The cross-cultural adaptation for Patient's Denture Assessment Thai version (PDA-T)

Orapin Komin[1], Sahaprom Namano[2]

[1]Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

[2]Geriatric Clinic, Dental Hospital, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

Abstract

This study aimed to present the process of cross-cultural adaptation to develop to a Thai version of the Patient's Denture Assessment (PDA-T) from the Japanese original version. It is a self-assessment for the patients who wear complete dentures to evaluate six aspects, which are Function, Esthetics and Speech, Lower Denture, Expectation of Improvements with New Dentures, Upper Denture, and the Importance of Complete Dentures to the Patient. Then, check for the content validity with the face validity. Using this assessment can be beneficial in making a diagnosis, determining the prognosis, and comparing the efficacy of a complete denture (before and after the treatment). Each question is measured using a horizontal 100-mm visual analog scale (VAS). However, an extra question is added into the Thai version. The content validity and face validity were assessed in a sampling of 33 people (11 males and 22 females with an average age of 70.36 years old). The participants were instructed to read each question and mark an outcome to represent their situations by a vertical line through the horizontal VAS in each question. The PDA-T indicated good content validity after the initial test. Further research is recommended for the process of the psychometric, reliability, validity and responsiveness properties of the PDA-T.

Keywords: Patient's Denture Assessment (PDA), cross-cultural adaptation, Oral Health-related Quality of Life, complete denture

Correspondence to:

Orapin Komin, Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University, 34 Henri-Dunant Road, Wangmai, Pathum-wan, Bangkok, 10330, Thailand Tel: 02-218-8532 Fax: 02-218-8534 E-mail: Orapin.geriatric@gmail.com

Introduction

Nowadays, the number of older people has increased. According to a report on the 2017 survey of Thai population, 16.7 % of the total Thai population[1] is at least 60 years old. Thai older people still have many oral problems from caries to periodontal disease and tooth loss.[2] When there is a lot of tooth loss, dentures

are needed to replace the teeth. Survey results indicated that there is a significant decline of Quality of Life (QoL) when people lose their teeth, and when wearers cannot cope with their dentures.[3-5] Research show the increase of oral problems and a decrease of QoL shown by the increase of the Oral Impact on Daily Performances (OIDP) score of the participants when they lose their teeth, especially for the last five last teeth in the oral cavity that will impact the QoL of the patient significantly.[6] The replacement for edentulous ridge can be prepared with partial or complete denture. The aim of the denture construction is to recover the chewing ability, esthetics, and the speech of the patients.[7] From the 8th National Survey, Thai older people who were totally edentulous in the age group 60-74 and 80-85 years was 8.7 % and 31.0 %, respectively.[2] That means that they still need prosthesis.

The Patient's Denture Assessment (PDA) is a self-assessment developed by Komagamine et al. from edentulous patients with complete dentures in Japan. Its original version is in Japanese.[8] The PDA's main purpose is for complete denture wearer patients to be able to self-assess the patients' complete dentures in the aspects of perception, consciousness, and feelings.[7,8] It represents both positive and negative impacts of the complete dentures. The PDA is used for making a diagnosis, determining the prognosis, and comparing the efficacy of complete denture (before and after the treatment).[7]

The PDA comprises of 22 questions which are divided into 6 categories; function (4 items), esthetics and speech (4 items), lower denture (4 items), expectation of improvements with new dentures (3 items), upper denture (3 items), and the importance of complete dentures to patients (4 items). Each question is measured using a 100-mm visual analogue scale (VAS) which comprises of a horizontal 100-mm line. The words expressing the worst situation is at the left end-point of the line, while the words expressing the best situation is at the right end.[8]

The cross-cultural adaptation is a necessary process of preparing a self-assessment for using in other settings.[9] The only good translation of the original language into a new language is still awareness of the new setting due to the cultural diversity across different settings.[9-11] However, there is still no assessment that evaluates the satisfaction of older people treated with complete dentures or other removable denture in the Thai language.

