문제 있었다면 각각 얼마나 심각했습니까? |
| Pain or burning with urination                                                | 배뇨작용 중 통증이나 화끈거림 |
| Weak urine stream/incomplete bladder emptying                                 | 약한 소변줄기/방광을 모두 비우지 못함 |
| Rectal pain or urgency of bowel movements                                      | 항문의 통증이나 갑작스런 배변활동 |

Rec: Reason for recommending reconciled version
1st: Comments by First Translator (LHJ)
2nd: Comments by Second Translator (HSY)
Rec: Reason for recommending reconciled version

Reason for Decision
1st: Comments by First Translator (LHJ)
2nd: Comments by Second Translator (HSY)
Rec: Reason for recommending reconciled version
Table 1. Forward translation of questionnaire into Korean (continued)

| US/English item | First Forward Korean Translation PLEASE CARRY FORWARD ALL FORMATTING FROM THE ORIGINAL (LYJ) | Second Forward Korean Translation PLEASE CARRY FORWARD ALL FORMATTING FROM THE ORIGINAL (PSR) | Reconciled Korean Version PLEASE CARRY FORWARD ALL FORMATTING FROM THE ORIGINAL (OSJ, CSY) | Reason for Decision |
|----------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------|
| Increased frequency of your bowel movements | 배변 횟수의 증가 | 배변 운동의 빈도를 높이다 | 배변 횟수의 증가 | Bowel movements는 laymen사 이에서는 '배변'을 의미하는 뜻 으로 쓰인다 |
| Overall problems with your bowel habits | 귀하의 배변 습관과 관련된 전체적인 문제 | 배변 습관에 대한 전체적인 문제 | 귀하의 배변 습관에 대한 전체적인 문제 | '배변은 배뇨'에 비해서 자주 쓰이는 한글 용어이므로 채택 |
| CLINICIANS: ADD the answers from questions 6a-6c to calculate the Bowel Symptom Score (out of 12): | | | | 1st: Comments by First Translator (LHJ) |
| How would you rate your ability to reach orgasm (climax)? | 오타가품질상에 다다를 수 있는 귀하의 성적 능력을 어떻게 평가하였습니까? | 오타가품질에 도달하는 능력을 측정하지 않음 | 오타가품질에 도달하는 능력을 측정하지 않는 정도입니까? | 2nd: Comments by Second Translator (HSY) |
| 0 Very good/1 Good/2 Fair/3 Poor/4 Very poor to none | 0 아주 좋다/1 좋다/2 보통이다/3 좋지 않다/4 아주 좋지 않거나 전혀 없다 | 0 매우 좋아/1 좋아/2 평균/3 미숙/매우 미숙 | 0 매우 좋아/1 좋아/2 보통/3 좋지 않음/4 매우 좋지 않거나 전혀 없음 | Rec: Reason for recommending reconciled version |
| How would you describe the usual quality of your erections? | 귀하의 평소 발기 기능을 어떻게 설명하십시오? | 평소의 발기의 질이 어떻습니까? | 평소 귀하의 발기의 질은 어떻습니까? | | Climax에 '성적'이라는 말을 앞에 붙이기로 함 |
| Firm enough/ Firm enough for masturbation/ Not firm enough for any sexual activity/ None at all | 충분히 단단하다/성관계시 발기가 전혀 되지 않는다/어떤 성활동을 하기에도 충분히 단단하지 않다 | 충분히 단단하다/성관계에 하기에도 충분히 단단하지 않다 | 충분히 단단하다/성관계에 하기에도 충분히 단단하지 않다/발기가 전혀 없기로 함 | Poor는 '줄지 않음'으로 표현하기로 함 |
| Overall, how much of a problem has your sexual function or lack of sexual function been for you? | 전반적으로 귀하의 성적인 기능이나 부족한 성적 기능이 귀하에게 얼마나 큰 문제였습니까? | 성 기능의 이상 혹은 부족한 성 기능에 대해 발생한 문제들은 얼마나 심각했습니까? | 전반적으로 귀하의 성적 기능이나 성기능 부족이 귀하에게 얼마나 큰 문제였습니까? | | |
| CLINICIANS: ADD the answers from questions 7–9 to calculate the Sexual Symptom Score (out of 12): | | | | 1st: Comments by First Translator (LHJ) |
| How big a problem, if any, has each of the following been for you? | 만약 보기에의 증상들이 있다면 각각의 증상들이 귀하에게 얼마나 큰 문제였습니까? | 다음 사항들이 귀하에게 얼마나 큰 문제였습니까? | 만약 다음에 해당하는 각각의 증상이 있다면 귀하에게 얼마나 큰 문제였습니까? | 2nd: Comments by Second Translator (HSY) |
| | | | | Rec: Reason for recommending reconciled version |

