



WORKING ON AND CONFIRMING A SCALE TO MEASURE SELF-EFFICACY IN PEDIATRIC CLINICAL DECISION-MAKING

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ABSTRACT:

To succeed in clinical practice, people need to have both the knowledge and ability, plus the belief in their ability to carry out needed tasks. No present tool is designed solely for measuring self-efficacy during clinical decisions common in general pediatrics. In order to measure pediatric residents' confidence in making clinical choices in general pediatric settings, an updated scale called the General Pediatrics-specific Self-Efficacy (GPedsSE) scale was created and tested. Experts created a five-item GPedsSE scale, patterned after the New General Self-Efficacy (NGSE) scale, to make it easy to compare the two. All the pediatric residents in postgraduate years 1 through 5 at the tertiary center completed both scales and the items were mixed order to cut down on bias. GPedsSE scores averaged 18.6 (with an average deviation of 2.6), out of a total score of 25. A correlation of 0.54 ($P < 0.005$) was found between GPedsSE and NGSE scores. GPedsSE improved a lot through different levels of training ($F[1.3] = 6.62$; $P < 0.001$), while NGSE did not change much ($F < 0.37$). Each scale was clearly found to consist of two components through factor analysis. GPedsSE can help you measure your confidence in making decisions when caring for children. This development proposes a new method to prove concurrent validity by taking an existing general tool and making it fit for specialty use.

KEYWORDS: Pediatric training, Clinical competence, Resident education, Decision-making confidence, Specialty-specific assessment.

INTRODUCTION:

There are important changes happening in paediatric primary care. More children with complex medical problems are seen by general paediatricians and these doctors are often consulted by other health professionals involved in paediatrics. Taking care of complex cases is important, but being skilled at treating usual and common paediatric health issues is always necessary for effective clinical advice. It is tricky for trainees in tertiary academic hospitals to improve their skills in making clinical decisions for general paediatrics. Currently, students who have completed the program feel confident looking after critically ill children in the hospital, but find it challenging to

manage frequent routine paediatric conditions seen outside. Believing one is able to perform the actions needed in a particular situation greatly affects clinical results. Should self-efficacy drop, individuals might make less of an effort, give up more quickly and feel less confident, all leading to task failure. Many studies have analyzed self-efficacy in certain medical areas, but general decision-making in general paediatrics has received little attention. Our goal was to develop and test a scale—the GPedsSE—that can measure pediatric self-efficacy. This scale, once validated, will be useful for following the development of paediatric residents in basic decision-making skills.

METHODOLOGY:

The authors know of no earlier studies that focus solely on understanding or summarizing the role of confidence in healthcare decisions in general paediatrics. Since existing research was not available, the making of GPedsSE scale items was guided by expert suggestions. Before now, this method was employed in similar research aimed at designing or confirming the accuracy of task-specific self-efficacy instruments.

The main investigator interviewed group of three general paediatricians with varying levels of experience (four, 16 and 35 years) and who work both in hospitals and in the community. After providing an introduction to self-efficacy, the experts were asked to explain what makes good, strong clinical decision-making and strong self-efficacy in general paediatrics. As we interviewed, we took detailed written notes. Researchers studied the findings through an inductive approach by reading and analysing the responses many times. The main content analysis results helped determine the top five themes that formed the basis for the GPedsSE measure.

Table 1. Respondents' Demographics (n = 36)

Demographic Variable	Category	Number of Respondents
Sex	Male	13
	Female	23
Location of Medical School Training	Domestic	21
	International	15
Postgraduate Training Year	Year 1	12
	Year 2	9
	Year 3	10
	Year 4 or higher	5

Table 2: Factor Loadings of NGSE and GPedsSE Items on Principal Components

Scale	Item	Component 1	Component 2
NGSE	I am confident in achieving most of my personal goals	0.58	—
	I feel certain I can complete challenging tasks	0.77	—
	I believe I can reach important personal outcomes	0.81	—
	I feel capable of succeeding in most things I pursue	0.81	—
	I can overcome significant challenges successfully	0.85	—
	I am confident performing well in a wide range of tasks	0.77	—
	*I perform most tasks better than others	0.69	0.48
	Even in tough situations, I perform quite well	—	0.44
GPedsSE	*I am confident knowing when to order investigations in general pediatrics	0.57	0.50
	I know when a general pediatric case needs specialist referral	—	0.62
	I feel confident not missing serious illness in general pediatrics	—	0.92
	*I can manage routine general pediatric conditions	0.56	0.43
	When faced with complex cases, I am confident in making good decisions	—	0.79

Table 3: GPedsSE and NGSE Scores by Postgraduate Year (PGY)

PGY Level	n	GPedsSE Mean \pm SD	GPedsSE Range	NGSE Mean \pm SD	NGSE Range
PGY-1	11	18.0 \pm 2.7	15–23	31.9 \pm 4.3	27–40
PGY-2	10	18.3 \pm 1.5	16–21	31.2 \pm 2.5	28–37
PGY-3	10	19.7 \pm 2.3	17–25	31.3 \pm 3.7	25–37
PGY-5	5	22.8 \pm 1.3	21–24	33.0 \pm 1.4	31–34

