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ORIGINAL RESEARCH

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THE IMPACT OF INDONESIAN MEDICAL DOCTORS NATIONAL COMPETENCY EXAMINATION (IMDNCE) TOWARDS LEARNING AND CLINICAL PRACTICES: A QUALITATIVE STUDY ON THE INTERNSHIP DOCTORS' PERSPECTIVES

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ABSTRACT

Background: The implementation of the national licensing examination for medical doctors is expected to have a broad impact on doctors and society. Indonesian Medical Doctor National Competency Examination (IMDNCE; Indonesian: Uji Kompetensi Mahasiswa Program Profesi Dokter or UKMPPD) as an 'exit exam' in the medical education process may significantly impact learning and clinical practices. The study's objective was to explore the impact of IMDNCE on both the learning and clinical practices of doctors.
Methods: The study subjects were internship doctors who had passed the IMDNCE. Participants were recruited by purposive sampling based on the ownership status of the institution (state/private) and the accreditation of respective medical schools and participants' gender. The study participants consisted of 41 internship doctors working in 6 regions from 33 different medical schools out of 75 medical faculties in Indonesia.
Results: IMDNCE has a positive influence on learning and clinical practice. The IMDNCE process emphasizes standard competencies that must be mastered and patient management process with current evidence that is not always achieved during clinical education, increasing clinical knowledge and skills, and increasing awareness of professional development. IMDNCE also has very well affected in the development of self-confidence and a sense of responsibility which are essential in clinical practice. In addition to psychological influences, IMDNCE improves competence in clinical skills and promotes good medical practice.
Conclusions: IMDNCE had good impact on the learning and the clinical practices from the perspectives of the internship doctors.

Keywords: IMDNCE, UKMPPD, licensing examination, learning impact, clinical practice, medical education

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ABSTRAK

Latar belakang: *Penerapan ujian nasional sebagai syarat lisensi dokter diharapkan berdampak luas bagi dokter dan masyarakat. Uji Kompetensi Mahasiswa Program Profesi Dokter atau UKMPPD sebagai 'exit exam' dalam proses pendidikan kedokteran dapat berdampak signifikan pada pembelajaran dan praktik klinis. Tujuan dari penelitian ini adalah untuk mengeksplorasi dampak UKMPPD pada pembelajaran dan praktik klinis para dokter lulusan di Indonesia.*

Metode: *Subjek penelitian ini adalah dokter internship yang telah lulus UKMPPD. Peserta direkrut secara purposive sampling berdasarkan status kepemilikan institusi (negeri/swasta), akreditasi institusi kedokteran masing-masing, dan jenis kelamin peserta. Partisipan penelitian terdiri dari 41 dokter internship yang bekerja di 6 wilayah dari 33 fakultas kedokteran yang berbeda dari total 75 fakultas kedokteran di Indonesia.*

Hasil: *UKMPPD memiliki pengaruh yang baik dalam belajar dan praktik klinik. UKMPPD menekankan kembali kompetensi standar yang harus dikuasai oleh dokter umum dan manajemen pasien dengan tatalaksana terbaru yang tidak selalu tercapai selama pendidikan klinik, meningkatkan keterampilan dan pengetahuan klinik, serta meningkatkan kesadaran dalam pengembangan profesional. UKMPPD juga memberikan pengaruh yang sangat baik dalam menumbuhkan percaya diri dan rasa tanggung jawab yang sangat penting sebagai modal dalam memberikan pelayanan kepada pasien. Selain pengaruh psikologis, IMDNCE meningkatkan kompetensi keterampilan klinik dan mendorong penerapan praktik medik yang baik.*

Kesimpulan: *UKMPPD memiliki dampak yang baik pada pembelajaran dan praktik klinis dari perspektif dokter magang.*

Kata kunci: *UKMPPD, penilaian, dampak pembelajaran, praktik klinik, pendidikan kedokteran*

PRACTICE POINTS

- The IMDNCE is perceived to improve students' knowledge, skills, and mindset regarding clinical practice and competences.
- The IMDNCE also positively influences student confidence and their sense of clinical responsibility.

INTRODUCTION

Many countries have implemented national licensing examinations (NLE) for doctors. As a developing country in Southeast Asia, Indonesia has also implemented a national licensing examination since 2014, called The Indonesia Medical Doctor National Competency Examination (IMDNCE). For Indonesia, a developing country with many medical faculties that do not yet have the same quality, IMDNCE might positively impact education and health services.

