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SELF-EFFICACY AS A MEDIATOR IN THE RELATIONSHIP BETWEEN PERCEIVED BENEFITS, PERCEIVED BARRIERS AND PGME INTENTION AMONG THE MEDICAL OFFICERS IN MALAYSIA

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Abstract: *The healthcare sector in Malaysia faces a shortage of specialists due to medical officers hesitating to enrol in postgraduate medical education (PGME). Understanding the factors influencing medical officers' intentions to pursue PGME is essential. This study examines how perceived benefits and perceived barriers may impact medical officers' self-efficacy and intention to pursue PGME. Self-efficacy is investigated as a mediating element in this relationship. Social Cognitive Theory (SCT) served as the basis for the conceptual framework in this study. A cross-sectional survey involved 300 medical officers from healthcare clinics and hospitals in Malaysia. Employing structural equation modelling (SEM) with bootstrapping, the analysis revealed that medical officers perceiving higher benefits demonstrated higher self-efficacy to pursue PGME. In contrast, perceived barriers exhibited a significant negative relationship with self-efficacy. Moreover, self-efficacy was positively associated with PGME intention and mediated the relationship between perceived benefits and barriers. The study's findings bear significance for educational institutions, healthcare stakeholders and policymakers in refining strategies related to PGME.*

Keywords: *Perceived benefits, Perceived barriers, Self-efficacy, PGME intention, Medical officers*

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Introduction

Medical education in Malaysia offers diverse pathways for career advancement, including postgraduate medical education (PGME) and parallel pathways (Ministry of Health, 2023). While both avenues provide opportunities for medical officers to enhance their expertise and skills in a specific area of medicine, the primary emphasis on PGME stems from its structured curriculum, affordability, and wide accreditation in Malaysia (Nadarajah et al., 2023). PGME serves as a pivotal platform, spanning four to five years, for transforming medical officers into specialists capable of providing patients with more specialised and comprehensive care. Additionally, PGME plays a crucial role in organising and leading systems of academic medicine, advancing teaching and research, and contributing significantly to healthcare policy development (Sriram & Bennett, 2019).

Despite the paramount importance of PGME in the healthcare system, the enrolment rate of medical officers in the PGME programme has steadily declined over the years (Li & Sun, 2018; Sriram & Benneth, 2020; Gimino, 2024. As of December 31, 2022, only 7,993 medical officers were enrolled in specialist studies under the PGME (Ministry of Health, 2023). This leads to a severe specialist shortage in Malaysia. Such inadequacy hampers the healthcare system's ability to meet the growing demand for medical specialists, especially with the increasing burden of non-communicable diseases among the population and the anticipated rise in the elderly population requiring specialised treatment (Povera & Yunus, 2021). Over time, this strain erodes the nation's overall healthcare system (Aliman, 2021). Therefore, it is imperative to examine the factors influencing the intention to pursue postgraduate medical education (PGME) among medical officers in Malaysia.

Intention refers to an individual's decision and commitment to perform a specific behaviour. In the context of the study, the intention to pursue PGME reflects a desire for further specialisation and expertise in a specific field of medicine. It indicates a commitment to advancing knowledge and skills beyond the basic medical training received during the undergraduate years. Previous research indicates that the initial intention to pursue PGME may take root during the earlier stages of medical training, either at the undergraduate level, after graduation or housemanship (Azu et al., 2013). However, the alignment with actual behaviour often solidifies during years of hands-on experiences and exposure to diverse clinical experiences as the realities and demands of different specialities become clearer (Ezeike & Ebong, 2021). During this crucial phase, PGME intention is reflected in various ways, including the choices made in postgraduate career paths, a dedication to continuous learning (Nadarajah et al., 2022), active involvement in research (Playford et al., 2016), seeking guidance (Spooner et al., 2017), a commitment to hands-on experiences (Haruta et al., 2020) and a determined effort to build connections in the chosen field (Smith et al., 2015; Zweigenthal et al., 2016).