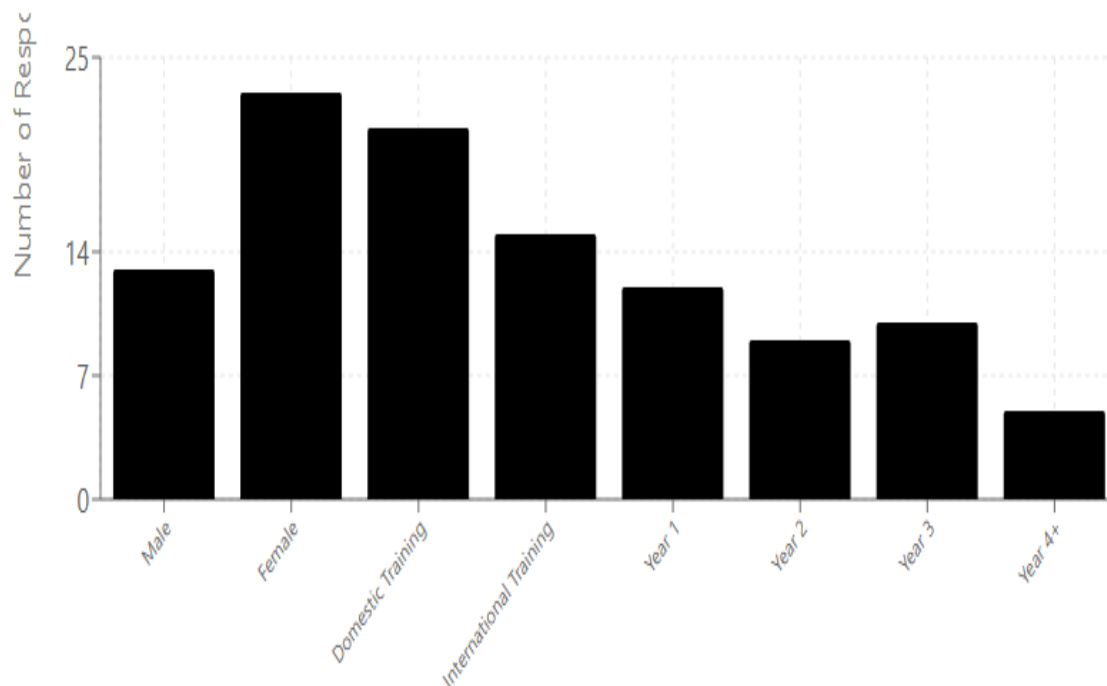
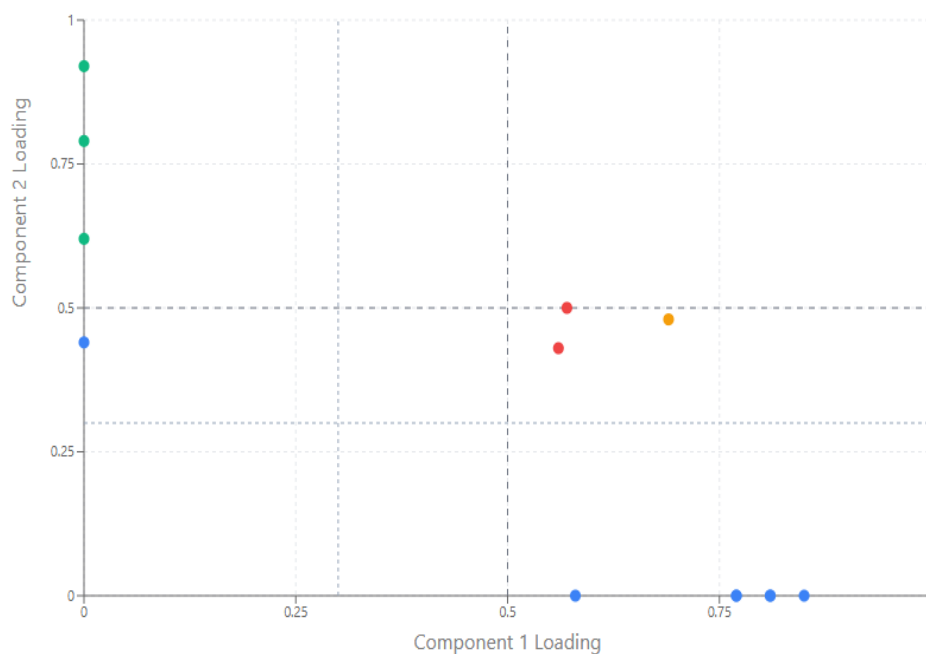
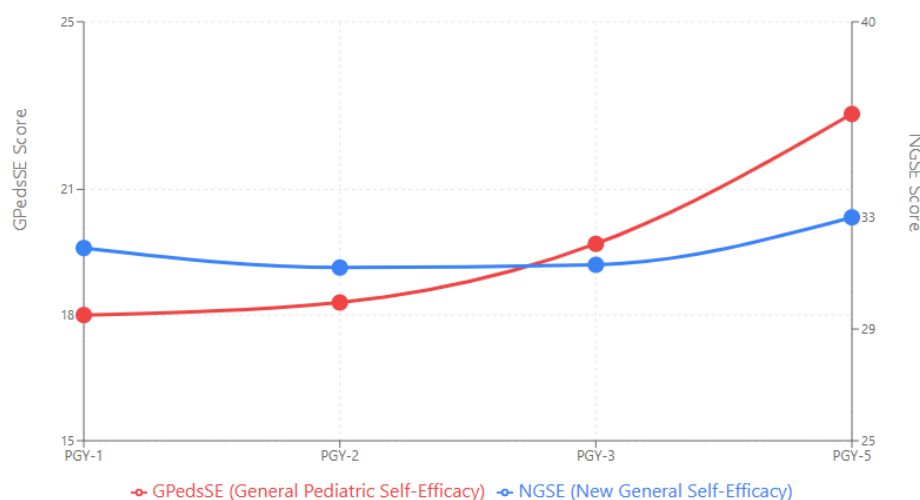
Figure 1: Respondents' Demographics (N = 36)**Figure 2: Factor Loadings: NGSE and GPedsSE Principal Component Analysis, Component 1 vs Component 2 Loadings**