(Continued)
### Table 1. Forward translation of questionnaire into Korean (continued)

| US/English item | First Forward Korean Translation | Second Forward Korean Translation | Reconciled Korean Version | Reason for Decision |
|-----------------|----------------------------------|----------------------------------|---------------------------|---------------------|
| **CLINICIANS: ADD the answers from questions 10a–10c to calculate the Vitality/Hormonal Symptom Score (out of 12):** | | | | |
| a. Hot flashes or breast tenderness/enlargement/ b. Feeling depressed/ c. Lack of energy | a. 몸의 화끈거림이나 유방의 유연화/확대/ b. 우울함/ c. 에너지 감소 | a. 일과성 열감 혹은 유방 압통/확대/ b. 우울함을 느끼다/ c. 무기력함을 느끼다 | a. 열골 화끈거림이나 유방을 누를 때 열증/유방 커짐/ b. 우울한 느낌/ c. 무기력함 | Hot flashes는 신체 전체의 화끈거림이라는 뜻으로 주로 의학용어로 얼굴만을 의미하는 '안면홍조'라는 뜻으로 주로 쓰이므로 얼굴이라는 표현을 넣기로 함. Lack of energy는 '에너지의 부족'으로 소비를 줄기기로 함. |
| **Date:** ____/____/____ | 날짜: ____/____/____ | 날짜: ____/____/____ | 날짜: ____/____/____ | 날짜: ____/____/____ |
| **A Clinical Tool to Measure Urinary, Bowel, Sexual and Vitality/Hormonal Health** | 배뇨, 장, 성, 정질/호르몬 관련 건강 상태를 측정할 수 있는 임상 도구 | 비뇨기, 배변, 성적/호르몬 관련 건강 상태를 측정하기 위한 임상도구 | 정상의 활력/호르몬의 증상 스코어를 계산하기 위해(12개중) 질문 10a–10c의 답변들을 합산하시오: | 의사: 활력/호르몬 증상 점수(총점 12점)를 계산하기 위해 10a에서 10c번까지의 질문에 대한 답변을 모두 더해 주세요. |
| **Date:** ____/____/____ | 날짜: ____/____/____ | 날짜: ____/____/____ | 날짜: ____/____/____ | 날짜: ____/____/____ |
| **CLINICIANS: Add the five domain summary scores to calculate the Overall Prostate Cancer QOL Score (out of 60):** | 진료의: 앞의 다섯 가지 영역의 점수를 모두 더해서 전반적인 전립선암 QOL 점수를 계산해주세요. (60점 만점) | 임상의: (60개중) 전반적인 전립선암 QOL 점수를 계산하기 위해 다섯 영역의 요약 점수를 합산하시오. | 의사: 전반적인 전립선암의 질 점수(총점 60점 중)를 계산하기 위해 다섯 가지 영역의 요약 점수를 모두 더해 주세요. |
translator 1 and 2 respectively, and the panels accepted “sobyeoneul jaju bwaya ham.” “0 No problem/1 Very small problem/2 Small problem/3 Moderate problem 4 Big problem” in the original questionnaire was translated into “0 munje copseum/1 aju jageun munjega doem/2 jageun munjega doem/3 junggan jeongdo munjega doem/4 keuge munjega doem.”

