

Effect of curriculum relevance on the effectiveness of undergraduate physiotherapy programme in Kenyan universities

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ABSTRACT

The effectiveness of undergraduate physiotherapy programmes is essential for producing competent practitioners who can respond to Kenya's growing rehabilitation needs. This study examined the effect of curriculum relevance on the effectiveness of undergraduate physiotherapy programmes in Kenyan universities. The study was guided by the Context, Input, Process and Product (CIPP) evaluation model and adopted a mixed-methods convergent parallel design. It was conducted in three public universities offering undergraduate physiotherapy programmes: Jomo Kenyatta University of Agriculture and Technology (JKUAT), Masinde Muliro University of Science and Technology (MMUST), and Alupe University. The target population comprised 609 stakeholders, including students, graduates, faculty members, programme administrators, clinical supervisors, physiotherapists in charge, and a representative of the Physiotherapy Council of Kenya. A multistage sampling approach combining stratified, simple random, census and purposive sampling was used to obtain a sample of 286 respondents. Data were collected using structured questionnaires, semi-structured interviews and document analysis. Quantitative data were analyzed using descriptive statistics, correlation and linear regression in SPSS version 27, while qualitative data were analyzed thematically and triangulated with quantitative findings. The findings showed that respondents generally perceived the undergraduate physiotherapy curriculum as relevant, with a composite mean of 3.81 (SD = 1.026). Understanding of programme goals and objectives received the highest rating (mean = 3.96, SD = 1.160), while incorporation of cultural and community health contexts received the lowest rating (mean = 3.63, SD = 0.968). Programme effectiveness was also positively rated, with a composite mean of 2.24 (SD = 1.252), reflecting generally favourable perceptions of graduate preparation and professional competencies. Simple linear regression established that curriculum relevance had a statistically significant positive effect on programme effectiveness ($B = 1.013$, $\beta = .356$, $t = 5.811$, $p < .05$), explaining 12.7% of the variation in programme effectiveness ($R^2 = .127$; $F(1,232) = 33.769$, $p < .05$). Consequently, the null hypothesis that curriculum relevance has no statistically significant effect on programme effectiveness was rejected. Qualitative findings supported the quantitative results, while emphasizing the need for continuous curriculum adaptation to changing healthcare needs, including community-based rehabilitation, tele-rehabilitation and technology-supported practice. However, when curriculum relevance was considered alongside instructional capacity, infrastructure and professional competence, its independent contribution became statistically non-significant ($B = .202$, $\beta = .071$, $p = .156$). The study concludes that curriculum relevance significantly enhances programme effectiveness when considered independently, but its impact depends on adequate resources, faculty capacity, infrastructure and clinical training opportunities. The study recommends regular stakeholder-inclusive curriculum reviews; greater integration of community-based rehabilitation, digital health, tele-rehabilitation, assistive technology, evidence-based practice and interprofessional education; alignment of student enrolment with available teaching and clinical resources; and continuous professional development for academic and clinical educators. These measures would strengthen the responsiveness, quality and effectiveness of undergraduate physiotherapy education in Kenyan universities.

Keywords: Curriculum relevance, programme effectiveness, undergraduate physiotherapy, CIPP model, Kenyan universities.

I. INTRODUCTION

A physiotherapy programme is a structured educational framework intended to prepare students to become licensed physiotherapists. These courses may be taken to earn a bachelor's, master's, or doctoral degree in physical therapy. They are usually offered at universities and colleges. The curriculum is meant to give students the information, abilities, and skills they need to practice physiotherapy successfully (Mohamadi et al., 2017). Over time, physiotherapy education has changed dramatically in response to shifts in worldwide educational standards, advances in technology and modifications in healthcare practices (Dean et al., 2011). Physiotherapy education often started as unofficial apprenticeships or training programme within hospitals and medical facilities in the late 19th and early 20th centuries (Beecroft, 2022). To treat musculoskeletal diseases and advance rehabilitation, the main focus was on manual therapy,

massage, and exercise approaches. Formal educational programme gradually arose to offer aspiring physiotherapists systematic training as the profession gained acceptance. One of the first organisations to provide a structured curriculum in physiotherapy education, for instance, was the McMillan School of Physiotherapy, which was founded in 1919 in England (Littell & Johnson, 2003; Sharma, 2012).

In the 20th century, numerous schools and programme for physiotherapy were established throughout the world (Stucki *et al.*, 2018). To meet the rehabilitation needs of injured troops from World War I, Walter Reed General Hospital in the United States launched the country's first physical therapy programme in 1917 (Adler, 2013; Jones, 2017). With organisations like the Commission on Certification in Physical Therapy Education (CAPTE) setting certification standards, physiotherapy education in the USA has expanded throughout time to encompass both entry-level and post-professional doctorate programme. In Europe, physiotherapy education underwent significant transformation with the adoption of the Bologna Process, which aimed to standardize higher education across European countries (European Commission, 2018). This led to the implementation of bachelor's and master's degree programmes in physiotherapy in many European countries, aligning with the broader framework of the European Higher Education Area.

Physiotherapy education has continued to evolve in response to advances in healthcare practice, technology and evidence-based research. There is a growing emphasis on interprofessional education, lifelong learning and clinical specialization to meet the complex needs of patients and healthcare systems (World Confederation for Physical Therapy, 2017). Additionally, with the globalization of healthcare and increased mobility of healthcare professionals, efforts are underway to harmonize standards and promote reciprocity of qualifications through initiatives such as the Mutual Recognition Agreement for Physiotherapy Professionals (European Commission, 2018). To address the functional restrictions and disabilities brought on by a variety of medical diseases, the World Health Organization (WHO) acknowledges the significance of rehabilitation services, including physiotherapy, on a worldwide scale. The WHO emphasizes the necessity of comprehensive rehabilitation programmes integrated within healthcare systems. Overall, physiotherapy education has progressed from its humble beginnings to become an integral part of modern healthcare systems worldwide, with ongoing efforts to ensure quality, relevance, and professionalism in education and practice.