Licensing examinations would provide a minimum performance standard for doctors working in Indonesia. This licensing examination is a high-stakes assessment that has a broad impact on students and institutions, as well as a broader impact, including in terms of educational policy, and might potentially affect the quality of health services and patient safety.[1–3]

Hidayah[1] saw that NLE in Indonesia impacts changes and improvements in curriculum, assessment, facilities, and faculty development in medical education. The NLE also positively affects the development of self-determination (i.e., being ready to take on professional tasks), confidence, a sense of readiness, pride, and equality in students who have successfully passed the exam.[1]

Implementing the national licensing examination for doctors is expected to profoundly impact doctors and, eventually, society as health care consumers. This 'exit exam' may significantly impact learning and clinical practices.[4,5] Research in several countries has shown the impact of an exit exam in medical education on clinical practice.[6–8] Hidayah has assessed the impact of NLE from the point of view of students, teachers, and medical schools. This study aimed to assess the effect of NLE on learning and clinical practice from the perspective of internship doctors who have passed the IMDNCE. Kirkpatrick has introduced four levels of evaluating training programs. The first level evaluates the reaction, the second level evaluates the learning, the third level evaluates the behavior, and the fourth is the results.[9] If we consider the preparations and the IMDNCE process as training, based on the Kirkpatrick model, this study assessed the impact of those processes on the behavior or level 3 of evaluation.[9]

METHODS

Study Design

The study used a qualitative design with a phenomenological approach to explore the IMDNCE experience and its impact on learning during the physicians' education and clinical practice. Phenomenology is a type of qualitative research design that aims to understand the nature or meaning of experience. The phenomenology investigates various reactions to, or perceptions of, a particular phenomenon[10] which in this study is the IMDNCE phenomena. The data were collected by Focused Group Discussions (FGDs) in six locations representing six geographical regions of Indonesia. FGD is an effective data collection method for educational research.[11] Each FGD was facilitated by two facilitators and one note-taker. All facilitators were trained to facilitate discussions using the FGD guidelines that had previously been developed.

