Evidence-based practice among doctors in specialty training in a pediatric hospital in Peru

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Abstract
The purpose of this study is to determine the use of evidence-based practice among doctors in specialty training at Instituto Nacional del Niño-San Borja in Lima, Peru. (INSN-San Borja). A total of 200 doctors in paediatric specialty training were included in this cross-sectional study. The Health Sciences Evidence-Based Practice (HS-EBP) questionnaire was performed to assess the use of evidence-based clinical practices. The questionnaire has five dimensions: "Beliefs and attitudes" (D1), "Results from scientific research" (D2), "Development of professional practice" (D3), "Assessment of results" (D4), and "Barriers and facilitators" (D5). Each of the five HS-EBP questionnaire dimensions had a median score of 107, 107, 79, 88, and 77, respectively. The ranges of possible scores in each dimension were as follows: from 12 to 120 in D1, D4, and D5; from 14 to 140 in D2; and from 10 to 100 in D3. This study shows that doctors in specialty training at the INSN-San Borja obtained median scores over the mean of possible scores in each of those dimensions, with a lower score in D5 (Barriers and facilitators). This shows that these doctors use evidence-based practice, however they consider there are barriers for its application. According to our observations, the main barrier is the lack of available time due to other clinical commitments.

Keywords: evidence-based medicine; evidence-based practice; healthcare, physicians.

Práctica basada en evidencia entre médicos en formación de especialidad en un hospital pediátrico del Perú

Resumen
El objetivo del estudio es determinar el uso de la práctica basada en evidencia entre los médicos en formación de especialidad en el Instituto Nacional del Niño-San Borja en Lima, Perú (INSN-San Borja). Es un estudio transversal y se incluyeron un total de 200 médicos en formación en la especialidad de pediatría. Se realizó el cuestionario Health Sciences Evidence-Based Practice (HS-EBP) para evaluar el uso de prácticas clínicas basadas en la evidencia. El cuestionario tiene cinco dimensiones: "Creencias y actitudes" (D1), "Resultados de la investigación científica" (D2), "Desarrollo de la práctica profesional" (D3), "Evaluación de resultados" (D4) y "Barreras y facilitadores" (D5). Cada una de las cinco dimensiones del cuestionario HS-EBP tuvo una puntuación media de 107, 107, 79, 88 y 77, respectivamente. Los rangos de puntajes posibles en cada dimensión fueron los siguientes: de 12 a 120 en D1, D4 y D5; de 14 a 140 en D2; y de 10 a 100 en D3. Este estudio muestra que los médicos en formación de la especialidad en el INSN-San Borja obtuvieron puntuaciones sobre la media de las puntuaciones posibles en cada una de esas dimensiones, con una puntuación inferior en D5 (Barreras y facilitadores). Esto demuestra que estos médicos utilizan la práctica basada en la evidencia, sin embargo, consideran que existen barreras para su aplicación. Según nuestras observaciones, la principal barrera es la falta de tiempo disponible debido a otros compromisos clínicos.

Palabras clave: cuidado de la salud; médicos; practica basada en evidencia; practica basada en medicina.

1   Introduction

Evidence-based practice (EBP) is "the conscientious and judicious use of current best evidence in conjunction with clinical expertise and patient values to guide health care decisions". This provides a critical perspective in decision-making, preventing errors in the diagnosis, prognosis, and treatment [1]. It has been observed that patients who obtain evidence-based diagnoses, prognoses, and treatments have better outcomes than those who do not [2]. Thus, EBP has emerged as the preferred mechanism for integrating the best available evidence and improving patient outcomes by using the current information to make decisions in patient care. It has been observed that it reduces the healthcare costs, standardizes clinical practice, improves the job satisfaction, and empowers health personnel [3].

During the COVID-19 pandemic in Peru, many doctors used therapies not supported by high-quality evidence and only based on the experts opinion were used, showing the problematic in this subject [4]. However, there is growing interest in EBP, especially in young physicians and medical students.

EBP is positioning itself in developing countries, such as Peru, despite challenges in its application mainly for the fact that physicians "need to develop skills such as bibliographic research, critical appraisal (both methodological and statistical) of scientific papers and clinical reasoning to provide the patient with the best care based on the evidence found" [5,6]. Nevertheless, new generations of physicians are increasingly aware of the necessity to use it, not just in hospitals but also at all levels of the healthcare system [7].

There are many international instruments to assess EBP. We used the Health Sciences-Evidence Based Practice questionnaire (HS-EBP) due to its accurate psychometrics features, as well as its Spanish version that facilitates its application to our population [8].

Pediatric specialty doctors are trained in the Instituto Nacional de Salud del Niño, San Borja (INSN-San Borja) which is one of the most important national institutes in pediatric medicine. Doctors in training are expected to use recommendations established in clinical guidelines to perform their clinical activities. This study aims to identify the use of EBP among doctors in training, highlighting the barriers and resources they have to apply in this Peruvian institute.

2   Methodology

2.1   Study design and participants

This is a descriptive cross-sectional study conducted in the INSN-San Borja, one of the main pediatric specialized hospitals in Peru. The study was carried out from July to November, 2019.