Oral health-related quality of life (OHRQoL) has important implications for the clinical practice of dental research. The concept of OHRQoL has been modified to be an instrument to measure the state of clinical practice, dental research and dental education in many studies to solve oral problems in the community.[12] There are several indicators used to measure OHRQoL; the most popular ones are GOHAI, OHIP, and OIDP to measure the effect of the oral health to the QoL. OHRQoL is a multidimensional construction that includes a subjective evaluation of the individual's oral health, functional well-being, emotional well-being, expectations and satisfaction with care, and sense of self.[12] Many of the useful instruments were cross-culturally adapted into many languages.[13-15]

In Thailand, there is no questionnaire used for evaluating, making a diagnosis, determining the prognosis, and comparing the efficacy of complete dentures as mentioned above. From the previous study, PDA has shown to be a proper instrument for denture assessment.[7,8,16] The objective of this study was to make the process of a cross-cultural adaptation to develop a Thai version of the Patient's Denture Assessment (PDA-T) from the Japanese version.

Materials and Methods

In this study, the Japanese version of the PDA was cross-culturally adapted into Thai according to the guidelines.[9-11] The study protocol was approved by the Ethical Committee of Chulalongkorn University (Study Code: HREC-DCU, 2019-004). The method process is shown in Figure 1.

First, the original Patient's Denture Assessment (PDA-J) was translated (FT) from Japanese into Thai by three Thai translators who were proficient in Japanese.

One of them was a prosthodontist, while the others neither had a dental background nor knew the concepts or the objective of this study. In this stage, all translators worked independently (FT1, FT2, and FT3) and did not consult the researchers.

For the second step, these three translators discussed and combined the results of the three separate translations (FT1, FT2 and FT3) to produce a common translation (FT-123). This synthesized version of the self-assessment (FT-123) was used in the next step.

The third step, the synthesized version (FT-123) was back translated (BT) into Japanese by two Japanese translators who were proficient in Thai. Both of them were blind to the original version of the PDA. In this stage, all translators worked independently (BT1 and BT2) and did not consult the researchers. The objective of this stage was to ensure that the translated version reflected the same content as the original version in Japanese.[9,10]

For the fourth step, these two back translators synthesized the results of the two independent translations (BT1 and BT2) to produce a common translation (BT-12). Then, the researchers thoroughly discussed the contents of BT-12 version with the Japanese dentists who developed the original PDA to make sure that the BT-12 version reflect the same content as the original one.[9,11]