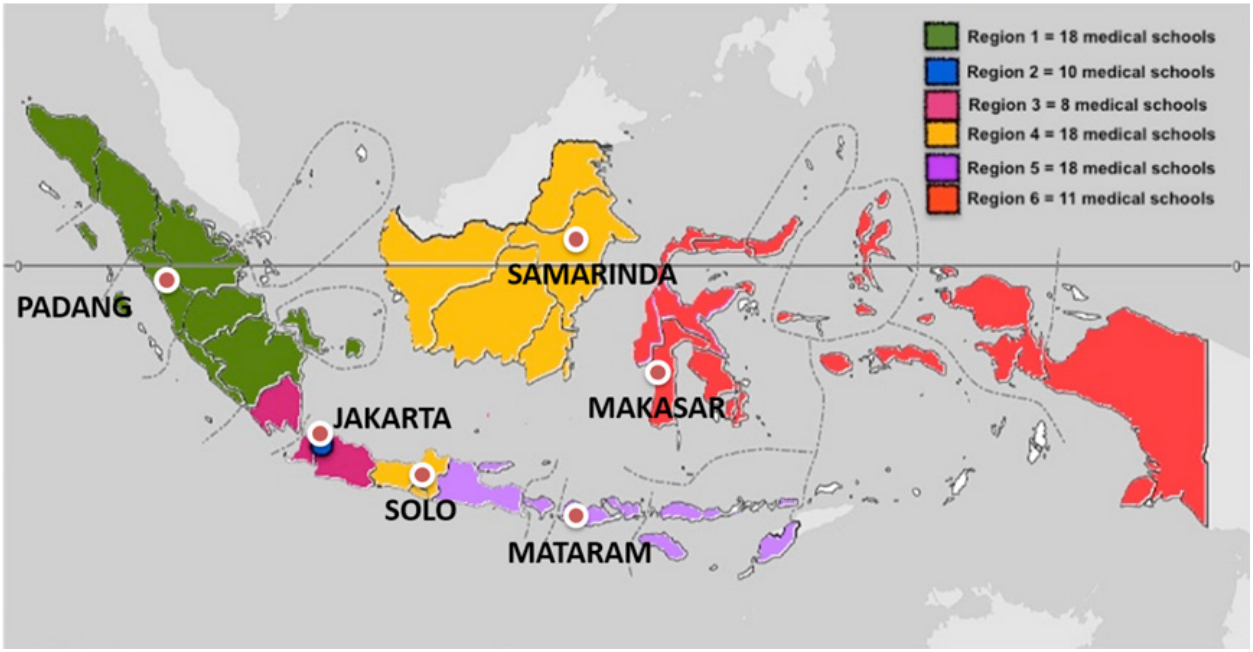

Figure 1. Six FGD Locations based on Six Geographical Regions

Ethical clearance of this study was approved by the Research Ethics Committee of Dr. RSUD Moewardi/ Faculty of Medicine Universitas Sebelas Maret Solo No. 1064/XII/HREC/2016. Prior to the FGD implementation, an informed consent procedure was carried out for all participants.

The study participants were the internship doctors who had passed the IMDNCE. The participants were recruited by purposive sampling, taking into account the status of the institution (state or private) and the accreditation status (A/B/C) of respective medical schools, as well as their gender (Table 1). The study participants consisted of 41 internship doctors working in 6 regions from 33 different medical schools out of 75 medical schools in Indonesia.

Table 1. Characteristics of Participants

FGD setting	Total N (%)	Sex N (%)		Faculty of Medicine Origin N (%)		Accreditation of Faculty N (%)		
		Male	*Female*	*Public*	*Private*	A*	B*	C*
Jakarta	7 (17.1)	2 (4.9)	5 (12.2)	3 (7.3)	4 (9.8)	4 (9.8)	2 (4.9)	1 (2.4)
Solo	8 (19.5)	4 (9.8)	4 (9.8)	4 (9.8)	4 (9.8)	4 (9.8)	3 (7.3)	1 (2.4)
Mataram	6 (14.6)	3 (7.3)	3 (7.3)	4 (9.8)	2 (4.9)	2 (4.9)	2 (4.9)	2 (4.9)
Makassar	9 (22.0)	5 (12.2)	4 (9.8)	5 (12.2)	4 (9.8)	3 (7.3)	5 (12.2)	1 (2.4)
Samarinda	3 (7.3)	3 (7.3)	0 (0.0)	3 (7.3)	0 (0.0)	1 (2.4)	2 (4.9)	0 (0.0)
Padang	8 (19.5)	5 (12.2)	3 (7.3)	4 (9.8)	4 (9.8)	3 (7.3)	2 (4.9)	3 (7.3)
Total	41 (100)	22 (53.7)	19 (46.3)	23 (56.1)	18 (43.9)	17 (41.5)	16 (39.0)	8 (19.5)

*A was the highest performance of Faculty, B was the middle, C was the lowest

Context

Indonesia has been conducting national examinations of medical doctors since 2007. Beginning in 2014, the IMDNCE not only assessed clinical knowledge with multiple-choice questions by computer-based test (MCQs CBT) but also examined the clinical skills by conducting the national Objective Structured Clinical Examination (OSCE). There are 1-4 months for the participants to prepare for the exam after finishing the clinical phase in academic hospitals. Usually, the candidates followed the mentoring program, either formally provided by the respective campus or in an external installation. A month after the exam, they would receive the exam result and feedback on their performance from the exam committee, followed by the announcement of their graduation by their respective institution. After graduation, they must do a one-year internship program at primary health care centers and hospitals under the supervision of registrar doctors. This internship programme serves as the first medical practice of the new doctor. The participants of this study have undergone an internship program for at least six months.

Data Analysis

FGD transcripts were analyzed thematically by giving specific codes. The process resulted in a further coding scheme. Coding was done using emergent code. Meetings were conducted among researchers to assess code agreements. All subcategories and sub themes were then analyzed further to achieve consensus concerning the themes.[12,13] Detailed descriptions in data analysis were performed to improve the transferability of qualitative research. These measures are typically used to increase the trustworthiness of qualitative research.[12,13]