Sampling was done considering a prevalence of EBP of 0.50, at a confidence interval of 95%, and a margin of error of 5%. As there were 415 doctors in training at that time, to demonstrate representativity our sample was 200. Due to the difficulties in finding the doctors in teaching locations, a convenience non-probabilistic sampling method was performed. Doctors from other institutions who were performing an external rotation in the INSN-San Borja during the study period, were included. Physicians who did not want to participate in the study were excluded.

The Health Sciences Evidence-Based Practice questionnaire was used to determine EBP [9]. This questionnaire was developed in Spain and includes five dimensions in 60 items. It evaluates knowledge, skills, attitudes and behavior related to EBP in health professionals. Items are assessed by question using four-point Likert scales.

The first dimension is "Beliefs and attitudes" (D1), which contains 12 items, followed by "Results from scientific research" (D2), which contains 14 items, "Development of professional practice" (D3), which contains 10 items, "Assessment of results" (D4), which contains 12 items, and "Barriers and facilitators" (D5), which contains 12 items. The D1 collects the respondent's opinion regarding different aspects related to EBP paradigm. The D2, D3, and D4 collect information about knowledge/abilities and the use of EBP. D5 includes information about all the aspects related to the work environment, as well as the barriers and/or facilitators that they perceive on a regular basis when using EBP.

The instrument was validated in a pilot test applied to 20 doctors in training from INSN-San Borja. The Cronbach´s alfa value for the instrument was 0.954. D1 had a value of 0.760, D2 a value of 0.926, D3 a value of 0.858, D4 a value of 0.899, and D4 a value of 0.928. Therefore, the instrument was considered appropriate for this study as it shows an acceptable internal consistency.

2.2   Procedures

Data collection was performed face to face during an induction in the hospital. First, the purpose of the study was explained to the participants. Subsequently, the instrument was self-applied by the doctors in pediatric training who accepted to participate. The mean time used by participants to answer the questionnaire was 15 minutes approximately. All doctors completed the survey accurately. No missing data was observed in the surveys.

2.3   Statistical analysis

The data obtained were put into SPSS V20.0. Summary measure and measures of central tendency were determined, and statistical program, tables, and graphics were constructed. The analysis was carried out with a confidence interval of 95%.

2.4   Study participation and privacy

This study was approved by the Research Ethics Committee of the INSN-San Borja. All participants were informed about the study and signed informed consents. The rights of the doctors in pediatric training were respected, as well as the ethical principles of the Declaration of Helsinski. Names or identification numbers were not required, therefore the confidentially of the data obtained was guaranteed. The results were only used for the study purposes.

3   Results

A total of 200 doctors were included: 58.5% were female; 51% had 2 to 3 years of practice experience; 85.5% worked less than 60 hours per week; 30.5% had taken training courses in evidence-based medicine (EBM); and 13.5% had taken courses in research methodology (Table 1).

D1 had a median of 107/120 (over the upper value), with a quartile 1 and 3 values from 106 to 109 (interquartile range (IQR), 3; mean, 107.33 + 4.31). D2 had a median score of 107/140, with quartile 1 and 3 values of 107 and 114 (IQR, 7; mean, 109.16 + 7.26). D3 had a median score of 79/100, with quartile 1 and 3 values of 79 and 83 (IQR, 4; mean, 80.45 + 5.52). D4 had a median score of 88/120, with quartile 1 and 3 values of 88 and 89 (IQR, 1; mean, 88.1 + 8.03). D5 had a median score of 77/120, with quartile 1 and 3 values of 77 and 82 (IQR, 5; mean, 77.28 + 11.28). All the medians obtained in each dimension are over the midpoint of the maximum possible value (Table 2). The Kolmogorov−Smirnov test for normality had statistical significance in all the dimensions (60 items) ($p \leq 0.001$).

Regarding the relationship between sociodemographic variables and the total score in the instrument, it was observed that the score obtained by resident physicians with less work experience (2 to 3 years) was higher than the score obtained by physicians with more work experience (4 to 16 years) (468.30 ± 17.11 vs. 456.07 ± 36.00; $p = 0.022$) (Table 3).

Table 1.
Doctors in specialty training´s sociodemographic characteristics

Variable	N	%
Sex		
Female	83	41.5
Male	117	58.5
Specialty		
Clinical	85	42.5
Surgical	68	34.0
Others	47	23.5
Work experience		
2−3 yr	102	51
4−16 yr	98	49
Working hours per week		
<60 h	171	85.5
≥60 h	29	14.5
Have you received any type of specific training in EBP?		
Yes	61	30.5
No	139	69.5
Training topics in EBP		
Bibliography search training on electronic databases or similar, generally introductory courses.	22	11.0
In addition to the above, training in introduction to the research methodology	27	13.5
In addition to the above, advanced training in research	12	6.0
Total	200	100.0

EBP, evidence-based practice.