Lastly, the synthesized version of the self-assessment (FT-123) was revised by an expert committee which was comprised of three prosthodontists who were experts in complete denture, one methodologist and one translator who was a language professional. The committee discussed and developed the pre-final of the Thai version of PDA with the standard Thai in the text of the assessment. Then, the obtained Thai language PDA as a pre-final version was used to determine the content validity and face validity of the questionnaire in the next step.[11] The 33 total edentulous Thai patients, with complete dentures at the Prosthodontic Clinic, Faculty of Dentistry, Chulalongkorn University who used Thai as their mother language without any sign of cognitive impairment according to observation, conversation, and history taken in hospital chart of the patients. Moreover, the patients must have at least finished Primary School with good reading skills to be selected to join in this study. This process was performed by one researcher.
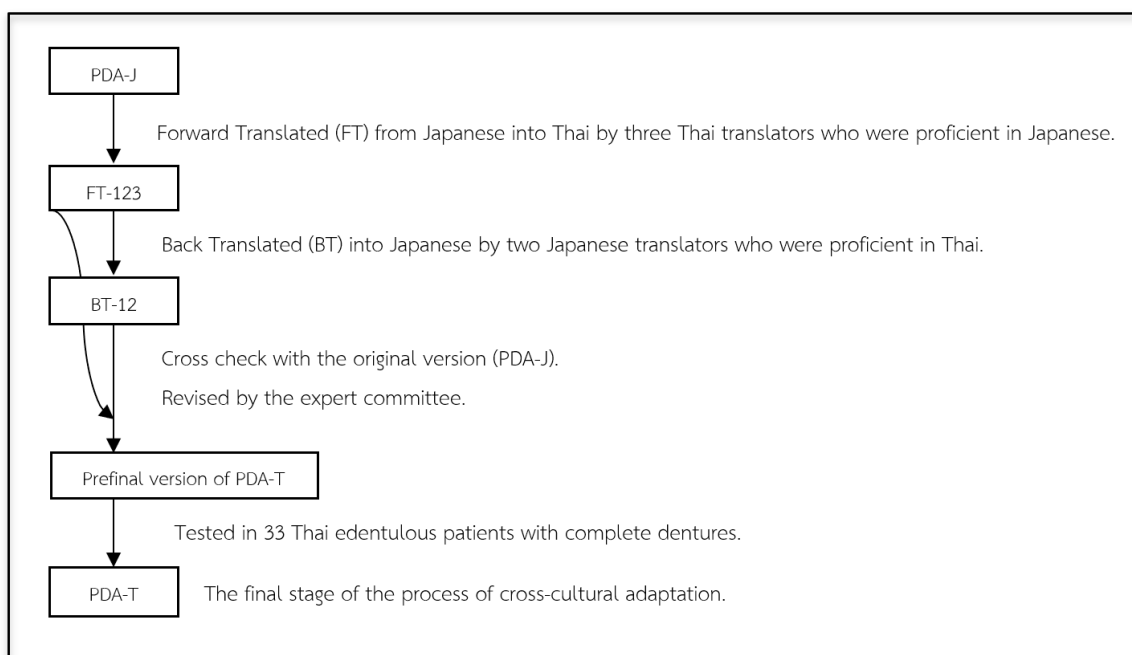

Figure 1 *The flow chart describing the process of cross-cultural adaptation.*

All patients were informed about this study and signed a consent form prior to participation. Each question in the self-assessment was measured using a 100-mm visual analogue scale (VAS) which is comprised of a horizontal 100-mm line. The words expressing the worst situation is at the left end-point of the line, while the words expressing the best situation is at the right end. The study participants were instructed to read each question and mark a vertical line at the point representing their situations on a horizontal 100-mm line by themselves. The value of each question was assessed as the distance from the left side of a 100-mm line to the mark of the participants.[7,8,16] After the completion of the self-assessment, all participants were interviewed soon after about what they understood by each question and discussed their chosen responses. After all the information and suggestions were obtained from the participants, there was a discussion with the linguistic and the Prosthodontics experts about all the details and the arrangement of the questionnaire form. The pre-final version of questionnaire was then referred to "PDA-T".

Results

Thirty-three patients with an average age of 70.36 years old were selected to join in this project, the demographic data of the participants are shown in table 1.

By using the PDA-T pre-final version in our participants, we found that all of the participants understood well throughout the assessment except two participants found that it was a bit difficult to interpret the content asking about the expectation for the new denture.

However, from the obtained information and suggestions from the participants, there was a discussion with the experts and the Japanese dentist who developed the original PDA. Finally, one more question was added in the category about the Upper denture of the PDA-T (question number 12) (Fig. 2). The overall for the PDA-T is still divided into six categories which are the same as the original one. (Fig. 2.) The first part which is used to evaluate the functions while wearing dentures contains four items. The second and third parts which are used to assess the lower and upper denture factors respectively also have four items each. The fourth part which is used to value the expectation of the patient for the improvements with the new dentures, has three items. The fifth part which is used to judge for the esthetics and speech, also has four items. Lastly, the sixth part which is used to rate the importance of the dentures to the patients has four items as well. All categories are sequenced the same as the original one.