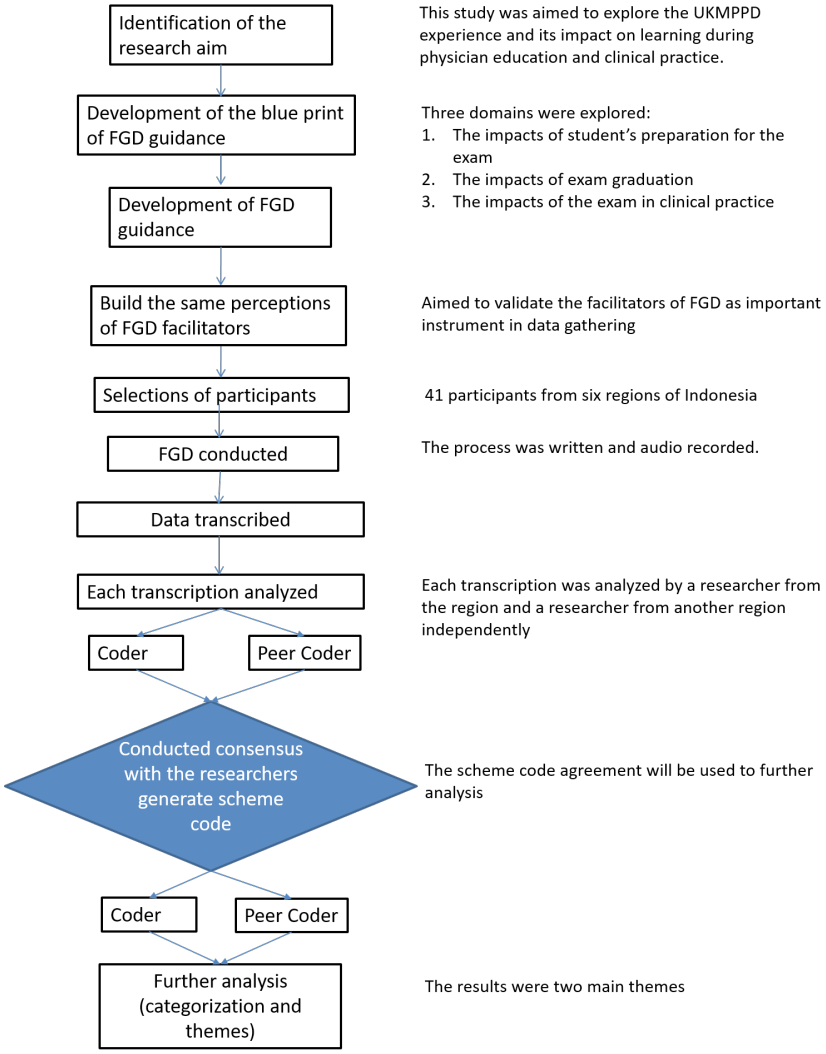

Figure 2. The Process of the Qualitative Study

RESULTS AND DISCUSSION

This study found that the IMDNCE has significantly influenced the learning and clinical practices of the participants. The positive effect on their learning was not only in improving their clinical knowledge and skills but also in changing their mindset. In addition, IMDNCE also enhanced the participants' awareness of the feedback they received from the IMDNCE committee for their future professional development. Moreover, the IMDNCE also has had effects on the clinical practice of the participants in terms of psychological confidence, as well as improving clinical practice ability, involving relationships with patients, senior doctors, and other colleagues. We describe the conditions and learning mindset during clinical education and how IMDNCE preparation affects learning and subsequently affects clinical practice during the internship. Table 2 describes the mindset shift experienced.

The Impact of IMDNCE on the Learning

The participants, particularly the 'first takers', perceived that IMDNCE significantly influenced their mindset, clinical knowledge, and skills since they prepared for IMDNCE for 1 to 4 months before IMDNCE. Participants prepare for the IMDNCE by reviewing prior knowledge and skills acquired during their education in the academic phase and clinical rotation. They also searched for the other

contents of knowledge and skills that they had not yet gained but were still within the competence area of general practitioners. The participants admitted that the IMDNCE had positive effects by changing their mindset, increasing their current knowledge and clinical skills, and giving feedback for their professional development.