**Bowel Symptoms**

Question 6, “a. Rectal pain or urgency of bowel movements” in the original questionnaire was translated into “hangmunui tongjeungina gapjaksereon baebyeon hwaldong” and “jijang tong hogeun geupan baebyeonundong” by translator 1 and 2 respectively, and the panels accepted “jijang tongjeung hogeun geupbakan baebyeongam.” “b. Increased frequency of your bowel movements” in the original questionnaire was translated into “baebyeon hoetsuui jeungga” and “baebyeon undongui bindoreul nopida” by translator 1 and 2 respectively, and the panels accepted “baebyeon hoetsuui jeungga.” “c. Overall problems with your bowel habits” in the original questionnaire was translated into “baebyeon hoetsuui jeungga” and “baebyeon undongui bindoreul nopida” by translator 1 and 2 respectively, and the panels accepted “baebyeon hoetsuui jeungga” since “baebyeon” is more frequently used by ordinary people.

**Sexual Symptoms**

Question 7, “How would you rate your ability to reach orgasm (climax)” in the original questionnaire was translated into “oreugajeum (seongjeok jeoljeonggam) ireul su inmeun gwihauu neungyeogeul eotteoke pyeoggahasigersetseumnikka.” “Orgasm (climax)” was translated into “oreugajeum (jeongjeom)” and “oreugajeum” by translator 1 and 2 respectively, and the panels accepted “oreugajeum (seongjeok jeoljeonggam)” The panels added “seongjeok” (“sexual”) to describe climax more detailed. “0 Very good 1 Good 2 Fair 3 Poor 4 Very poor to none” in the original questionnaire was translated into “0 mauju jocum/1 jocum/2 botong/3 jochi aneum/4 mauju jochi ankeona copeum.” “Poor” was translated into “jochi anta” and “misuk” by translator 1 and 2 respectively, and the panels accepted “jochi aneum.”

Question 8, “How would you describe the usual quality of your erections” in the original questionnaire was translated into “pyeongso gwihauu balgii jireun eotteoseumnikka.” “Quality” was translated into “jil” and “gineung by translator 1 and 2 respectively, and the panels accepted “jil.” “0 Firm enough/1 Firm enough for masturbation/2 Not firm enough for any sexual activity/4 None at all” in the original questionnaire was translated into “0 chungbunhi danhanham/1 jawihagie chungbunhi danhanham/2 cotteon seonghaengwireul hagiido chungbunhi danhanhaji aneum/4 balgiga jeonhyeo andoem.” “Masturbation” was translated into “sexonghaegwi” (“sexual activity”) by translator 1 and 2, and the panels accepted “jawi” (”masturbation”).

Question 9, “Overall, how much of a problem has your sexual function or lack of sexual function been for you” in the original questionnaire was translated into “jeonbanjeogeuro gwihauu seonggineungina seonggineung bujogi gwihaege eolmana keun munjeyeotseumnikka.”

**Vitality/Hormonal Symptoms**

Question 10, “How big a problem, if any, has each of the following been for you” in the original questionnaire was translated into “manyak daeumae haedanghanewon gakgagui jeungsaengi itdamyeon gwihaege eolmana keun munjeyeotseumnikka.” “a. Hot flashes or breast tenderness/enlargement” in the original questionnaire was translated into “eolgul hwakkeungoerinina yubangeul nureul.” “Hot flashes” was translated into “nomui hwakkeungeorim” and “ilgwaseong yeolgam”, which mean both “heating sensation of the entire body.” The panels accepted “eolgul hwakkeungoerinina” (“sensation of heat, especially in the face”). “b. Feeling depressed” in the original questionnaire was translated into “uulhan neukkkia.” “C. Lack of energy” in the original questionnaire was translated into “eneoji gamso” and “mugiryeokameul neukkkia” by translator 1 and 2 respectively, and the panels accepted “mugiryeokam.”

**Backward Translation and Retranslation**

As given in (Table 2), all questions in EPIC-CP questionnaire, amended by the panels, were translated in reverse (back-translated), then the panel commented on the distinctions between back-translated text and original text.

In the domain of urinary incontinence, the panels commented on the distinctions between translations of “no urinary control” in the original text and “completely out of control” in the reconciled text. The panels finally agreed to remove “jeonhyeo” in Korean since the phrase “jeonhyeo” made the translation a stronger emphasis on the extent of control.

