



Comparison of translated penile perception score in anterior hypospadias patients post urethroplasty

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Abstract

Hypospadias is the most common congenital anomaly of the male external genitalia, but data on epidemiology and patient evaluation are still limited in Indonesia. Currently there is no national post-operative evaluation tool for hypospadias, nor comparative data of only one specific type of hypospadias. We decided to trial the Penile Perception Score questionnaire in a preliminary study to help determine it as an effective post evaluation tool. The questionnaire was translated to Bahasa Indonesia, and used to evaluate anterior hypospadias patients who underwent urethroplasty between January 2020 and December 2024 at Dr. Cipto Mangunkusumo Hospital. Patient satisfaction and surgeon rater from the Penile Perception Score, along with patient baseline data were collected and analysed. Twenty anterior hypospadias subjects were interviewed. Parent proxy was used in all but one patient to answer the questionnaire. From the questionnaire scores, we found evidence of difference when comparing the scores between one stage and two stage technique groups. From each interview, there was no difficulty in answering nor understanding the questionnaire. The translated Penile Perception Score was feasible to be used as an evaluation tool. It has potential to be useful in a more comprehensive post-operative satisfaction rate evaluation. Full cultural adaptation and validation study in a wider range of hypospadias patient is recommended.

Keywords: Anterior hypospadias, Penile perception score

Introduction

Hypospadias are classified into three types according to Duckett classification: anterior (glanular, coronal, and distal penile), middle (midshaft and proximal penile), and posterior (penoscrotal, scrotal, and perineal) (1,2). Middle and posterior types tend to be more common, and could be treated with multiple techniques. There are many hypospadias operation techniques described, and since the 1960s many literatures have compared them. In our center, techniques used can be generally divided to two-stage such as Aivar-Bracka and our novel Sidik-Chaula (3,4), and one-stage such as the Tubularized Incision of the Urethral Plate (TIP), first described by Snodgrass (5).

The type of hypospadias itself could also affect the surgery outcome (6). More posterior location of the meatus can lead to more difficult surgery. Therefore in this study, we decided to uniform the hypospadias type by including only anterior hypospadias.

For outcome measurement, multiple questionnaires

have been developed, such as the Penile Perception Score (PPS) and the Hypospadias Objective Penile Evaluation (HOPE) Score, as well as other scoring systems (7-9). Locally in Indonesia, hypospadias studies in general especially evaluation studies using standardized evaluation tool is still lacking. From all available evaluation tools, we choose to trial the PPS as the questionnaire of choice because it can measure the patient's subjective view as compared to other tools. Hopefully in the future it can prove to be the questionnaire of choice for evaluating nationwide hypospadias patients. This study will be the preliminary study in fully adapting and validating the PPS, and also to lead the way to introduce more research on hypospadias in Indonesia.

Methods

This is a preliminary study with cross-sectional design intended to trial the PPS questionnaire as an effective evaluation tool. The PPS comprises of two parts, a patient questionnaire score and a surgeon's rating score. For the translation guideline, we contacted the original author of PPS questionnaire

and they recommended the Gudmundsson guideline for the adaptation and validation process (10). The PPS is then forward translated into Bahasa Indonesia by two licensed independent third party. From the two translations, the authors discussed and chose the most accurate translation and sent it to be translated back to English by the same independent third party. The back translation is then sent to the original author of the questionnaire for approval. After approval, the questionnaire is then used for interview with our anterior hypospadias patients.

For the anterior hypospadias patient sample, we retrospectively search from medical records. All patients who underwent urethroplasty between 2020 and 2024, were contacted and invited to be evaluated in the polyclinic. To make sure the patients satisfaction rates are final, we chose patients that are at least 12 months' post-operative and did not have complications nor additional operations.

Children patients were conducted independent interviews with their parents, while adult patients answered their own interviews. The data collected consist of patient characteristics, such as age of surgery, technique used, and the PPS scores. The surgeon's evaluation was conducted by one of the involved plastic surgeons specializing in external genitalia without knowing the identity and other data of the patients. Evaluations were performed by examining the patient's clinical picture. We have received approval from our Institutional Review Board and all patients have given consent to participate in the study.

The PPS scoring system consists of six evaluation points for the patient questionnaire and four evaluation points for the surgeon's evaluation. Patient and surgeon will then give a rating between 0 (very dissatisfied), 1 (dissatisfied), 2 (satisfied), and 3 (very satisfied) for each point. The maximum score for patient satisfaction is 18 while maximum score for surgeon rater is 12.