As medical officers navigate their educational trajectories, they often encounter considerations. Prominently among them are the perceived benefits and barriers associated with further educational endeavours. Perceived benefits encompass a spectrum of advantageous outcomes that medical officers anticipate from engaging in postgraduate education. These benefits may include, but are not limited to, expanded clinical knowledge, specialised skills acquisition, career advancement opportunities, and the potential for increased professional recognition and remuneration (Borkar et al., 2020; Holloway, 2020; Yusof, 2021). Such perceived benefits serve as compelling motivators, driving medical officers towards pursuing advanced educational opportunities and fostering a culture of lifelong learning within the medical profession. Nevertheless, pursuing a PGME is challenging, ranging from financial constraints

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to time commitments to institutional support limitations and familial responsibilities (CodeBlue, 2020). Such barriers may pose significant obstacles to medical officers' educational aspirations, potentially deterring them from actively engaging in postgraduate education programs despite recognising the potential benefits.

Moreover, central to this discourse is the construct of self-efficacy—the belief in one's capability to accomplish specific tasks and attain desired outcomes. In postgraduate medical education, self-efficacy is pivotal in shaping medical officers' intentions, actions, and eventual educational achievements (Yelorda et al., 2021). It is believed that when the contextual factors, including perceived benefits and barriers, are internalised as self-efficacy, they enhance medical officers' decision-making processes and influence their overall attitude and commitment to pursuing postgraduate education. While perceived benefits may bolster self-efficacy, perceived barriers may pose challenges and potentially diminish self-efficacy, impacting medical officers' motivation and determination to pursue further education (Sullivan et al., 2021; Susyanty et al., 2020; Zhang & Liu, 2018). Therefore, understanding the intricate relationships between the contextual factors (perceived barriers and perceived benefits), self-efficacy, and the intention to pursue PGME is crucial. By comprehensively examining how internal beliefs interact with perceived benefits and barriers, this study seeks to provide nuanced insights into effective strategies to enhance medical officers' intentions and career development in Malaysia.

The specific research objectives for this study are as follows:

1. To examine the relationship between perceived benefits and the self-efficacy of medical officers.
2. To examine the relationship between perceived barriers and the self-efficacy of medical officers.
3. To examine the relationship between self-efficacy and intention to pursue postgraduate education among medical officers.
4. To evaluate the mediating effect of self-efficacy between perceived benefits and perceived barriers to pursuing postgraduate medical education among medical officers.

Literature Review

Extensive research has indicated that the formation of PGME intention is influenced by various contextual factors, with notable studies revealing motivators such as career goals (Oliveira, 2016), prestige (Lipworth et al., 2013), professional development, job security (Holloway, 2020), lifestyle and financial stability considerations (Borkar et al., 2020). Studies also revealed the challenges or obstacles that a medical professional has to face in the pursuit of PGME, including limited programme spots, lack of financial support, competitive enrolment process and work-life imbalance (Scanlan et al., 2018; Sullivan et al., 2021; Grasreiner et al., 2018). While existing research has extensively explored the individual effects of perceived benefits and barriers on PGME intentions, there is a noticeable gap in understanding the interplay and combined impact of these factors on the self-efficacy of medical officers.

Isaac et al. (2015) and Epstein and Fischer (2017) indicate the recognition of self-efficacy as a crucial factor influencing PGME intentions. Postgraduate journeys are known for their demanding nature, requiring extensive time, effort, and energy. By acknowledging self-efficacy as pivotal, these studies suggest that medical cohorts with a strong belief in their abilities are better equipped to confront and overcome the challenges inherent in advanced academic pursuits. However, the existing literature falls short of providing empirical support for the relationship between self-efficacy and the intention to pursue PGME (Cleland et al., 2019).

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While some studies, like Holloway (2020), Verulava et al. (2018) and Scanlan et al. (2018), suggest that the decision-making for PGME might be linked to a change in the self-efficacy levels, the specific connections between self-efficacy and the intention to pursue PGME require further examination.

Moreover, Sullivan et al. (2018) and Holloway (2020) perspectives imply that self-efficacy might play a pivotal role in explaining the complex relationships between perceived barriers, perceived benefits, and the intention to pursue postgraduate medical education. Despite suggestions from the aforementioned past studies, there is a notable lack of empirical evidence supporting the assertion that self-efficacy has a mediating role. Limited studies to date have systematically investigated how self-efficacy acts as a bridge between perceived barriers, perceived benefits, and the intention to pursue postgraduate education among early career doctors. Addressing this research gap is crucial for understanding the psychological processes in decision-making regarding postgraduate medical education. In view of lacking a robust theoretical framework in previous studies, the current research also aims to fill the void by grounding its investigation in social cognitive theory. The theoretical foundation is crucial for providing a structured framework that can offer deeper insights into the complex interplay of perceived barriers, benefits, self-efficacy, and PGME intentions.