**Cognitive Debriefing and Proofreading**

Ten patients with prostate cancer (aged from 58 to 76 years) completed the revised version of translated questionnaire after the forward and backward translation. Their education levels ranged from elementary school to university (Table 3).
### Table 2. Back translation

| Original | Forward translation | Backward translation | Comments |
|----------|---------------------|----------------------|----------|
| Patients: Please answer the following questions by checking the appropriate checkbox. | 환자: 다음 질문에 대하여 해당되는 네모 안에 표시하여 주십시오. | Patient: Mark the squares that apply to you for the following questions. | OK |
| All questions are about your health and symptoms in the LAST FOUR WEEKS. | 모든 질문들은 지난 4주간 귀하의 건강상태와 증상에 관한 것입니다. | All of the questions are about your health condition and symptoms in the past 4 weeks. | OK |
| Select one answer for each question. | 각 질문마다 하나의 답변 선택해 주세요. | Choose one answer for each question. | OK |
| Overall, how much of a problem has your urinary function been for you? | 전체적으로 귀하의 소변기능이 귀하에게 얼마나 문제가 되었습니까? | Overall, how much of a problem has your urinary function been to you? | OK |
| Which of the following best describes your urinary control? | 다음 중 귀하의 소변 조절 정도를 가장 잘 설명하고 있는 것은 무엇입니까? | Which of the following best explains your ability to control urine? | OK |
| How many pads or adult diapers per day have you been using for urinary leakage? | 소변이 새기 때문에 귀하는 패드나 성인용 기저귀를 하루에 몇 장 사용해 왔습니까? | How many pads or adult diapers a day have you used because of urine leaks? | OK |
| How big a problem, if any, has each of the following been for you? | 만약 다음에 해당하는 각각의 증상이 있다면 귀하에게 얼마나 큰 문제였습니까? | If you had each of the following symptoms, how much of a problem was it for you? | OK |
| How big a problem, if any, has urinary dripping or leakage been for you? | 만약 소변 방울이 떨어지거나 샌 적이 있다면 이 것이 귀하에게 얼마나 큰 문제였습니까? | If you have had urinary drops or leaks, how much of a problem was it for you? | OK |
| CLINICIANS: ADD the answers from questions 2-4 to calculate the Urinary Incontinence Symptom Score (out of 12): | 의사: 요실금 증상 점수(총점 12점 중을 계산하여 2번에서 4번까지의 질문에 대한 대답을 모두 더해 주세요). | Physician: Add all the answers to questions 2 to 4 to calculate the score for symptoms of urinary incontinence (total of 12 points). | OK |
| How big a problem, if any, has each of the following been for you? | 만약 다음과 해당하는 각각의 증상이 있다면 귀하에게 얼마나 큰 문제였습니까? | If you had each of the following symptoms, how much of a problem was it? | OK |
| Pain or burning with urination | 소변 볼 때 통증이나 화끈거림 | Pain or burning sensation while urinating | OK |
| Weak urine stream/incomplete bladder emptying | 약한 소변 줄기/방광을 모두 비우지 못함 | Slow urinary stream/incomplete emptying of bladder | OK |

(Continued)
Table 2. Back translation (continued)