Table 2.
Evidence-based practice among doctors in specialty training

	Beliefs and attitudes (D1)	Results from scientific research (D2)	Development of profesional practice	Assessment of results (D4)	Barriers/ Facilitators (D5)	Practices total
Mean + SD	107.33 + 4..31	109.16 + 7.26	80.45 + 5.52	88.10 + 8.03	77.25 + 11.28	462.31 + 28.60
Median (P50)	107.00	107.00	79.00	88.00	77.00	460.00
P25-P75	106-109	107-114	79-83	88-89	77-82	458-476
Range	87-119	69-113	46-98	43-110	30-112	313-549
K-S test	p≤0.001	p≤0.001	p≤0.001	p≤0.001	p≤0.001	p≤0.001

K−S test, Kolmogorov−Smirnov test; SD, standard deviation.

Table 3.
Evidence-based practice among doctors in specialty training according to sociodemographic variables

	Sex			Work experience		
	Male	Female	*p* value	2−3 yr	4−16 yr	*p* value
Mean ± SD	464.70 ± 23.01	458.94 ± 34.87	0.939*	468.30 ± 17.11	456.07 ± 36.00	0.022**
Median (P50)	460	460		461	459	
P25−P75	458−475	457−481		458−481	457−465	
Range	326−543	313−549		402−543	313−549	
	Working hours per week			**Training in EBP**		
	2−3 yr	4−16 yr	*p* value	Yes	No	*p* value
Mean ± SD	468,30 ± 17,11	456,07 ± 36,00	0,022**	459,85 ± 32,70	463,39 ± 26,66	0,42*
Median (P50)	461	459		460	460	
P25−P75	458−481	457−465		457−475	458−478	
Range	402−543	313−549		343−549	313−543	
	Specialty					
	Clinical	Surgical	Others			*p* value
Mean ± SD	460,29 ± 30,57	462,44 ± 26,27	465,77 ± 28,41			0,58***
Median (P50)	459	460	462			
P25−P75	457−457,5	457−470	459−479			
Range	326−543	343−549	313−527			

*Student's t-test
**Mann−Whitney U-test
***ANOVA

4 Discussion

This study shows that doctors in pediatric specialty training at the INSN-San Borja obtained median scores that were over the midpoint of the maximum possible value, with a lower score in D5 (Barriers and facilitators). This shows positive scores with respect to EBP.

We found that one-third of physicians received training in EBP, but only 1 of 10 had a background of scientific data management training. This coincide with previous studies that showed the lack of training in scientific data management at higher medical education level [10,11].

We have not found similar studies assessing the EBM use at medical training level in Peru. However, some studies have evaluated the use of EBM used by other health personnel. According to a study carried out by physicians in San Bartolomé Hospital in Lima, 80% of them had a favorable predisposition toward evidence-based learning and considered that research evidence was useful in clinical practice [12]. Similar results were observed in Loayza and Almenara National Hospitals in Lima, where most internists specialist and trainees expressed a favorable attitude toward EBM, but considered that EBM had limited dissemination between professionals, making its implementation complicated [13].

According to a study conducted in Cuenca, Ecuador, physicians at José Carrasco Urteaga Hospital very frequently use EBM strategies to answer clinical questions. Additionally, they have a favorable attitude toward EBM, believe that EBM is fundamental, and have high-level research skills that may be applied to clinical practice [14]. A study carried out in Mexico showed that trainee doctors in pediatrics had appropriate conditions toward the implementation of EBM; however, there are also barriers, such as a limited access to digital libraries and insufficient time to exclusively perform bibliographic search [15].

A study carried out in Osteopathic Physiotherapists from Spain assessed their health practitioners using the same instrument from this study and reported lower median values on the dimensions D1, D2, and D5 as compared to the current study, with very similar values in D3 and D4. Authors concluded that osteopaths use less scientific evidence than other physical therapy professionals [16]. Interestingly, other studies conducted in Spain among nurses using other instruments [17,18], found that nurses had favorable predisposition toward the implementation of new evidence into their daily practice; however, there were multiple barriers to its implementation, including poor motivation and lack of support from their institutes.

In this study, we found that D5 had the lowest scores. There are several barriers to apply EBP that has been described in previous publications, including the difficulty in accessing information in healthcare centers, the lack of hours dedicated exclusively to research in many institutions, the lack of standardized and developed clinical and procedural guidelines for patient care, and the lack of an exclusive place to discuss research results [12-18].

One important limitations of the present study is that it was carried out in a single health institution, which could not be extrapolated to other Peruvian educational health facilities. Additionally, we might need to take consideration of desirability bias in which doctors wanted to show the best answers knowing they are going to be evaluated even though the questionnaire was anonymous. This is especially likely since our questionnaire includes subjective questions and is not an evaluation of EBM skills. Despite these limitations, we consider that these results are important since they provide a first approach to EBM in a specialized pediatric institute in Peru.

5 Conclusions

For all the aforementioned, doctors in training in pediatrics at the INSN-San Borja considered that using the evidence-based medicine is important in their professional activities. However, we assume that they do not always have time to answer the questions by searching scientific information. Future research should be conducted to understand this gap.

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