While proceeding with the study, we tried dividing anterior hypospadias patients to one stage and two stage technique groups. We then tried to compare the PPS scores between two groups using statistical analysis. But because of the low sample and the data not normally distributed, data analysis was performed using the Mann-Whitney test.

Results

Questionnaire translation

The translation process began with forward translation of the questionnaire by two licensed independent third party. After making some adjustments and conducting a back translation, we sent questionnaire back to the original author and received their approval. According to Gudmundsson's guidelines, a test-retest study and further research in a larger population are still needed to validate the questionnaire in the future. The following is our approved translation from English to Bahasa Indonesia, statements in bold are the translated Bahasa Indonesia counterparts:

Penile perception score→**Skor persepsi penis**

Patient questionnaire→**Kuesioner pasien**

We will talk about several aspects of your penis. Please tell me how satisfied you are with these. There are four possible answers: Very satisfied, satisfied, dissatisfied, very dissatisfied. Please tell me which one is the most appropriate for you.

Kita akan mendiskusikan beberapa aspek dari penis Anda. Mohon beritahu saya seberapa puas Anda terhadap aspek-aspek tersebut. Terdapat 4 pilihan jawaban: Sangat puas, Puas, Tidak puas, Sangat tidak puas. Mohon beritahu saya mana yang paling sesuai untuk Anda

1. Length of your penis→**Panjang penis anda**
2. Position and shape of your→**Posisi dan bentuk lubang kemih anda**
urethral opening
3. Shape of your glans→**Bentuk glans (kepala penis) anda**
4. Shape of your penile skin→**Bentuk kulit penis anda**
5. Penile axis (straightness→**Sumbu penis (kelurusan saat ereksi)**
upon erection)
6. General appearance of your penis→**Penampilan penis anda secara umum**

Surgeon rater→**Dokter bedah penilai**

1. Meatal position and shape→**Posisi dan bentuk**

meatus

- 2. Shape of glans→**Bentuk glans (kepala penis)**
- 3. Shape of the penile skin→**Bentuk kulit penis**
- 4. General cosmetic appearance→**Tampilan estetik secara umum**
 - 0 (very dissatisfied)→**Sangat tidak puas**
 - 1 (dissatisfied) →**Tidak puas**
 - 2 (satisfied) →**Puas**
 - 3 (very satisfied) →**Sangat puas**

Patient characteristics

After searching the medical records from 2020 to 2024, we found thirty anterior hypospadias patients. Ten were excluded due to being unreachable and not

agreeing to participate. Twenty anterior hypospadias patients that was available were invited and agreed to do their interviews and taken clinical photographs in the hospital clinic. From the gathered patients, we found equal amount of patients when divided to one stage and two stage technique groups, with ten patients each. Patient data characteristics are summarized in (Table 1). The average age of patients was 6.6±4.31 years, half of those patients were under 6 years old and one patient had urethroplasty as an adult. 19 patients were children and were assisted by their parents for completing the questionnaire, while one adult patient was able to complete the questionnaire himself. The most common anterior hypospadias type was distal penile, with nine patients (45%).

Table 1. Patient characteristics

Patient characteristics		Hypospadias type				Total
		Glanular	Coronal	Subcoronal	Distal penile	
Operation technique	One stage	2	3	3	2	10 (50%)
	Two stage	-	-	3	7	10 (50%)
Age range	0 – 6 years	1	2	2	5	10 (50%)
	> 6 years	1	1	4	4	10 (50%)

Questionnaire results

Out of the twenty patients, none had difficulty understanding the instructions nor providing the ratings in each points in the translated questionnaire. The surgical evaluation was carried out by a single

plastic surgeon with a subspecialty in external genitalia. The surgeon whom was also involved in the treatment of the patients, conducted the review anonymously without knowing the identity of any of the patients through clinical photographs.

Table 2. Patient questionnaire

Translated PPS	Average	One stage	Two stage	P-value
	(SD)	group (SD)	group (SD)	
Panjang penis	2,3 (0,48)	2,4 (0,51)	2,3 (0,48)	0,64
Posisi dan bentuk lubang kemih	1,8 (1)	1,6 (0,96)	2 (1,05)	0,34
Bentuk glans (kepala penis)	2,1 (0,74)	2,1 (1)	2,2 (0,78)	0,74
Bentuk kulit penis	2,1 (0,78)	2,1 (4,84)	2,1 (0,87)	0,83
Sumbu penis (kelurusan saat ereksi)	2,2 (0,95)	2,3 (1,1)	2,3 (0,82)	0,77
Penampilan penis secara umum	2 (0,68)	2,1 (0,87)	2 (0,47)	0,42
Total	12,6 (3,74)	12,4 (4,24)	12,9 (3,38)	0,79

Based on the patient questionnaire and surgeon rater, the average score for each item and the total score are summarized in (Table 2 and 3). The average total score for patient satisfaction is quite high with 12,6±3,74 while average total score surgeon rater is

6,1±2,43. We managed to have an even number of patients when divided to one stage and two stage technique groups, so we tried to compare the PPS scores between the two groups.