| Original                                                                 | Forward translation                  | Backward translation                      | Comments |
|-------------------------------------------------------------------------|--------------------------------------|-------------------------------------------|----------|
| Need to urinate frequently                                              | 소변을 자주 봐야 함                  | Frequent urinating                        | OK       |
| No problem/Very small problem/Small problem/Moderate problem/Big problem| 0 문제 없음/1 아주 작은 문제가 됨/2 작은 문제가 됨/3 중간 정도 문제가 됨/4 크게 문제가 됨 | 0 No problem/1 Very little problem/2 Little problem/3 Moderately problematic/4 Very problematic | OK       |
| CLINICIANS: ADD the answers from questions 5a–5c to calculate the Urinary Irritation/Obstruction Symptom Score (out of 12): | 의사: 요 자극/폐색 증상 점수 (총점 12점 중)를 계산하기 위해 5에서 5c까지의 질문에 대한 대답을 모두 더해 주세요. | Physician: Add all the answers from questions 5a to 5c to calculate the score for symptoms of urinary stimulation and blockage. | OK       |
| How big a problem, if any, has each of the following been for you?     | 만약 다음에 해당하는 각각의 증상이 있다면 귀하에게 얼마나 큰 문제였습니까? | If you had each of the following symptoms, how much of a problem was it? | OK       |
| Rectal pain or urgency of bowel movements                               | 직장 통증 혹은 급박한 배변감         | Onset of pain in rectum or urgent need to defecate | OK       |
| Increased frequency of your bowel movements                             | 배변 횟수의 증가                      | Increase in frequency of defecation        | OK       |
| Overall problems with your bowel habits                                 | 귀하의 배변 습관에 대한 전반적인 문제 | Overall problems in your defecation habit   | OK       |
| CLINICIANS: ADD the answers from questions 6a–6c to calculate the Bowel Symptom Score (out of 12): | 의사: 배변 증상 점수 (총점 12점 중)를 계산하기 위해 6에서 6c까지의 질문에 대한 대답을 모두 더해 주세요. | Physician: Add all the answers from 6a to 6c to calculate the score for symptoms of defecation (total of 12 points). | OK       |
| How would you rate your ability to reach orgasm (climax)?              | 오르가즘(성적 절정감)에 이를 수 있는 귀하의 능력을 어떻게 평가하셨습니까? | How would you evaluate your ability to reach orgasm (sexual climax)? | OK       |
| 0 Very good/1 Good/2 Fair/3 Poor/4 Very poor to none                   | 0 매우 좋음/1 좋음/2 보통/3 좋지 않음/4 매우 좋지 않거나 없음 | 0 Very good/1 Good/2 Normal/3 Not good/4 Very not good or none |          |

(Continued)
Table 2. Back translation (continued)

| Original                                                                 | Forward translation | Backward translation                                                                 | Comments |
|--------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|----------|
| How would you describe the usual quality of your erections?              | 평소 귀하의 발기의 질은 어떻습니까? | Normally, how is the quality of your erection?                                      | OK       |
| Firm enough/Firm enough for masturbation/                                | 충분히 단단함/자위하기에 충분히 단단함/어떤 성행위를 하기에도 충분히 단단하지 않음/발기이 전혀인형 | Firm enough/firm enough because of masturbation/not firm enough for any sexual activity/no erection | OK       |
| Not firm enough for any sexual activity/None at all                      | 전반적으로 귀하의 성기능이나 성기능 부족이 귀하에게 얼마나 큰 문제였습니까? | Overall, how serious of a problem was your sexual function or the lack thereof? | OK       |
| Overall, how much of a problem has your sexual function or lack of sexual function been for you? | 의사: 성 관련 증상 점수(총점 12점 중)를 계산하기 위해 7에서9번까지의 질문에 대한 답변을 모두 더해 주세요. | Physician: Add all the answers from questions 7 to 9 to calculate the score for symptoms related to sex (total of 12 points). | OK       |
| How big a problem, if any, has each of the following been for you?       | 만약 다음에 해당하는 각각의 증상이 있다면 귀하에게 얼마나 큰 문제였습니까? | If you had each of the following symptoms, how much of a problem was it?         | OK       |
| a. Hot flashes or breast tenderness/enlargement/b. Feeling depressed/c. Lack of energy | a. 얼굴 화끈거림이나 유방을 누를 때 통증/유방커짐/b. 우울한 느낌/c. 무기력함 | a. hot in the face or pain in the breast when pressed/bigger breast b. feel depressed c. feel weak | OK       |
| "Tenderness" is an ambiguous term. It can also be translated as being sensitive to pain. |                      |                                                                                     |          |
| CLINICIANS: ADD the answers from questions 10a–10c to calculate the Vitality/Hormonal Symptom Score (out of 12): | 의사: 활력/호르몬 증상 점수(총점 12점 중)를 계산하기 위해 10a에서10c번까지의 질문에 대한 답변을 모두 더해 주세요. | Physician: Add all the answers from questions 10a to 10c to calculate the score for vitality/increase in hormone | OK       |
| A Clinical Tool to Measure Urinary, Bowel, Sexual and Vitality/Hormonal Health | 소변, 대변, 성 관련 그리고 활력/호르몬 건강을 측정하기 위한 임상적 도구 | Clinical means to survey urination, defecation, sex-related and vitality/hormonal health | OK       |
| Date: __/__/____                                                          | 날짜: __/__/____      |                                                                                     | OK       |
| CLINICIANS: Add the five domain summary scores to calculate the Overall Prostate Cancer QOL Score (out of 60): | 의사: 전반적인 전립선암 삶의 질 점수(총점60점 중)를 계산하기 위해 다섯 가지 영역의 요약 점수를 모두 더해 주세요. | Physician: Add all the scores from the 5 aspects to calculate the overall score on the QOL for prostate cancer (total of 60 points). | OK       |
They took time for completing the questionnaire from 4 to 8 minutes. Most patients answered that the translated questionnaire was digestible. Two patients did not answer the question because there was no exact number of pads they used. However, the original text contains only 4 choice alternatives, no change was needed. Four patients did not check on each choice alternatives of 5a, 5b, 5c so we added the phrase that “arae gak hangmoge daehaye ucheugui 0, 1, 2, 3, 4 jung hanaman seontaekayeo jusigi baramnida” in Korean (“Select one of the right choice alternatives 0, 1, 2, 3, 4 for each following question”). The panel ultimately finished translations by comprehensively organizing the expression, and the final version of the translated EPIC-CP questionnaires is shown in Fig. 1.