Social Cognitive Theory

Social Cognitive Theory (SCT), developed by Albert Bandura, explores how cognitive processes influence behavioural intentions. It introduces the concept of outcome expectations, which are anticipated results or consequences associated with behaviour (Bandura, 1986; Bandura, 1989; Schunk, 2012). Positive outcomes, or perceived benefits, increase individuals' confidence in their ability to achieve those outcomes, known as self-efficacy (Bandura, 1986). Conversely, barriers in SCT correspond to negative outcome expectations. If individuals perceive significant obstacles or negative outcomes related to adopting a behaviour, it can undermine one's confidence in successfully performing that behaviour. Interestingly, Bandura (2001) posits that self-efficacy is a pivotal mediator between outcome expectations and behavioural intention. Rather than individuals directly responding to anticipated outcomes, their level of self-efficacy filters and shapes the impact of these expectations on their intention to engage in the behaviour. When individuals anticipate positive outcomes, high self-efficacy reinforces their intention to perform the behaviour. Conversely, when barriers are expected, self-efficacy plays a mediating role by lessening their impact (Bandura, 1977; Bandura, 1989). However, it is worth noting that perceived barriers can also erode self-efficacy, particularly when individuals perceive significant obstacles to a particular behaviour (Bandura, 2001). This dynamic interplay between outcome expectations, self-efficacy, and behavioural intentions underscores SCT's relevance in understanding human behaviour (Bandura, 1977; Bandura, 1989; Schunk, 2012). Empirical evidence proved that Social Cognitive Theory has been influential in behavioural intention studies, including education (Schunk, 2020; Carder et al., 2016), psychology (Godin et al., 2008; Garcia & Mann, 2003; Boateng et al., 2016) and communication (Chao, 2019; Young et al., 2005; Ratten & Ratten, 2007; Cai et al., 2003). According to the study context, SCT provides a comprehensive lens to understand how medical officers' perceptions about the benefits and barriers and their confidence in their abilities (self-efficacy) would be crucial in shaping the PGME intention.

Hypothesis Development

Medical officers might believe that engaging in PGME will bring about positive outcomes and advantages; it can boost their confidence in their ability to succeed in the programme. Nwatu

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et al. (2020) suggest that when doctors perceive that specialisation comes with financial benefits, such as higher salaries or additional allowances, it serves as a form of recognition for their expertise. This financial acknowledgement can boost their confidence in their professional abilities and motivate them to pursue further education, believing it will be rewarded financially. Meanwhile, Bajpai et al. (2015) emphasise that a comprehensive set of incentives, encompassing not only monetary gains but also professional recognition, job satisfaction, and growth opportunities, is a robust stimulus for doctors' confidence to embark on the postgraduate journey. Verulava's (2022) investigation delves into the intricate correlation between perceived benefits of specialisation, job satisfaction and self-efficacy in PGME. The study unveils a noteworthy trend among senior medical specialists who, despite achieving specialisation, express discontent with their existing incomes and lifestyles. Particularly, dissatisfaction is pronounced in the context of salary and allowances, perceived as inadequate relative to their substantial workloads. The study indicates that when these senior specialists, expected to epitomise success and satisfaction, voice dissatisfaction for the perceived benefits, it introduces a complex dynamic that impacts junior doctors' self-efficacy in successfully traversing this educational journey.

Lipworth et al. (2013) highlight that perceived social recognition and respect associated with completing PGME can contribute significantly to self-efficacy. Knowing that one's accomplishments will be acknowledged and respected instils confidence and motivation for higher education. Atkinson et al. (2018) add an interesting dimension, stating that even in the face of burnout due to high workloads, aspiring doctors' belief in making meaningful societal contributions through PGME enhances their self-efficacy. This underscores the power of a sense of purpose and societal impact as stimuli for PGME. Thus, it can significantly influence their self-efficacy when medical officers perceive that pursuing PGME will result in potential benefits, from career advancement to personal and societal contributions. Thus, the following hypothesis is formed.

H1: There is a significant positive relationship between perceived benefits and self-efficacy among medical officers.