In Africa, physiotherapy education has undergone significant development over the years, reflecting the continent's evolving healthcare landscape and educational priorities (Tsampiras, 2018). Historically, physiotherapy education in Africa often started as short-term training programmes or workshops, with a focus on basic rehabilitation techniques to address the needs of individuals with disabilities or musculoskeletal conditions (World Confederation for Physical Therapy, 2019). However, as healthcare systems in Africa have become more complex and specialized, the demand for qualified physiotherapists has increased, leading to the establishment of formal educational programmes. There has been a notable expansion of physiotherapy education across Africa, with the establishment of schools, colleges, and universities offering undergraduate and postgraduate programmes in physiotherapy. These institutions of higher learning in Africa have been at the forefront of physiotherapy education offering comprehensive curricula that integrate theory, practical training and clinical experience (Van der Merwe, 2020; Timothy, 2022).

In Kenya, the importance of physiotherapy education and rehabilitation services in healthcare has been recognised by health professionals. The physiotherapy education in Kenya traces its roots back to the establishment of the first physiotherapy training programme in Kenya in 1966 with Diploma in physiotherapy being the only course offered at Kenya Medical Training College (KMTTC). This initial training was aimed at addressing the rehabilitation needs of individuals with disabilities and musculoskeletal conditions. In 2011, Jomo Kenyatta University of Agriculture and Technology become the first university to offer a Bachelor of science degree. Physiotherapy education expanded with the establishment of additional training programmes at universities and colleges across the country. Specific universities offering undergraduate Physiotherapy programmes are Alupe University, Amref University, Jomo Kenyatta University of Agriculture and Technology, Masinde Muliro University of Science & Technology and Alupe University which offers undergraduate and postgraduate programmes in physiotherapy. Students are provided with comprehensive training in rehabilitation sciences, clinical skills and evidence-based practice. However, challenges persist in physiotherapy education in Kenya, including limited resources, faculty shortages, and inadequate clinical placement opportunities.

Many physiotherapy programmes struggle to meet the demand for qualified faculty members and clinical instructors, resulting in disparities in educational quality and student experiences (Wijbeng *et al.*, 2019). Additionally, there is a need for greater collaboration between academic institutions, healthcare facilities and regulatory bodies to standardize curricula, accreditation processes and professional standards in physiotherapy education (Frenk *et al.*, 2010). Physiotherapy education plays a critical role in addressing the healthcare needs of a growing population with an increased burden of musculoskeletal and neurological conditions (Eyinda, *et al.*, 2020). There is a rising demand for skilled physiotherapy professionals; however, challenges such as limited faculty capacity, inadequate clinical training opportunities and outdated curriculum design pose barriers to the effective delivery of physiotherapy education. Kenya's undergraduate physiotherapy programme is essential to the nation's ability to produce skilled workers who support the healthcare system. National standards and regulations serve as the guidelines for physiotherapy education in Kenya,

which is overseen by the Physiotherapy Council of Kenya (PCK). However, issues including inadequate funding, inadequate facilities, and a lack of qualified personnel make it difficult to provide physiotherapy education and training in Kenya (Wanunda, 2020).

1.1 Statement of the Problem

Undergraduate physiotherapy programmes are central to producing competent practitioners capable of addressing Kenya's growing burden of musculoskeletal, neurological, and non-communicable conditions requiring rehabilitation services (Eyinda et al., 2020). The effectiveness of these programmes determines whether graduates possess the knowledge, clinical skills, ethical grounding, and adaptability required for safe, patient-centred practice. However, mounting evidence suggests that physiotherapy education in Kenya faces persistent challenges, including limited resources, faculty shortages, inadequate infrastructure, outdated curricula, and insufficient clinical placement opportunities (Wanunda, 2020). These challenges raise concerns about whether existing curricula remain relevant to contemporary healthcare demands and whether graduates are adequately prepared for professional practice.

Curriculum relevance is particularly critical because it ensures that training programmes align with societal needs, healthcare priorities, and labour-market expectations (Stufflebeam, 2003; Frenk et al., 2010). Globally, physiotherapy curricula are being restructured to address ageing populations, the rising burden of non-communicable diseases, and the expansion of rehabilitation services (Jones, 2017). In many low- and middle-income countries, however, curricula often remain outdated, with limited stakeholder involvement in curriculum development and weak linkages between training institutions and healthcare systems (Kamau, 2019). Empirical studies have demonstrated that health professions training programmes in sub-Saharan Africa frequently fail to incorporate emerging priorities such as community-based care, interprofessional collaboration, and rehabilitation for chronic conditions (Jones, 2017). This misalignment risks producing graduates who are ill-prepared to meet evolving population-health needs.

In Kenya, physiotherapy education has expanded since the first diploma programme was established at Kenya Medical Training College in 1966 and the first Bachelor of Science degree was introduced at Jomo Kenyatta University of Agriculture and Technology in 2011. Despite this growth, concerns persist regarding the quality and relevance of training. Existing studies in the region have largely focused on isolated aspects of training, such as curriculum content, clinical education, or faculty capacity, without adopting an integrated evaluation framework capable of linking context, inputs, processes, and outcomes (Migosi et al., 2012). Consequently, there is limited empirical evidence on how curriculum relevance influences the overall effectiveness of undergraduate physiotherapy programmes in Kenyan universities. This gap is significant because curriculum relevance provides the contextual foundation for programme effectiveness, yet its independent contribution relative to other factors such as instructional capacity, infrastructure, and professional competence remains unclear.

Without systematic evaluation of curriculum relevance, universities and regulatory bodies such as the Physiotherapy Council of Kenya (PCK) may continue to rely on assumptions rather than evidence when making curriculum decisions. This could result in graduates who lack the competencies required by the healthcare sector, widening the mismatch between training and service delivery, and ultimately compromising patient care and rehabilitation outcomes. Furthermore, the absence of empirical data linking curriculum relevance to programme effectiveness limits the ability of policymakers, university administrators, and educators to prioritize curriculum reforms, allocate resources effectively, and align training with national health priorities.

This study therefore sought to determine the effect of curriculum relevance on the effectiveness of undergraduate physiotherapy programmes in Kenyan universities. By applying the CIPP evaluation model within a mixed-methods design, the study aimed to generate comprehensive, evidence-based insights that can inform curriculum review, accreditation processes, and quality assurance mechanisms. Specifically, it tested the null hypothesis that curriculum relevance has no statistically significant effect on the effectiveness of undergraduate physiotherapy programmes in Kenyan universities, thereby addressing a critical gap in the literature and providing actionable recommendations for curriculum improvement.

1.2 Research Objectives

To determine the effect of curriculum relevance on the effectiveness of undergraduate physiotherapy programme in Kenyan universities.