Some patients were hard to comprehend the expressions in the revised questionnaire. For example, one patient did not understand “sobyeon gineung” and another patient did not understand “seongjeok jeoljeonggam,” but it was hard to find alternative expression and only single person did not understand each phrase, so the panels decided not to change it.

**DISCUSSION**

The translation of EPIC-CP questionnaires involved inconsistencies among panels and translators. In question 5, “jikjang” was slightly indigestible to general public and some panels suggested the use of hangmun (“anus”). However, hangmun refers to a different part of body and no alternative phrase was available to replace “jikjang” (“rectum”), so the panels selected “jikjang.” In question 7, the panel members commented on the distinction between translations of “2 fair” in the original text and “2 normal” in the reconciled text. One panel suggested that “fair” means normal or average, but it also has a more positive connotation than “normal,” whereas “normal” means average or in the middle. The other panels agreed with that suggestion to some degree but it was hard to find an alternative Korean word for “fair,” so the panels agreed not to change the reconciled text.

During the translation of multiple overactive bladder questionnaires, few words continued to show a difference between translators and the panel. The word “urgency” was translated as gingeup and gingeupseong by 2 translators, both meaning “emergency” in common. Yojeolbak is a popular translation used in urological publications and the panel agreed on using Yojeolbak. Similarly, symptom-related adjectives such as “urgent” were difficult to translate, and were not retained literally but were replaced by colloquial expressions [10].

The word “moderate” was translated as botong and junggan by 2 translators, and the word “usually” was translated as juro and botong by 2 translators [11]. The translated term botong was used differently by 2 translators. It generally means “normal” or “normally.” In the forward translation, the panel reached a consensus regarding the translation of “usually” as juro, but showed inconsistencies in translating “moderate” as botong in Indevus Urgency Severity Scale and junggan in Urgency Perception Scale. The panel reviewed this inconsistency and given the tendency to proceed in the order of “mild,” “moderate” and “severe,” the members agreed that it was natural to use junggan [11].

In conclusion, our study proposed reliable and suitable lin-

---

**Table 3. Patient data summary sheet**

| Subject No. | Age | Sex | Pathology (stress/urge/mixed) | Profession/educational level | Time to complete questionnaire (min) |
|-------------|-----|-----|--------------------------------|-------------------------------|--------------------------------------|
| 1           | 65  | Male| PPI                            | Middle school                 | 4                                    |
| 2           | 74  | Male| PPI                            | Elementary school             | 8                                    |
| 3           | 67  | Male| PPI                            | University                    | 4                                    |
| 4           | 65  | Male| PPI                            | High school                   | 6                                    |
| 5           | 72  | Male| PPI                            | University                    | 4                                    |
| 6           | 75  | Male| PPI                            | University                    | 4                                    |
| 7           | 58  | Male| PPI                            | Elementary school             | 4                                    |
| 8           | 76  | Male| PPI                            | University                    | 4                                    |
| 9           | 65  | Male| PPI                            | University                    | 8                                    |
| 10          | 73  | Male| PPI                            | Elementary school             | 6                                    |

PPI, postprostatectomy incontinence.
Fig. 1. Korean version of the Translation and Linguistic validation of Korean version of the Expanded Prostate Cancer Index Composite for Clinical Practice for patients with prostate cancer.
Linguistic validation of the EPIC-CP questionnaires in Korean. HRQoL was also emphasized in patients with prostate cancer. The Korean version of EPIC-CP translation can be used to evaluate the severity of symptoms in Korean patients with prostate cancer.