Table 2. The Mindset Shift and IMDNCE Effect on Learning and Clinical Practice

What happens in clinical education?	What is the learning impact of IMDNCE?	What is the IMDNCE impact on clinical practice?
Students were exposed not only to cases relevant to the competence of general practitioners (GPs) but also exceptional cases. It might have been puzzling for students to understand the limitations of competence levels as GPs.	To remind the scope of GP's level of competence in handling clinical cases.	To enable internship doctors to make decisions on when to refer patients or manage patient cases comprehensively.
Students were more focused on passing the clinical rotation than on how to master the knowledge and clinical skills.	To repeat and summarize all the knowledge that has been obtained.	To prepare internship doctors better for clinical practice.
Different faculties, curricula, and clinical settings might have produced different standards in clinical management.	To update clinical case management according to the standard based on the newest evidence and guidelines.	To increase awareness of changes in clinical evidence and responsibility for long life learning.
Students learned knowledge or clinical skills partially from each clinical case.	To train in managing patients holistically from data gathering, diagnosing, managing, and educating.	To prepare internship doctors better for patient encounters and the management process.
	Adding insight into how the doctor's real performances were.	
Doubted competence as a GPs.	Passing the examination has developed a positive state of mind: a sense of identity, doctor's responsibility, and confidence.	To develop confidence in interaction with patients, senior doctors, and other health care practitioners.

Changing the Mindset

IMDNCE was considered to increase the participant's knowledge of the actual physicians' work patterns, especially their competencies. IMDNCE encourages or motivates them to learn more intensively, practice good learning ability, and give awareness about the depth of the clinical knowledge and skills they had to learn related to the actual conditions in the medical field.

> *"With the IMDNCE, I felt we knew more about our scope as a GP. During our study in clinical rotation, our knowledge tended to follow the knowledge of our specialist supervisor. However, with this IMDNCE, our mindset is formed, we know what our competencies as general practitioners are and we can focus more on it, so it can help for better performance."(Lo_2_1)*

> *"... I studied both in clinical rotation and academic phase, but my study became more intensive to prepare for IMDNCE because I was afraid of IMDNCE. It was a month when what I did was just studying, I didn't go anywhere. I only went out of my dorm when I wanted to take my lunch and dinner." (Sm_DI5)*

> *"How to learn and how to continue our planning to learn were different from how they were previously. We must learn deeply and repeat many times for the contents that we did not master." (So_6_3)*

"...it was still a lot that I needed to learn ...the preparation for IMDNCE was good, so I knew more about the contents that I was not aware of before..." (Sm_DI1)

Increasing Clinical Knowledge and Skills Practice

IMDNCE was also considered to increase clinical knowledge and skills practice related to the more up to date disease management guidelines, a deeper understanding of clinical knowledge and skills based on the literature, a deeper understanding of patients management, especially history taking, physical examination, pharmacological and non-pharmacological therapies, as well as practicing professionals.

"…in clinical rotation, we practiced history taking and physical examination in small portions, but when we studied for IMDNCE we realized that in an illness we have to learn more than what we have learnt before, and the physical examination was wider than what we obtained when I was in clinical rotation." (Lo_3_2)

"In clinical rotation, we were not fully facilitated to manage patients thoroughly from the beginning to the end, especially for the therapy. The therapy was usually given by the specialist doctors. But in IMDNCE, we were forced to know pharmacological and non-pharmacological therapies of the patients." (Lo_4_2)

"I personally felt a lot of changes in terms of therapy." (Ja_4_1)

"…the aspects of how to treat patients, especially how to convey information." (So_1_2)

"…sometimes while the institution had already used the latest guidelines, the IMDNCE had not. Likewise, while the IMDNCE used new guidelines, the institution did not." (Ja_4_3)

"However, one of the most perceived feelings was that I felt confident in the professionalism aspect of the OSCE assessment." (Lo_2_6)

Nevertheless, there was an opinion that the implementation of IMDNCE did not have effects on changing participants' mindset, nor did it improve their clinical knowledge and skills practice. Participants saw that the pattern learned during their education in their respective institutions was similar to the template of IMDNCE. In this case, IMDNCE was considered theoretical.