Table 3. Surgeon rater

Translated PPS	Average	One stage	Two stage	P-value
	(SD)	group (SD)	group (SD)	
Posisi dan bentuk meatus	1,6 (0,88)	1,7 (0,94)	1,5 (0,84)	0,603
Bentuk glans (kepala penis)	1,8 (0,83)	2,2 (0,94)	1,6 (0,69)	0,12
Bentuk kulit penis	1,3 (0,74)	1,5 (0,52)	1,2 (0,91)	0,301
Tampilan estetik secara umum	1,4 (0,59)	1,4 (0,51)	1,4 (0,69)	0,35
Total	6,1 (2,43)	6,6 (2,31)	5,7 (2,58)	0,02

Based on the patient questionnaire scores comparison, no evidence of difference was found. But based on the surgeon rater scores, although the average score for each item did not show any differences, the total score showed an evidence of a difference, with $P < 0.05$ (Table 3). Upon closer examination, the scores in the one-stage group were relatively higher than those in the two-stage group. Although due to our methodological limitations, we could not produce any clear conclusions to this data.

Discussion

This study has resulted in the trial results of translated Penile Perception Score in Bahasa Indonesia to evaluate anterior hypospadias patients. From our patients, no issues were found regarding understanding the instructions or completing the questionnaire.

The questionnaire itself proves to be quite useful in determining the satisfaction rate of the patients. Patient assessments score relatively yielded high scores. This may attributed be due to the patient and parent's low expectations for hypospadias surgery. From the interviews, we can see the questionnaire being received well by patients and parents with relatively high scores and simple points being understood.

In the original study of the PPS, they used a cut-off age range of six years old to determine whether the questionnaire was answered independently or with a parent proxy. However, we decided to use a parent proxy in all children as they generally did not yet understand the ideal form of the penis or their genitalia, so parents still assisted with their questionnaire responses. These could be attributed to differences in sexual education between Switzerland (where the original PPS was developed) and Indonesia. In Indonesia, sex education tends to be provided between the ages of 10 and 12, typically in

the late elementary or early junior high school years (10).

There is also optimistic evidence of statistical difference when using the PPS to compare between two surgical technique groups. In the surgeon assessment scores evidence of difference was found, where the one-stage group is observed to be higher than the two-stage group. This could be attributed to the fact that in one stage group, there were more cases of glanular and coronal hypospadias, which may have made urethroplasty easier (11). The two-stage group, on the other hand, was dominated by distal penile types. However, clear conclusions could not be determined due to our lack of more detailed data such as penile curvature and patient immediate post-operative care. Snodgrass supports this fact in his most recent textbook on hypospadias, which states degree of ventral penile contracture, not the meatal location, more determines the severity and the choice of technique (12). We acknowledge that the interpretive data from the statistical analysis is still lacking and should not be taken as a clear conclusive evidence.

This study has other limitations due to being a preliminary study. This study has not yet reached full trans cultural adaptation nor the validation stage, but it serves as a initial study for the feasibility of the Penile Perception Score questionnaire to be used as a nationwide evaluation tool. The surgeon rater could also benefit from more unrelated surgeons evaluating, which could provide more objective assessments through inter-rater reliability testing.

Conclusion

This preliminary study demonstrated the translated PPS as a good evaluation tool for hypospadias, due to its relatively simple construction, and ability to measure both subjective and objective data.

For future studies, a larger sample size with a prospective cohort design should be considered, taking into account the degree of penile curvature as one of the main variables.

Author contributions

Conceptualization, I.A. and R.J.; methodology, R.J.; formal analysis, R.J. and I.A.; writing—original draft preparation, R.J.; writing—review and editing, I.A. All authors have read and agreed to the published version of the manuscript.

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Ethics statement

Ethical approval has been given by our Institutional Review Board along with informed consent from all participants. Reference number KET-126 /UN.F1/ETIK/PPM.00.02/2024.

Conflict of interest

The authors declare that there are no conflicts of interest regarding this manuscript.

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