Figure 3: GPedsSE and NGSE Scores by Postgraduate Year (PGY), Self-efficacy progression through residency training



RESULT:

In all, 36 residents were part of the study and their characteristics can be seen in Table 1. Most of the participants were female at 63.9% ($n = 23$), compared to males at 36.1% ($n = 13$). Of the residents, almost six out of ten (58%) completed all their medical training locally, with foreign experiences for 42% of participants. Twelve residents were in PGY-1 training, nine in PGY-2, ten in PGY-3 and five were residents in PGY-4 or above groups. The factor analysis of the NGSE and GPedsSE items (shown in Table 2) showed that both general and pediatric self-efficacy were separate dimensions. The results on the NGSE scale show that many items led strongly to Component 1, especially “I can handle major difficulties” (0.85) and “I believe I will achieve most of my goals” (0.81), indicating that the scale is consistent. Not all items were placed solely on just one scale; for instance, “Performing most tasks, I excel over others” loaded on both components (0.69 and 0.48) and “In tough situations I am still able to perform well” only on Component 2 (0.44). All the GPedsSE questions loaded highly on Component 2, making “I feel certain not to miss important illnesses in general pediatrics” (0.92) the main contributor to that factor, showing how unique it is to pediatric medicine. As displayed in Table 3, the mean GPedsSE score for each training year rose from 18.0 ($SD \pm 2.7$) in PGY-1 to 22.8 ($SD \pm 1.3$) in PGY-5. Therefore, it seems that doctor’s belief in their own abilities in pediatric care improves over their training. Conversely, there were not many differences in NGSE scores by PGY level which suggests that a unique self-efficacy tool might still be useful in general pediatrics.

DISCUSSION:

We designed and provided beginning validation for the GPedsSE scale which pediatric residents may use to assess their capabilities in clinical decision making in general pediatrics. The basis for our validation approach was that self-efficacy in deciding on pediatric matters is closely linked to overall self-efficacy, even though it is considered a distinct one. The total scores of the two scales showed a correlational link, but analysis of the test structure concluded that each scale reflected a separate factor. It shows that the GPedsSE is special in capturing pediatric decision-making confidence. Two GPedsSE items were found to have characteristics similar to those of NGSE, probably because of the way they were worded. Yet, we retained them, because they originated from expert sources and are meaningful for children. Furthermore, general assessment questions may not always be precise enough, so students answer similarly on many items. With added experience, observation and feedback during their training, residents’ competency in pediatric medicine increased, as the GPedsSE scores demonstrated each year. In contrast, scores in NGSE did not change, as studies often find general self-efficacy changes more slowly over time. The GPedsSE scale helps track what students are learning, discover who could benefit from support services

and suggest strategies to raise learners' confidence taking decisions. Interestingly, self-efficacy was equal between genders, unlike the findings in other sciences. International medical graduates scored higher on pediatric self-efficacy than others which could be related to their previous pediatric practice. More work is needed to learn from these findings. Its study design at a single site and the small number of participants make it difficult to apply the results to other populations. We created our items using experts' advice since there were few ready-made tools which possibly narrowed the number of skills we could test. Researchers should evaluate this test in expanded educational settings and see if it is useful for other healthcare staff who work with children such as family medicine doctors in training. We ought to look into if having higher self-efficacy, measured by GPedsSE, leads to improved clinical results.

CONCLUSION:

We created a brief, user-friendly, and valid scale to measure the self-efficacy of pediatric residents in making clinical decisions within general pediatrics. This scale was developed by incorporating expert-driven, context-specific items into an already validated tool, representing a novel approach to achieving concurrent validity through scale adaptation. Application of the GPedsSE scale revealed that pediatric residents' confidence in clinical decision-making increases as they progress through their training. Pediatric residency programs may consider adopting this tool to evaluate the self-efficacy of their trainees in general pediatrics. Such use could support further validation of the scale and ultimately justify its role in informing educational curricula, monitoring individual progress, and directing targeted remediation efforts.

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