For the heading of the questionnaire, added to the form to be filled was the general information of each participant, such as gender, age (also Date of Birth), the highest educational level, the period of losing teeth, the history of the denture making, and the number of the dentures that the patients used to have including the problems for the new one. Moreover, we rearrange the format of the assessment to give a big picture to the person who will use this self-assessment form to have a clearer understanding than prior to the assessment. From this, the pre-final version of the questionnaire was referred to "PDA-T" (Fig. 2)

Table 1 Demographic data

Participants (persons)	Gender(%)	Average age (years)	Education(%)
33	Male, 33.33	70.36	Primary school, 36.36
	Female, 66.67		Secondary school, 42.42
			Bachelor degree, 18.18
			Master degree, 3.03

คำถามที่ 1-4 การใช้งานของฟันเทียมถอดได้ทั้งปาก

    1. ท่านมีอาการเจ็บขณะใส่ฟันเทียมถอดได้ทั้งปากหรือไม่

    2. ท่านสามารถกลืนอาหารหรือน้ำได้ง่ายหรือไม่

    3. ท่านสามารถรับประทานอาหารได้อย่างเอร็ดอร่อยหรือไม่

    4. ท่านรู้สึกเมื่อยขากรรไกรหรือไม่

คำถามที่ 5-8 จะถามเกี่ยวกับฟันเทียมถอดได้ทั้งปากล่าง

    5. มีเศษอาหารเข้าไปติดใต้ฐานฟันเทียมล่างขณะรับประทานอาหารหรือไม่

    6. ฟันเทียมล่างติดแน่นดีหรือไม่

    7. ฟันเทียมล่างแนบสนิทกับเหงือกหรือไม่

    8. ท่านรู้สึกว่าฟันเทียมล่างกลมกลืนกับส่วนอื่นในช่องปากหรือไม่

คำถามที่ 9-12 จะถามเกี่ยวกับฟันเทียมถอดได้ทั้งปากบน

    9. มีเศษอาหารเข้าไปติดใต้ฐานฟันเทียมบนขณะรับประทานอาหารหรือไม่

    10. ฟันเทียมบนแนบสนิทกับเหงือกหรือไม่

    11. ฟันเทียมบนขยับหลุดขณะใช้งานหรือไม่

    12. ท่านรู้สึกว่าฟันเทียมบนกลมกลืนกับส่วนอื่นในช่องปากหรือไม่