1.3 Research Hypotheses

H₀₁: Curriculum relevance has no statistically significant effect on the effectiveness of undergraduate physiotherapy programme in Kenyan universities.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 CIPP Model

Stufflebeam created the Context, Input, Process, and Product (CIPP) Model in the 1960s. It is a thorough framework for assessing initiatives and programme in a range of sectors, such as social services, healthcare, and education. The model offers an organised method of assessment that concentrates on many facets of the creation and execution of a programme. The CIPP model comprises several components that cater to distinct inquiries concerning programme assessment. These components aid stakeholders in comprehending the efficacy, efficiency, and pertinence of the programme in accomplishing its goals. By systematically applying the CIPP model to curriculum evaluation, educators and stakeholders can gain valuable insights into the strengths and weaknesses of the curriculum, make informed decisions for improvement, and ensure that it remains responsive to the evolving needs of learners and society (Sohail & Noreen, 2020; Mpuangnan, 2021).

2.1.2 Components of the CIPP Model

The CIPP model, developed by Stufflebeam, consists of four interrelated components: Context, Input, Process, and Product. The model provides a systematic framework for evaluating educational programmes by examining their needs, resources, implementation, and outcomes.

Context evaluation focuses on identifying the needs, problems, opportunities, and environmental conditions within which a programme operates. In this study, it helps determine whether the physiotherapy curriculum is responsive to the needs of learners, the healthcare system, communities, and the changing professional environment.

Input evaluation examines the resources, strategies, and plans available for achieving programme objectives. For undergraduate physiotherapy education, this includes teaching staff, learning resources, infrastructure, clinical facilities, equipment, and other resources necessary for effective curriculum implementation.

Process evaluation assesses how the programme is implemented in practice. It examines whether teaching, learning, assessment, clinical training, and other planned activities are carried out as intended. It also helps identify implementation challenges that may affect the effectiveness of the physiotherapy programme.

Product evaluation focuses on the outcomes and effects of the programme. In this study, it relates to the extent to which undergraduate physiotherapy programmes produce graduates with the knowledge, skills, competencies, and professional attributes required for effective practice.

This will make it possible for the researcher to assess if the programme is meeting its objectives and improving Kenya's healthcare system. It will also be useful in determining the extent to which physiotherapy education programme have been successful in evaluating student talents, developing professional identities, and preparing students for clinical practice.

2.2. Empirical Review

The Context, Input, Process, and Product (CIPP) model, developed by Daniel Stufflebeam, is a comprehensive, decision-oriented framework widely used for evaluating programmes in education, healthcare, and social services. The model is grounded in the principle of continuous improvement and is designed not only to assess outcomes but also to inform planning, implementation, and decision-making processes (Stufflebeam, 2003). The CIPP model comprises four interrelated components: **context evaluation**, which assesses the relevance of programme goals in relation to environmental needs; **input evaluation**, which examines the adequacy of resources and strategies; **process evaluation**, which focuses on the implementation of programme activities; and **product evaluation**, which measures the outcomes and overall effectiveness of the programme. Unlike traditional evaluation approaches that emphasize end results, the CIPP model adopts a systems perspective, enabling a holistic understanding of programme performance and facilitating evidence-based improvement (Zhang et al., 2011).

The application of the CIPP model in educational settings has been widely documented. For instance, Zhang *et al.* (2011) highlight its effectiveness in evaluating curriculum programmes by providing a structured approach for linking educational goals, resources, instructional processes, and outcomes. Similarly, Sohail and Noreen (2020) demonstrate that the model supports systematic curriculum evaluation and enhances decision-making in higher education institutions. Its adaptability makes it particularly useful in complex learning environments such as health professions education, where multiple interacting factors influence programme effectiveness. In the context of health professions education, the CIPP model has been applied to evaluate medical, nursing, and allied health training programmes. Studies have shown that the model is effective in identifying gaps in curriculum relevance, faculty capacity, clinical training environments, and graduate competencies (Abdelnour, 2020). For example, in nursing education, the CIPP model has been used to assess the alignment between training programmes and healthcare system needs, revealing critical gaps in clinical preparedness and resource allocation. Similarly, in medical education, it has

been applied to evaluate teaching methodologies and student outcomes, providing insights into areas requiring curriculum reform.

Furthermore, the model has been increasingly utilized in low and middle-income countries to evaluate education and training programmes in resource-constrained settings. Its comprehensive nature allows researchers and policymakers to examine not only outcomes but also contextual and systemic factors influencing programme effectiveness (Abdelnour, 2020). This is particularly relevant for physiotherapy education in Africa, where challenges such as limited resources, inadequate infrastructure, and disparities in training quality necessitate a holistic evaluation approach. Despite its widespread application globally, the use of the CIPP model in evaluating undergraduate physiotherapy programmes in Kenya remains limited. Existing studies in the region have largely focused on curriculum content or isolated aspects of training, without adopting an integrated evaluation framework. This gap underscores the need for applying the CIPP model to generate comprehensive, evidence-based insights into the effectiveness of physiotherapy education.

Curriculum relevance is a critical determinant of the effectiveness of health professions education, as it ensures that training programmes are aligned with societal needs and healthcare priorities. Within the CIPP framework, context evaluation focuses on assessing whether programme goals and content are responsive to environmental demands (Stufflebeam, 2003). Globally, physiotherapy curricula are increasingly being restructured to address the growing burden of non-communicable diseases, ageing populations, and the need for rehabilitation services (World Health Organization [WHO], 2021). Studies have shown that curricula aligned with health system needs produce graduates who are better prepared for practice and capable of addressing emerging health challenges (Frenk et al., 2010). Furthermore, the integration of global health competencies, including interdisciplinary collaboration and cultural competence, has been emphasized as essential for modern healthcare professionals.

However, in many low- and middle-income countries, including Kenya, physiotherapy curricula often remain outdated and insufficiently responsive to changing healthcare demands. Evidence suggests that limited stakeholder involvement in curriculum development and weak linkage between training institutions and healthcare systems contribute to this misalignment (Ngigi, 2017). This gap underscores the need for systematic evaluation of curriculum relevance to ensure that training programmes produce competent and adaptable graduates.