ACKNOWLEDGMENTS

This article was supported by the members of the Questionnaire Investigation Committee of the Korean Continence Society. Seung-Ee Kim performed previous linguistic validation study and supported this article.

AUTHOR CONTRIBUTION STATEMENT

- Conceptualization: YCH, SYC, JHK, SJJ, SJO
- Data curation: YCH, SYC, SJJ, SJO
- Formal analysis: YCH, SYC
- Funding acquisition: YCH, SYC
- Methodology: YCH, SYC, JHK, SJJ, SJO
- Project administration: YCH, SYC, JHK, SJJ, SJO
- Visualization: YCH, SYC
- Writing-original draft: YCH, SYC
- Writing-review & editing: YCH, SYC

ORCID

Sung Yong Cho 0000-0001-9271-6951
Seong Jin Jeong 0000-0002-3580-1452
Seung-June Oh 0000-0002-0322-3539

REFERENCES

1. Litwin MS, Hays RD, Fink A, Ganz PA, Leake B, Leach GE, et al. Quality-of-life outcomes in men treated for localized prostate cancer. JAMA 1995;273:129-35.
2. Wei JT, Dunn RL, Litwin MS, Sandler HM, Sanda MG. Development and validation of the expanded prostate cancer index composite (EPIC) for comprehensive assessment of health-related quality of life in men with prostate cancer. Urology 2000;56:899-905.
3. Litwin MS, Hays RD, Fink A, Ganz PA, Leake B, Brook RHJMc. The UCLA Prostate Cancer Index: development, reliability, and validity of a health-related quality of life measure. Med Care 1998;36:1002-12.
4. Szymanski KM, Wei JT, Dunn RL, Sanda MGJU. Development and validation of an abbreviated version of the expanded prostate cancer index composite instrument for measuring health-related quality of life among prostate cancer survivors. Urology 2010;76:1245-50.
5. Chang P, Szymanski KM, Dunn RL, Chipman JJ, Litwin MS, Nguyen PL, et al. Expanded prostate cancer index composite for clinical practice: development and validation of a practical health related quality of life instrument for use in the routine clinical care of patients with prostate cancer. J Urol 2011;186:865-72.
6. Kim SE, Lee HS, Lee HN, Lee SY, Choo MS, Park MG, et al. Korean translation and linguistic validation of urgency and overactive bladder questionnaires. Int Neurourol J 2020;24:66-76.
7. Kang SH, Oh SJ, Jeong SJ, Cho SY. Linguistic Validation of the intermittent self-catheterization questionnaire for patients with neurogenic bladder who perform intermittent catheterization for voiding dysfunction. Int Neurourol J 2019;23:75-85.
8. Lee HN, Chae JY, Lee HS, Choo MS, Park MG, Lee SY, et al. Translation and linguistic validation of the Korean version of the treatment satisfaction visual analogue scale and the overactive bladder satisfaction with treatment questionnaire. Int Neurourol J 2017;21:309-19.
9. Cho SY, Lee HE, Jeong SJ, Oh SJ. Translation and linguistic validation of the Korean version of the “benefit, satisfaction, and willingness to continue” questionnaire for patients with overactive bladder. Int Neurourol J 2016;20:255-9.
10. Acquadro C, Kopp Z, Coyne KS, Corcos J, Tubaro A, Choo MS, et al. Translating overactive bladder questionnaires in 14 languages. Urology 2006;67:536-40.
11. Yoon YE, Cho SY. Translation and linguistic validation of the Korean version of the Wisconsin Stone Quality of Life Questionnaire. Int Neurourol J 2020;24:77-83.