The curriculum and educational process in their medical school, which had aligned with the IMDNCE, can lead to the perception that IMDNCE does not change their learning mindset much. The difference in perception found here could occur because the implementation of curriculum and the quality of the medical school in Indonesia are not equal. It is precisely with IMDNCE that medical schools are encouraged to improve the educational process so that it becomes more qualified and in line with IMDNCE.[1] One of the effects of IMDNCE is to encourage medical schools to improve curriculum, assessment, facilities, and faculty development in medical education.[1]

"OSCE in IMDNCE was almost the same with OSCE in comprehensive test before we got into the clinical rotation. Since the familiar rubric was also used, we were not very surprised." (So_4_3)

"As far as I'm learning until now, nothing is different, it's all the same" (Ja_3_3)

"... the sciences we acquired during clinical rotation were based on skill, while IMDNCE was more theoretical. So we knew better how to determine the diagnosis and the treatment from a question." (Ma_2_8)

Increasing Awareness of Professional Development

Through the feedback provided by the committee, IMDNCE has also increased the awareness of the competencies they had not achieved so that participants need to learn more for their future learning. They obtained the benefit from the IMDNCE feedback to review the lessons and clinical skills for their future clinical practice, although it was not intensively studied as they did before IMDNCE.

"It did have an effect, although it was not as intense as it once had been, there must have been a review, even once a week or twice." (Sm_DI24)

"There is a benefit, anything lacking will be fixed." (Sm_DI_26)

However, several participants did not consider feedback brought positive effects because they were still focused on the test scores, the interesting cases, and the interesting subjects following the specialization subjects of their advanced studies.

> *"I do not see what feedback was..." Lo_6_16*

> *"So, we saw the total output, in general, how many passed, the scores; only to see the CBT and OSCE scores. That's all. There was no point of seeing what our shortcomings were, what we saw was only the final score. "Lo_1_17*

> *"For me, what mattered was just the grade, I have been graduated already, I did not pay attention to details." (Sm_DI22)*

> *"Now we prefer to update on certain areas of science that we are happy to do." Lo_1_17*

The Impact of IMDNCE on Clinical Practices

The IMDNCE influenced participants' clinical practice in terms of psychological and practical abilities.

Psychological Impacts in doing Clinical Practice

The participants perceived that what they had learned from the IMDNCE increased their confidence and sense of responsibility. Their confidence was raised because they felt that they were already competent in managing patients and working more efficiently and to the required standard.

> *"Psychologically I may be confident. When I educate patients, I am more confident because from IMDNCE we really learnt from A to Z. We emphasized pathophysiology. So, when educating patient, if they did not understand, we could explain by using lay language, so they would be more receptive to what we said, thus what we suggested would be more acceptable." (Lo_5_10)*

> *"IMDNCE makes us more aware of various diseases, we know better how to overcome them, and first, at least we understand the standard." (So_5_7)*

Impact on the Development of Good Medical Practice

The participants still implemented good and ideal principles in clinical skills when they do medical practice during their internship, such as to wash their hands and do universal precautions and good practice in taking anamnesis, physical examination, formulating diagnosis, patient education, and planning laboratory tests.

> *"If it is mastered—anamnesis, physical examination, up to the diagnosis—we are confident, yes we are good (at them)." (Lo_3_13)*

> *"Yes, it is almost the same, from the history taking, physical examination. I am usually more aligned with history taking with literature, as well as therapy and so forth. But at the end, I usually put more emphasis on educating the patient." (Lo_6_13)*

> *"…more or less the same anyway, physical examination, diagnostic tests we chose, then consult for the technical details." (Ja_2_19)*

> *"...washing hands with alcohol or antiseptics, I'm still doing it..." (Sm_DI15)*

> *"...taking anamnesis like usual..." (Sm_DI15)*

> *"Yes, the principles used in the OSCE are still carried out robustly until today, washing hands, history taking, up to patient education are still the same." (Sm_DI_16)*

However, the positive effects of the IMDNCE were not always optimal because the system in the clinical practices was less than ideal, such as the time restriction or the National Health insurance regulation, so all of the lessons and skills had been learned were not applicable. Several principles were rarely used, such as in the communication for patients (breaking bad news, psychiatry examination, and another specific communication), clinical procedures, pharmacology, and clinical reasoning due to limited facilities:

> *"Sometimes if the context such as in health centers, take my health center for example, there were times when in the room there was no private bed, yet many patients, so if the patient got no complaints or for example with a lump in the anus, or in the groin, so we did not do physical examination." (J_1_10)*

> *"For example, patients came to control*

hypertension with no complaints, we just actually gave prescriptions, so for such patients we didn't wash hands because we were not at all in contact." (Ja_2_10)

"Standard operational procedures are compulsory, but we adjust to the condition of the health centers, for example if there was no clean water, awry." (Ja_2_10)

"…for example in the hospitals, insurance could not be claimed, although some diagnostic tests had to be done." (Ja_1_12)