Empirical studies indicate that alignment between health professions education and healthcare needs is critical for producing competent graduates. A global analysis by Frenk et al. (2010) revealed that many training programmes remain outdated and poorly aligned with current health system demands, particularly in low- and middle-income countries. Similarly (Ngigi, 2017) found that curricula in sub-Saharan Africa often fail to adequately incorporate emerging priorities such as non-communicable diseases, rehabilitation services, and community-based care. Jones (2017) further demonstrated that programmes developed through stakeholder engagement are more responsive and produce graduates with higher levels of competence and adaptability. However, such alignment is often weak in African contexts due to limited collaboration between training institutions and healthcare systems.

III. METHODOLOGY

3.1 Research Design

The study employed a mixed-methods approach, specifically a convergent parallel design, in which quantitative and qualitative data are collected concurrently, analyzed separately, and then integrated during interpretation to provide a comprehensive understanding of the effectiveness of undergraduate physiotherapy programmes. This design is particularly appropriate for programme evaluation studies as it allows for the triangulation of findings, thereby enhancing the validity, reliability, and completeness of the results (Creswell & Plano Clark, 2023).

3.2 Study Area

The study was conducted in three public universities in Kenya offering undergraduate physiotherapy programmes: Alupe University in Busia County, Masinde Muliro University of Science and Technology (MMUST) in Kakamega County, and Jomo Kenyatta University of Agriculture and Technology (JKUAT) in Kiambu County. These institutions were selected because they represent different geographical and institutional settings and have established undergraduate physiotherapy programmes. The universities differ in their academic policies, infrastructure, teaching approaches, clinical training opportunities, and faculty expertise, making them suitable for evaluating programme effectiveness. They operate within the regulatory framework of the Physiotherapy Council of Kenya (PCK) and therefore provide a common professional and quality-assurance context. The three universities were selected to provide a diverse and comparative representation of physiotherapy education in Kenya. Their geographical diversity, established programmes, and shared regulatory environment enabled the researcher to assess curriculum relevance and programme effectiveness across different institutional contexts using the CIPP evaluation model. The institutions also served as sites for stakeholder engagement in developing an enhanced undergraduate physiotherapy curriculum.

3.3 Target Population

The study targeted 609 stakeholders involved in undergraduate physiotherapy programmes at JKUAT, MMUST, and Alupe University. The population comprised 418 current students, 150 graduates, 20 faculty members, 3 programme administrators, 3 clinical supervisors, 14 physiotherapists in charge, and 1 representative of the Physiotherapy Council of Kenya (PCK). These participants were selected because they provided different perspectives on curriculum relevance, programme implementation, clinical training, resource availability, graduate preparedness, and programme effectiveness. Collectively, the stakeholder groups provided a comprehensive understanding of undergraduate physiotherapy education and contributed information relevant to the evaluation and development of an enhanced physiotherapy curriculum. Table 1 shows the study population.

Table 1

Study Population

No.	Participants	Study population
1	Current students	418
2	Graduates active at work	150
3	Faculty members	20
4	Programme Administrator (universities)	3
5	Clinical supervisor	3
6	Physiotherapy Council of Kenya	1
7	Physiotherapist In-Charge	14
	TOTAL	609

3.4 Sampling and Sample Size

The study employed a multistage sampling technique combining stratified, simple random, census, and purposive sampling methods. Stratified sampling was first used to divide participants into relevant stakeholder groups, while census sampling was applied to the smaller groups. Simple random sampling was used mainly to select students and graduates, ensuring that eligible participants had an equal opportunity of being selected. Purposive sampling was used to select stakeholders with specialized knowledge and experience in physiotherapy education and programme implementation. The sample size was determined using the Yamane formula, with proportionate stratification applied to ensure appropriate representation of the different stakeholder groups. From the target population of 609, a total sample of 286 participants was selected. The sample comprised 181 students, 64 graduates, 20 faculty members, 3 programme administrators, 3 clinical supervisors, 14 physiotherapists in charge, and 1 PCK representative. This sampling approach enabled the study to obtain diverse and relevant perspectives while maintaining adequate representation of the major stakeholder groups. Table 2 shows the sample size of the study.

Table 2

Sample Size Determination

No	Participants	Sample population
1	Current students	181
2	Graduates active at work	64
3	Faculty members	20
4	Programme Administrator (universities)	3
5	Clinical supervisor	3
6	Physiotherapy Council of Kenya	1
7	Physiotherapist In-Charge	14
	TOTAL	286

3.5 Data Collection Instruments and Procedures

The researcher requested the introductory letter from the School of Graduate Studies at Masinde Muliro University of Science and Technology (MMUST), which enabled the researcher to get a research permit from the National Council for Science and Technology (NACOSTI). Preliminary preparations involved sending letters to and booking an appointment with the targeted institutions and their specific respondents. The researcher then proceeded to the field to collect data. The researcher personally distributed the questionnaires to the respondents and gave them one week, after which they were collected. The data collection instruments for the study was structured questionnaires, semi-structured interview guides, and document analysis protocols.

3.6 Data Analysis

After all data were collected, it was compiled, organized, summarized, and described in a way that aids in understanding the subject matter of the study. It was then analyzed using the Statistical Package for the Social Sciences (SPSS) program, version 27 was utilized. The data from questionnaires were analyzed using quantitative methods and Qualitative data were analyzed thematically. Quantitative data were analyzed using descriptive and inferential data analysis techniques. Descriptive analysis was undertaken using central tendency (mean, and median), frequency distribution, and percentages) and measures of dispersion (variance and standard deviation) to understand the characteristics of the respondents. The inferential analysis was carried out using a correlation and regression model to test the hypotheses and test for associations among variables of interest in this study. Data gathered using key informant interviews were analyzed separately. This involved organizing qualitative data, breaking them into manageable lumps, assigning symbols (coding), synthesizing, and determining patterns. This facilitated the identification and explanation of the linkages between data collected using the various methods of qualitative data collection. Content analysis methods were used. Two-step triangulation was carried out. The first stage of triangulation involved comparing and corroborating the qualitative data collected using in-depth interviews. The second stage of triangulation involved the corroboration of the qualitative findings and the quantitative data collected through questionnaires.

3.7 Ethical Considerations

The study obtained ethical approval from the MMUST Research and Ethics Committee and a research permit from NACOSTI before data collection. Clearance was also obtained from the participating universities. Participants were recruited through transparent and unbiased procedures and were provided with information about the purpose, procedures, risks, and benefits of the study before giving informed consent.