คำถามที่ 13-15 ความคาดหวังเกี่ยวกับฟันเทียมถอดได้ทั้งปากชุดใหม่

    13. ท่านคิดว่าจะได้ฟันเทียมถอดได้ทั้งปากใหม่ตามที่ท่านคาดหวังหรือไม่

    14. ท่านคิดว่าฟันเทียมถอดได้ทั้งปากใหม่จะมีปัญหาหรือไม่

    15. ท่านคิดว่าทันตแพทย์จะสร้างฟันเทียมถอดได้ทั้งปากให้เหมาะกับท่านหรือไม่

คำถามที่ 16-19 การใช้งานของฟันเทียมถอดได้ทั้งปาก ด้านความสวยงามและการพูด

    16. ท่านกังวลกับสายตาของผู้อื่นที่มองมาหรือไม่

    17. ท่านรู้สึกพูดลำบากหรือไม่

    18. ท่านรู้สึกกังวลกับลักษณะและรูปร่างบริเวณรอบริมฝีปากหรือไม่

    19. ขณะพูดมีเสียงฟันเทียมกระทบกันหรือไม่

คำถามที่ 20-23 ความสำคัญของการใช้ฟันเทียมถอดได้ทั้งปาก

    20. ท่านคิดว่าฟันเทียมถอดได้ทั้งปากที่ใช้อยู่เป็นส่วนหนึ่งของร่างกายหรือไม่

    21. ท่านคิดว่าฟันเทียมถอดได้ทั้งปากเป็นสิ่งสำคัญสำหรับท่านหรือไม่

    22. ท่านคิดว่าการดูแลฟันเทียมถอดได้ทั้งปากที่ใช้อยู่เป็นอย่างไร

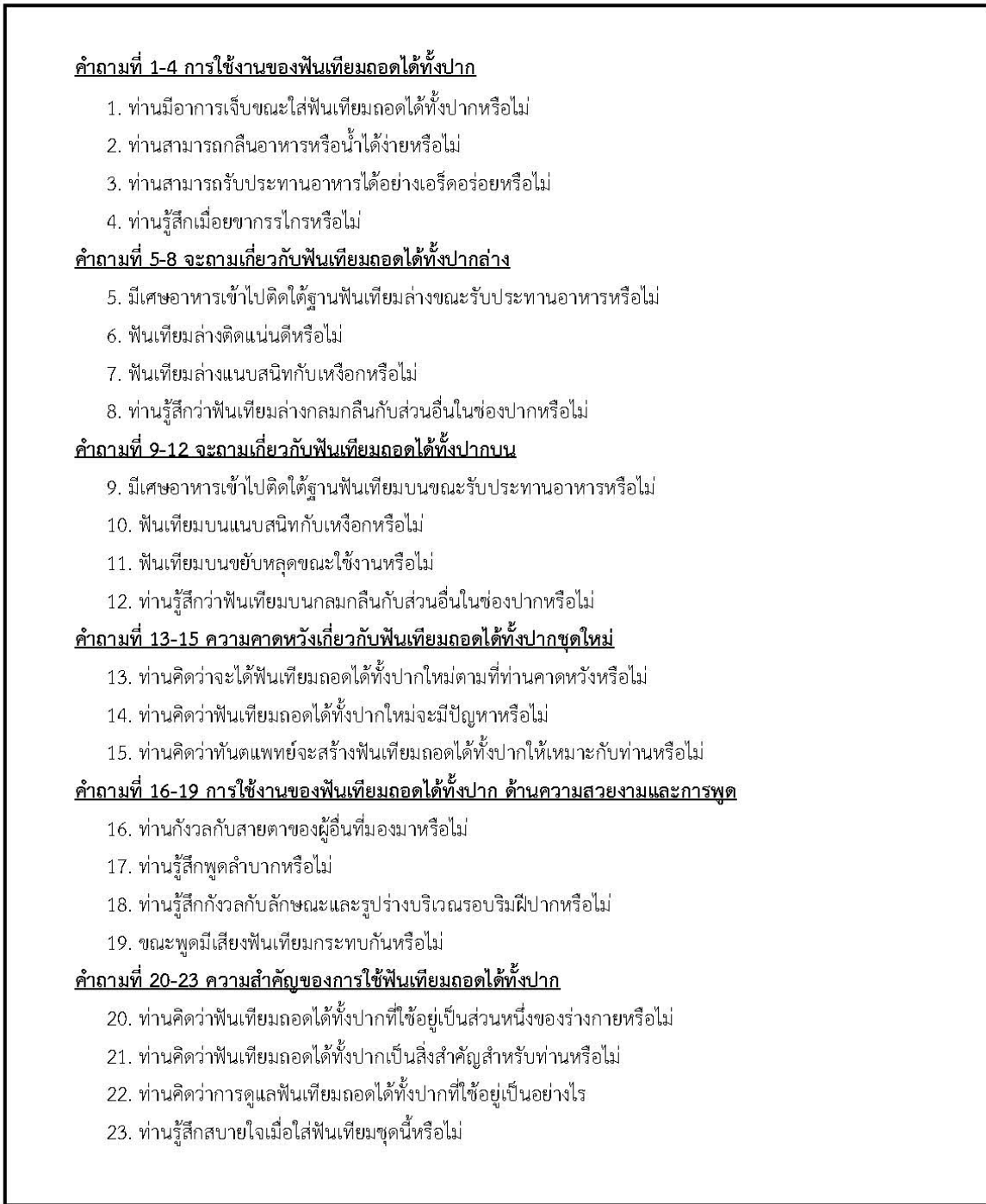   23. ท่านรู้สึกสบายใจเมื่อใส่ฟันเทียมชุดนี้หรือไม่

Figure 2   PDA-T

Discussion

The objective of this research is to create a process of a cross-cultural adaptation for developing a Thai version of the Patient's Denture Assessment (PDA-T) from the Japanese version. From the face validity and the content validity of the pre-final version, the participants have been clearly discussed about the complete dentures in the aspects of perception, consciousness, and feelings within six categories from the questionnaire. We found

that the Thai context used in this questionnaire is easy to understand and suitable to convey the information and communicate with Thai elderly. The results obtained from this assessment can be used to analyze and fix their problems.