A national examination is a high-stake assessment aimed at not only being a means of selection (assessment of learning) but also a means of learning (assessment for learning).[14–16] The results of this study indicate that IMDNCE has a significant learning impact. From the participants' perspectives, their clinical knowledge and skills increased during the IMDNCE, not only medical competence but also generic skills, e.g., learning skills and awareness of responsibilities for life-long learning. In clinical practice, life-long learning was essential to maintain the excellence attributed to doctor professionalism.[17] It helps doctors to work in primary care.[4]

On the other hand, IMDNCE is inevitably a significant stressor that causes fear, anxiety, and stress to medical students. Passing IMDNCE would have a tremendous psychological impact. The candidates would feel relieved and the growing confidence and a sense of responsibility as a doctor. Passing IMDNCE also fosters a sense of professional identity. This success also positively affects the clinical practice when they have to interact with the patient, peers or senior doctors, and other health professionals. As a result, they would feel more confident.

IMDNCE reinforces medical students to learn and practice how to manage patients professionally by considering patient safety. These principles are embedded and still implemented during clinical practice, although real conditions strongly influence the optimal implementation of these principles in health care settings. These factors include patient load, the number of doctors and other health professionals, the availability of facilities, clinical case management procedures that may be different for each health care center, and policy of assurance. The complex and varied conditions of health care service centers may also significantly influence the quality of national health care service. Standardization of doctor quality with IMDNCE is only one factor intended to improve the quality of health care service.[5,14]

The curriculum of each medical school should be aligned to the competencies standard, which is also the basis of IMDNCE development and teaching evidence-based patient management. This approach is to support the ultimate goal of IMDNCE, which is to improve the quality of doctor graduates so that it is expected to improve the safety of patients and improve the quality of service to patients by reducing poor outcomes and mortality rate.[14]

The results of this study indicate that IMDNCE has a positive effect on learning and clinical practice. Transferability of the results of this study back to the context. The NLE might have a different impact on each country's unique assessment system and educational policy. In Indonesia, the difference in the education process conducted by each medical school will influence the perceived impact of IMDNCE.

This study aimed to explore the impact of the national medical doctor examination in Indonesia. This study showed a change of mindset and behavior in clinical practice after IMDNCE, suitable with level 3 of the Kirkpatrick Model, which is associated with changing their behavior.9 However, the limitations of this study were that the impacts described are only assessed from one perspective, i.e., from doctors who have experienced IMDNCE. Future research needs to explore how IMDNCE results in quality improvement of healthcare services and impacts the overall national health level that is aligned with the fourth level of The Kirkpatrick Model.[5,14]

CONCLUSION

IMDNCE has a positive influence on learning and clinical practice. The IMDNCE process emphasizes standard competencies that must be mastered and patient management process with current

evidence that is not always achieved during clinical education, increasing clinical knowledge and skills, and increasing awareness of professional development. IMDNCE also has very well affected in the development of self-confidence and a sense of responsibility which are essential in clinical practice. In addition to psychological influences, IMDNCE improves competence in clinical skills and promote good medical practice.

LIST OF ABBREVIATIONS

NLE	:	National Licensing Exam
IMDNCE	:	Indonesian Medical Doctors National Competency Exam
UKMPPD	:	Uji Kompetensi Mahasiswa Program Profesi Dokter Indonesia
FGD	:	Focused Group Discussion
MCQs	:	Multiple Choice Questions
CBT	:	Computer-based Test
OSCE	:	Objective Structured Clinical Examination
GPs	:	General Practitioners

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COMPETING INTERESTS

The authors declare that there are no competing interests in conducting this study.

AUTHORS' CONTRIBUTIONS

Lukas Daniel Leatemia – led the research; developed the research design; did data collection, extraction, and analysis; drafted the manuscript

Yoga Pamungkas Susani – developed the research design; did data collection, extraction, and analysis; drafted the manuscript, did manuscript submission and revision process

Detty Iryani - developed the research design; did data collection.

Fundhy Sinar Ikrar Prihatanto – developed the research design; did data collection, extraction, and analysis.

Hemma Yulfi – developed the research design; did data collection, extraction, and analysis.

Rilani Riskiyana – developed the research design; reviewed the manuscript.

Gandes Retno Rahayu – developed the research design; supervised the research process; reviewed the manuscript

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