IV. FINDINGS & DISCUSSION

Table 3 shows the demographic aspects of the respondents, regarding age, 154 (65.8%) respondents were aged 18–25 years, 74 (31.6%) were aged 26–35 years, while only 6 (2.6%) were aged 36–45 years. The predominance of respondents aged 18–25 years reflects the typical age profile of undergraduate students and indicates that the findings largely represent the experiences of learners currently progressing through physiotherapy training. This group was suitably positioned to assess current teaching methods, learning resources, infrastructure and clinical-placement experiences. The respondents aged 26–45 years likely included graduates and mature learners whose professional and post-training experiences provided a broader basis for judging programme relevance and graduate preparedness. This diversity was valuable because clinical competence develops through exposure to real practice environments and application of theoretical knowledge (McCallum et al., 2013). Cunningham et al. (2019) similarly observed that continued clinical exposure and advanced training improved the clinical reasoning abilities of Kenyan physiotherapists. On the other hand, the gender distribution was relatively balanced, with 124 (53.0%) males and 110 (47.0%) females. Although male respondents constituted a slight majority, the difference was small, suggesting that the study adequately incorporated the perspectives of both genders. Such representation strengthens the findings by reducing the likelihood that perceptions of programme effectiveness were dominated by one gender. It is particularly important in health professions education to incorporate the experiences of diverse learners because students' engagement with faculty, clinical supervisors and learning environments may vary across social and institutional contexts (Ramklass & Vital, 2022).

With regard to study year, graduates formed the largest group at 90 (38.5%), followed by fourth-year students at 70 (29.9%), third-year students at 64 (27.4%) and second-year students at 10 (4.3%). Therefore, most respondents were either graduates or students in the advanced stages of training. Their substantial exposure to theoretical instruction, practical sessions, assessments and clinical placements placed them in a strong position to evaluate the programme. This was especially important because access to diverse clinical experiences influences the development of practical competence and readiness for professional practice (Lekkas et al., 2007; McCallum et al., 2013). The relatively small number of second-year students suggests that the results were less influenced by respondents with limited exposure to the professional and clinical components of the programme. In terms of graduation year, 141 (60.3%) respondents were still studying. Among those who had graduated, 48 (20.5%) completed their studies between 2021 and 2023, 27 (11.5%) between 2018 and 2020, 12 (5.1%) between 2015 and 2017, and 6 (2.6%) between 2024 and 2026. The inclusion of both current students and graduates from different cohorts strengthened the evaluation by combining contemporary learning experiences with retrospective assessments of how well the programmes prepared graduates for employment. Recent graduates could evaluate the current relevance of the curriculum, while earlier cohorts could assess its longer-term contribution to professional practice. This is consistent with the product component of the CIPP model, which examines whether a programme produces the intended graduate outcomes (Stufflebeam, 2003). Timmerberg et al.

(2022) further emphasised that physiotherapy education should be evaluated against clearly defined competencies and professional performance expectations.

Employment findings showed that 141 (60.3%) respondents were still studying, 44 (18.8%) were employed in private hospitals or clinics, 25 (10.7%) worked in public hospitals or institutions, 18 (7.7%) were self-employed and 6 (2.6%) were unemployed. Among the 93 respondents who were no longer studying, approximately 47.3% worked in private facilities, 26.9% in public institutions, 19.4% were self-employed and 6.5% were unemployed. The diversity of employment settings enriched the evaluation because graduates working in public, private and self-employment environments could assess the applicability of their training under different service-delivery conditions. The relatively large proportion employed in private facilities suggests that physiotherapy programmes should prepare graduates for practice beyond the public sector, including entrepreneurship, independent practice and management of diverse patient populations. This supports the literature indicating that physiotherapy curricula should remain responsive to changes in healthcare systems and labour-market demands (Wachira et al., 2021). However, the presence of unemployed graduates suggests that completion of training may not automatically guarantee employment. Cunningham et al. (2017) similarly found that even advanced physiotherapy training did not necessarily result in promotion or improved income, demonstrating that employment outcomes may also be influenced by broader labour-market conditions. Regarding institutional representation, JKUAT accounted for 102 (43.6%) respondents, Moi University for 67 (28.6%) and MMUST for 65 (27.8%). Although JKUAT contributed the largest proportion, all three universities were substantially represented. This enabled the study to capture experiences from different institutional environments and reduced the likelihood that the findings reflected only one university. Multi-institutional representation was important because Kenyan universities differ in faculty capacity, equipment, infrastructure and access to clinical-placement sites. Migosi et al. (2012) reported disparities in infrastructure and learning resources across Kenyan universities. Therefore, including respondents from the three universities provided an appropriate basis for evaluating both common experiences and institutional variations in programme effectiveness.

Table 3
Demographic Characteristics

Variable		Frequency	Percent
Age	18-25	154	65.8
	26-35	74	31.6
	36-45	6	2.6
	Total	234	100.0
Gender	Male	124	53.0
	Female	110	47.0
	Total	234	100.0
Study year	Second	10	4.3
	Third	64	27.4
	Fourth	70	29.9
	Graduate	90	38.5
	Total	234	100.0
Graduation year	Still under study	141	60.3
	2015-2017	12	5.1
	2018-2020	27	11.5
	2021-2023	48	20.5
	2024-2026	6	2.6
	Total	234	100.0
Employment	Still under study	141	60.3
	Public hospital/Institution	25	10.7
	Private hospital/clinic	44	18.8
	Unemployed	6	2.6
	Self Employed	18	7.7
	Total	234	100.0
University attended	JKUAT	102	43.6
	MMUST	65	27.8
	Moi	67	28.6
	Total	234	100.0

The researcher sought to find out on effectiveness of undergraduate physiotherapy programme in Kenyan universities. The respondents were required to rate their opinions against five statements on a five-point Likert scale with a score of 1 indicating 'Strongly Agree' and 5 indicating 'Strongly Disagree'. The ratings were analyzed as

frequencies, mean, standard deviation (Std), the composite mean and composite standard deviation. The results were presented in Table 4 (SA- Strongly Agree, A- Agree, UD- Undecided, D- Disagree, SD- Strongly Disagree).