The average time consumed for the self-assessment per participant is 5.24 minutes, which is suitable for the attention and concentration to answer the questions.

For future research, the PDA-T will be confirmed with the other OHRQoL index for the psychometric properties, reliability, and responsiveness of this instrument.

Conclusion

This research has met the objective in the cross-cultural adaptation for the Patient's Denture Assessment. It could be a useful instrument for screening the pre- and post prosthodontic treatment for the patients and also for the follow-up of denture usage. The evaluation will also reflect the perceptions, consciousness, and the feelings of the patients towards the prosthesis.

Acknowledgement

References

1. National Statistical Office, Ministry of Digital Economy and Society. Report on the 2017 survey of the older persons in Thailand. Bangkok: Bangkok Block; 2018.

2. Division of Dental Public Health, Ministry of Public Health. The 8th National Oral Health Survey in Thailand 2017. Bangkok: *Samcharoen Panich*; 2018.

3. Limpuangthip N, Somkotra T, Arksornnukit M. Modified retention and stability criteria for complete denture wearers: A risk assessment tool for impaired masticatory ability and oral health-related quality of life. *J Prosthet Dent* 2018;120(1):43-9.

4. Saintrain MV, de Souza EH. Impact of tooth loss on the quality of life. *Gerodontology* 2012;29(2):e632-6.

5. Srisilapanan P, Korwanich N, Jienmaneechotchai S, Dalodom S, Veerachai N, Vejvitee W, *et al.* Estimate of Impact on the Oral Health-Related Quality of Life of Older Thai People by the Provision of Dentures through the Royal Project. *Int J Dent* 2016;2016:1976013.

6. Somsak K, Kaewplung O. The effects of the number of natural teeth and posterior occluding pairs on the oral health related quality of life in elderly dental patients. *Gerodontology* 2016;33(1):52-60.

7. Komagamine Y, Kanazawa M, Kaiba Y, Sato Y, Minakuchi S. Reliability and validity of a questionnaire for self-assessment of complete dentures. *BMC Oral Health* 2014;14(1):45.

8. Komagamine Y, Kanazawa M, Kaiba Y, Sato Y, Minakuchi S, Sasaki Y. Association between self‑assessment of complete dentures and oral health‑related quality of life. *J Oral Rehabil* 2012;39(11):847-57.

9. The World Health Organization. Translation and adaptation of instruments[Internet]. 2019 [cited 2019 May 24]. Available from: https://www.who.int/substance_abuse/research_tools/translation/en/

10. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)* 2000;25(24):3186-91.

11. Krisdapong S. Oral health-related quality of life. Bangkok: Chulalongkorn University Printing House; 2014.

12. Sischo L, Broder HL. Oral health-related quality of life: what, why, how, and future implications. *J Dent Res* 2011;90(11):1264-70.

13. Yamazaki M, Inukai M, Baba K, John MT. Japanese version of the Oral Health Impact Profile (OHIP-J). *J Oral Rehabil* 2007;34(3):159-68.

14. Niesten D, Witter D, Bronkhorst E, Creugers N. Validation of a Dutch version of the Geriatric Oral Health Assessment Index (GOHAI-NL) in care-dependent and care-independent older people. *BMC Geriatr* 2016;16:53.

15. Matsuo K, Nakagawa K. Reliability and Validity of the Japanese Version of the Oral Health Assessment Tool (OHAT-J). *Journal of the Japanese Society for Disability and Oral Health* 2016;37(1):1-7. (In Japanese, English abstract)

16. Komagamine Y, Kanazawa M, Sasaki Y, Sato Y, Minakuchi S. Prognoses of new complete dentures from the patient's denture assessment of existing dentures. *Clinical Oral Investigation* 2017;21(5):1495-1501.