Table 4

Effectiveness of Undergraduate Physiotherapy Programme in Kenyan Universities

S/N	Statement	SA	A	N	D	SD	Mean	Std
1	The undergraduate physiotherapy programme adequately prepares students for professional practice.	141 60.3%	66 28.2%	1 0.4%	12 5.1%	14 6%	1.68	1.121
2	The programme equips graduates with the competencies required in the healthcare sector.	53 22.6%	126 53.8%	5 2.1%	36 15.4%	14 6%	2.28	1.152
3	The programme meets the current healthcare needs of Kenya.	52 22.2%	100 42.7%	28 12%	32 13.7%	22 9.4%	2.45	1.240
4	The programme effectively integrates theoretical knowledge with clinical practice.	72 30.8%	89 38%	15 6.4%	26 11.1%	32 13.7%	2.39	1.380
5	The programme enables graduates to provide safe, ethical, and patient-centred care.	69 29.5%	92 39.3%	7 3%	39 16.7%	27 11.5%	2.41	1.366
	Composite						2.24	1.252

The results in Table 4 shows that a substantial majority of respondents agreed that undergraduate physiotherapy programmes adequately prepared students for professional practice. The frequencies show that 141 respondents strongly agreed and 66 agreed, giving a combined positive response of 88.5%. Only 11.1% disagreed or strongly disagreed. The low mean of 1.68 (SD = 1.121) therefore represents a strong positive assessment of professional preparation. The finding suggests that the programmes provide students with a generally sound foundation for entering physiotherapy practice. It agrees with Frenk et al. (2010), who observed that well-designed health-professions programmes prepare graduates to apply knowledge and skills in professional settings. It is also consistent with Timmerberg *et al.* (2022), who emphasised that competency-based physiotherapy education should prepare graduates to deliver safe and effective patient care. Nevertheless, the negative responses suggest that professional preparation may not be equally experienced across all universities and clinical-training environments.

Regarding the competencies required in the healthcare sector, 22.6% strongly agreed and 53.8% agreed, producing a combined agreement of 76.4%. In comparison, 21.4% disagreed or strongly disagreed. The mean of 2.28 (SD = 1.152) confirms that respondents generally believed that the programmes equipped graduates with relevant professional competencies. These competencies may include patient assessment, treatment planning, communication, ethical conduct, clinical reasoning and teamwork. This finding is consistent with the World Confederation for Physical Therapy (2019), which identifies clinical competence, communication, critical thinking and professional ethics as essential outcomes of physiotherapy education. However, the proportion expressing disagreement should not be overlooked. Cunningham et al. (2019) found that Kenyan physiotherapists improved their clinical reasoning through postgraduate residency training but continued to experience difficulties with higher-level reasoning, including pattern recognition. Therefore, although the programmes may impart essential entry-level competencies, further strengthening of complex clinical reasoning and decision-making may be required.

The findings were comparatively less positive regarding whether the programmes met Kenya's current healthcare needs. Although 64.9% agreed or strongly agreed, 12.0% were neutral and 23.1% disagreed or strongly disagreed. This item recorded the highest mean of 2.45 (SD = 1.240), indicating that it was the least favourably rated aspect of programme effectiveness. The findings suggest that while existing curricula address many healthcare requirements, some respondents perceived gaps in their responsiveness to changing national needs. Frenk et al. (2010) observed that health-professions curricula in many low- and middle-income countries are not always sufficiently aligned with evolving health-system demands. Similarly, Blood et al. (2026) identified gaps in Kenyan entry-level physiotherapy education concerning preparation for the rehabilitation needs of older adults. Curricula may therefore require continuous review to strengthen emerging areas such as geriatric rehabilitation, non-communicable diseases, community-based rehabilitation, digital health, assistive technology and tele-rehabilitation.

On the integration of theoretical knowledge with clinical practice, 68.8% of respondents agreed or strongly agreed, while 24.8% disagreed or strongly disagreed. The mean of 2.39 (SD = 1.380) indicates an overall positive perception, although this item recorded the largest variation in responses. The results imply that many respondents experienced effective integration of classroom learning and clinical practice, but this experience was not uniform. Clinical education enables students to apply theoretical knowledge, develop professional judgement and acquire practical competence through interaction with patients (McCallum et al., 2013). Lekkas et al. (2007) similarly established that access to appropriate and diverse clinical placements strengthens students' clinical skills and

preparedness. The variation in responses may be explained by disparities in clinical-placement opportunities, availability of equipment, supervision and exposure to diverse clinical conditions.

Regarding the preparation of graduates to provide safe, ethical and patient-centred care, 68.8% agreed or strongly agreed, whereas 28.2% disagreed or strongly disagreed. The resulting mean of 2.41 (SD = 1.366) shows a generally positive evaluation but also reveals a notable area of concern. Safe and patient-centred practice is a central outcome of physiotherapy education because graduates must combine clinical knowledge with communication, professionalism, cultural sensitivity and ethical decision-making. Timmerberg et al. (2022) argued that competency-based physiotherapy education should use clearly defined performance standards to ensure consistent and safe practice. Ramklass and Vithal (2022) also emphasised the importance of caring relationships and professional values within physiotherapy education. The relatively high proportion of negative responses suggests a need to strengthen the teaching and assessment of ethics, communication, cultural competence, patient safety and person-centred care throughout both classroom and clinical learning.

The researcher sought to find out Curriculum relevance). The respondents were required to rate their opinions on five statements using a five-point Likert scale, with 1 indicating 'Strongly Agree' and 5 indicating 'Strongly Disagree'. The ratings were analyzed as frequencies, mean, standard deviation (Std), the composite mean, and composite standard deviation. The results were presented below (SA- Strongly Agree, A- Agree, UD- Undecided, D- Disagree, and SD- Strongly Disagree). The results are shown in Table 5.

Table 5
Curriculum Relevance

S/N	Statement	SA	A	N	D	SD	Mean	Std
1	Understanding of programme goals and objectives	83 35.5%	110 47.0%	6 2.6%	18 7.7%	17 7.3%	3.96	1.160
2	Programme alignment with societal and healthcare needs in Kenya	67 28.6%	120 51.3%	12 5.1%	18 7.7%	17 7.3%	3.86	1.134
3	Relevance of training/education to clinical or job requirements	41 17.5%	120 51.3%	61 26.1%	7 3%	5 2.1%	3.79	0.841
4	Programme addresses cultural and community health contexts	54 23.1%	65 27.8%	93 39.7%	19 8.1%	3 1.3%	3.63	0.968
	Composite						3.81	1.026

The results in Table 5 show that respondents generally perceived the undergraduate physiotherapy curriculum as relevant and appropriately aligned with programme goals, professional requirements and Kenya's healthcare needs. The composite mean of 3.81 (SD = 1.026) falls within the agreement range, based on a scale where 1 represented strongly disagree and 5 represented strongly agree. This suggests an overall favourable assessment, although the standard deviation indicates some variation in experiences across respondents and institutions. Within the CIPP model, curriculum relevance forms part of context evaluation, which assesses whether programme goals and content respond to societal needs, healthcare demands and the environment in which graduates are expected to practise (Stufflebeam, 2003; Zhang et al., 2011). Regarding understanding of programme goals and objectives, 35.5% of respondents strongly agreed and 47.0% agreed, producing a combined agreement of 82.5%. Only 15.0% disagreed or strongly disagreed, while 2.6% were neutral. This item recorded the highest mean of 3.96 (SD = 1.160). The finding suggests that programme objectives were generally communicated clearly and understood by students and graduates. Clear programme goals are important because they provide direction for curriculum content, teaching strategies, clinical training and assessment. Stufflebeam (2003) emphasised that effective programmes should have clearly defined objectives that are responsive to identified needs. Similarly, Harden (2002) argued that outcome-based education requires expected learning outcomes to be clearly stated so that teaching and assessment can be aligned with the competencies graduates are expected to demonstrate.

On programme alignment with societal and healthcare needs in Kenya, 28.6% strongly agreed and 51.3% agreed, giving a combined positive response of 79.9%. Only 15.0% disagreed or strongly disagreed, while 5.1% remained neutral. The mean of 3.86 (SD = 1.134) indicates that respondents generally believed that the curriculum responds to Kenya's rehabilitation and healthcare priorities. This finding is important because physiotherapy education should prepare graduates to address the growing burden of disability, injuries, non-communicable diseases and other conditions requiring rehabilitation services. The finding agrees with Stucki et al. (2018), who described rehabilitation as an essential health strategy for addressing contemporary population-health needs. It also supports Frenk et al. (2010), who maintained that health-professions education should be aligned with changing health-system and population needs. However, the presence of respondents expressing disagreement indicates that curriculum responsiveness may not be experienced consistently across the universities. Regarding the relevance of training to clinical practice and employment

requirements, 17.5% strongly agreed and 51.3% agreed, resulting in a combined agreement of 68.8%. Approximately 26.1% were neutral, while 5.1% disagreed or strongly disagreed. The mean of **3.79** (SD = 0.841) reflects a positive assessment and the comparatively low standard deviation indicates greater consistency in responses. The finding suggests that the programmes generally equip learners with knowledge and skills applicable to clinical and employment settings. Timmerberg et al. (2022) emphasised that physiotherapy education should be competency-based and aligned with actual professional-performance requirements. Similarly, McCallum et al. (2013) established that quality clinical education supports the development of practice-ready graduates. Nevertheless, the relatively high neutral response may indicate that some current students had not acquired sufficient clinical or employment experience to evaluate the applicability of their training confidently. It may also suggest uncertainty regarding the relationship between curriculum content and actual workplace demands.

The item concerning cultural and community health contexts received the lowest rating. A combined **50.9%** of respondents agreed or strongly agreed, 39.7% were neutral and 9.4% disagreed or strongly disagreed. Although the mean of **3.63** (SD = **0.968**) remained above the neutral point, the large neutral proportion indicates uncertainty about whether cultural and community health issues are sufficiently incorporated into the programme. This represents an important area for curriculum improvement. Abdelnour (2020) emphasised the importance of early community-based rehabilitation exposure in preparing physiotherapy students to respond to the varied needs of persons with disabilities. Govender et al. (2019) also found that community-based clinical education allows students to understand primary healthcare needs and apply physiotherapy knowledge in local settings. Curricula should therefore provide greater exposure to community-based rehabilitation, cultural competence, health promotion, disability inclusion and rural or underserved populations.

The objective of this study was to determine the effect of curriculum relevance on the effectiveness of undergraduate physiotherapy programme in Kenyan universities. A linear regression test was employed to determine this. The study utilized the following null hypothesis, which was tested at a 0.05 level of significance.

H₀₁: Curriculum relevance has no statistically significant effect on the effectiveness of undergraduate physiotherapy programme in Kenyan universities.

The results are shown in Table 6(a-c)

Table 6a

Model summary on Relevance of the Undergraduate Physiotherapy Curriculum

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.356 ^a	.127	.123	6.272

a. Predictors: (Constant), Relevance of the undergraduate physiotherapy curriculum

b. Dependent Variable: Effectiveness of undergraduate physiotherapy programme

The regression model summary in Table 6a shows that the relevance of the undergraduate physiotherapy curriculum had a positive relationship with the effectiveness of undergraduate physiotherapy programme, with R = .356. The R Square of .127 indicates that curriculum relevance explained 12.7% of the variation in programme effectiveness, while the adjusted R Square of .123 indicates that approximately 12.3% of the variation was explained after adjustment for the model. The remaining 87.3% of the variation in programme effectiveness was attributable to other factors not included in this model.

Table 6b

ANOVA on Relevance of the undergraduate physiotherapy curriculum

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1328.392	1	1328.392	33.769	.000 ^b
	Residual	9126.262	232	39.337		
	Total	10454.654	233			

a. Dependent Variable: Effectiveness of undergraduate physiotherapy programme

b. Predictors: (Constant), Relevance of the undergraduate physiotherapy curriculum

The ANOVA results in Table 6b indicate that the regression model examining the relevance of the undergraduate physiotherapy curriculum as a predictor of programme effectiveness was statistically significant, F (1, 232) = 33.769, p < .05. This indicates that curriculum relevance significantly predicts the effectiveness of undergraduate physiotherapy programme, and the observed relationship is unlikely to have occurred by chance. Therefore, the null hypothesis that curriculum relevance has no statistically significant effect on the effectiveness of undergraduate physiotherapy

programme is rejected, providing evidence that curriculum relevance significantly contributes to programme effectiveness.

Table 6c:

Regression coefficients on Relevance of the Undergraduate Physiotherapy Curriculum

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	37.517	2.746		13.663	.000
	Relevance of the undergraduate physiotherapy curriculum	1.013	.174	.356	5.811	.000

a. Dependent Variable: Effectiveness of undergraduate physiotherapy programme

The regression coefficients in Table 6c indicate that the relevance of the undergraduate physiotherapy curriculum significantly and positively predicts the effectiveness of undergraduate physiotherapy programme. The unstandardized coefficient ($B = 1.013$, $SE = 0.174$) indicates that a one-unit increase in curriculum relevance is associated with a 1.013-unit increase in programme effectiveness. The standardized coefficient ($\beta = .356$) indicates a moderate positive predictive effect, while the t-value of 5.811 ($p < .05$) confirms that the effect is statistically significant. The regression equation is:

$$Y = 37.517 + 1.013X$$

Where Y represents the predicted effectiveness of undergraduate physiotherapy programmes, and X represents the relevance of the undergraduate physiotherapy curriculum. Thus, when curriculum relevance is zero, the predicted effectiveness score is 37.517, and each one-unit increase in curriculum relevance increases predicted programme effectiveness by 1.013 units. Consequently, the null hypothesis that curriculum relevance has no statistically significant effect on programme effectiveness is rejected.

The first objective of the study was to determine the effect of curriculum relevance on the effectiveness of undergraduate physiotherapy programme in Kenyan universities. The quantitative findings established that curriculum relevance had a statistically significant positive effect on programme effectiveness. The regression coefficient was positive and statistically significant ($B = 1.013$, $\beta = .356$, $t = 5.811$, $p < .05$), indicating that a one-unit improvement in curriculum relevance was associated with a 1.013-unit improvement in programme effectiveness. Consequently, the null hypothesis that curriculum relevance had no statistically significant effect on programme effectiveness was rejected. These findings imply that the effectiveness of undergraduate physiotherapy programme depends partly on the extent to which curriculum content, objectives and learning experiences correspond with contemporary healthcare needs, professional expectations and the realities of physiotherapy practice.

These findings were supported by the responses from the university administrators. The administrators generally perceived the curriculum as providing the foundational theoretical and practical knowledge necessary for entry-level physiotherapy practice, although they emphasized the need for continuous revision. One administrator observed:

"The curriculum is generally comprehensive because it covers the major areas of physiotherapy practice and gives students the theoretical and practical foundation they require. However, healthcare needs are changing, so curriculum review has to be continuous." (UA1, 5/5/2026)

The response supports the finding by indicating that curriculum relevance is not simply determined by the presence of conventional physiotherapy content, but by the ability of the programme to remain responsive to evolving healthcare needs. Another administrator emphasized that:

"Physiotherapy education needed to move beyond the traditional hospital model and prepare graduates for community, home and technology-supported rehabilitation." (UA1, 13/5/2026)

This concern corresponds with the contextual dimension of the CIPP model, which assesses whether programme objectives and content adequately reflect environmental demands, healthcare priorities and societal needs.

The position of the university administrators was further supported by the regulatory perspective. The PCK Registrar emphasized that:

"Undergraduate programme generally provided the fundamental competencies expected of entry-level physiotherapists but that curriculum relevance must also be evaluated in terms of consistency with professional standards". (PCK Registrar, 20/5/2026)

The regulatory perspective suggests that the curriculum should simultaneously respond to local healthcare needs and maintain minimum professional standards across universities. This is particularly important because the Physiotherapy Council of Kenya influences curriculum design and programme delivery through professional and regulatory standards. The reviewed literature similarly acknowledges that policy frameworks and regulatory requirements significantly shape physiotherapy education in Kenya.

This finding closely agrees with the empirical literature reviewed. Frenk *et al.* (2010) observed that health professions training programme frequently become poorly aligned with changing healthcare system requirements,

particularly in low- and middle-income countries. Similarly, Ngigi (2017) reported that curricula in sub-Saharan Africa frequently fail to adequately incorporate emerging priorities such as non-communicable diseases, rehabilitation services and community-based care. Jones (2017) further argued that programme developed with greater stakeholder engagement tend to be more responsive and produce graduates who are more competent and adaptable. The importance of community-oriented education was also evident in the reviewed studies. Abdelnour (2020) emphasized that early exposure to community-based rehabilitation is important in preparing physiotherapy students to address the diverse needs of persons living with disabilities.

There was therefore substantial convergence among the three strands of evidence. The quantitative results demonstrated that curriculum relevance significantly predicted programme effectiveness; university administrators and the regulatory representative indicated that curricula were generally appropriate but required continuous adaptation; and previous studies emphasized alignment of curriculum content with healthcare demands, emerging health priorities and stakeholder expectations.

However, the findings also revealed an important qualification. Although curriculum relevance significantly predicted programme effectiveness when examined independently, its contribution became statistically non-significant when considered simultaneously with instructional capacity, infrastructure and professional competence ($B = .202$, $\beta = .071$, $p = .156$). This suggests that curriculum relevance may provide the contextual foundation for programme effectiveness but may not independently guarantee favourable programme outcomes. A relevant curriculum requires adequate faculty, instructional resources, infrastructure and effective clinical training for its intended competencies to be realized. This observation is consistent with the systems perspective of the CIPP model, which links programme context to inputs, processes and products rather than treating curriculum content as an isolated determinant of outcomes.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concludes that curriculum relevance has a positive and statistically significant effect on the effectiveness of undergraduate physiotherapy programme when considered independently. Existing curricula generally provide the knowledge and foundational competencies required for entry-level practice. However, relevance cannot be treated as permanent because healthcare priorities, technologies and professional roles continue to evolve. Continuous curriculum review and effective implementation are therefore necessary. A well-designed curriculum alone cannot produce the desired outcomes unless it is supported by adequate instructional resources, infrastructure and clinical learning opportunities.

5.2 Recommendations

First, universities should establish a regular curriculum-review cycle involving academic staff, students, graduates, employers, clinical supervisors, professional regulators and service users. Curriculum reviews should strengthen community-based rehabilitation, tele-rehabilitation, assistive technology, evidence-based practice, interprofessional education, complex case management, communication and digital health. Secondly, universities should align student admissions with available teaching personnel, laboratory space, equipment and clinical placement opportunities. Where enrolment increases, corresponding investments should be made in staffing, laboratories, simulation facilities and clinical partnerships. Appropriate staff-to-student ratios should be maintained, particularly during practical instruction and clinical supervision. Thirdly, universities should institutionalize continuing professional development for academic and clinical educators. Training should cover competency-based education, simulation, contemporary rehabilitation practices, student mentorship, digital learning and assessment. Clinical instructors should make regular visits to placement facilities and work jointly with facility-based supervisors to monitor students and standardize assessment.

Declaration of Interest

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