The concept of perceived barriers influencing an individual's belief in their capacity to pursue a specific act is well-established in SCT, particularly within the self-efficacy framework. In medical officers pursuing PGME, if they perceive hindrances or encounter negative experiences, their self-efficacy to undertake such challenges may diminish. A qualitative analysis conducted by Forbes et al. (2019) delves into the narratives of Australian junior doctors, providing real-life accounts of how institutional and personal barriers manifest and negatively impact psychological well-being. These barriers pose immediate challenges and cast a shadow on how they influence junior doctors' confidence, leading to doubts about their competence and worthiness to pursue postgraduate medical education (PGME). Besides, a study by Milam et al. (2019) explicitly highlights how barriers relevant to postgraduate medical education (PGME) are associated with a diminished sense of self-efficacy among medical officers. The barriers identified in the study, including workload, resource constraints, or other challenges inherent in PGME, are shown to harm the perceived capabilities of medical officers. This implies that the challenges posed by these barriers seem to erode the self-efficacy of medical officers, making them feel less prepared and capable of facing the demands of the postgraduate journey.

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A UK research study by Rizan et al. (2019) reveals a noteworthy trend among contemporary doctors who opt to take a break in practice before embarking on the postgraduate medical education (PGME) program, particularly during the pre-foundation year. Though the reasons behind this growing practice have not been extensively investigated, the study points to the challenges doctors face at this stage of PGME training and work, including issues like exhaustion, stress, and the need for additional time to prepare competitive portfolios for entry into speciality training. This could stem from the increasing competitiveness within the field, where doctors must showcase comprehensive skills and achievements. This process, in turn, may contribute to heightened stress levels and the perception of needing more time to prepare adequately. Fundamentally, the research implies that these challenges have a notable impact on the confidence levels of doctors considering the postgraduate journey. The accumulation of stress, exhaustion, and the demand for meticulous portfolio preparation may decrease confidence in their ability to survive and thrive in the postgraduate medical education setting. Hence, based on the discussions above, as medical officers encounter more barriers, their self-efficacy diminishes, leading to a reduced belief in their ability to navigate and succeed in the demanding environment of PGME. Thus, the following hypothesis is formed.

H2: There is a significant negative relationship between perceived barriers and self-efficacy towards postgraduate medical education among medical officers.

Self-efficacy refers to a medical officer's belief in their own ability to handle the responsibilities and challenges associated with PGME and successfully complete the programme. Applying SCT to the context of the study (Bandura, 1986), a decrease or increase in self-efficacy would impact a medical officer's PGME intention. Regarding the relevance of self-efficacy within the educational context, Isaac et al. (2018) and Epstein and Fischer (2017) have demonstrated that medical students exhibiting high self-efficacy are inclined to actively seek research opportunities, participate in scholarly activities, and demonstrate a strong commitment to continuous learning. These behaviours collectively contribute to a positive intention to pursue PGME. Scanlan et al. (2018) asserted that medical officers with high confidence in their academic abilities are likelier to set ambitious study goals, actively engage in learning, and persist through academic challenges. In turn, it becomes a driving force influencing not only immediate study behaviours but also shaping intentions for career advancement and specialisation. Moreover, Rimmer (2015) and Cleland et al. (2019) revealed that many early career doctors in the UK delay PGME programme applications after compulsory services, with over half taking a break post-Foundation Programme. While the precise cause remains unproven, they encapsulate that this behaviour may indicate a potential association with low self-efficacy, as early career doctors might harbour reservations about their readiness to confront the challenges inherent in advanced medical education. Hence, based on the discussions above, it is suggested that when medical officers possess high self-efficacy, they are more goal-oriented and capable of managing challenging tasks and work demands in the postgraduate journey. Subsequently, this sense of confidence will be reflected in their PGME inclination. Thus, the following hypothesis is formed:

H3: There is a significant positive relationship between self-efficacy and intention to pursue postgraduate medical education among medical officers.

Self-efficacy as a Mediator

Holloway's (2020) suggestion highlights the positive connection between perceived benefits, such as career enhancement, personal growth, broadening perspectives, and increased

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confidence among healthcare professionals, including doctors, to embark on the postgraduate journey. The perceived benefits act as motivational factors, instilling a sense of assurance and optimism about the potential outcomes of postgraduate education. This heightened sense of confidence becomes a catalyst for healthcare professionals, motivating them to invest in postgraduate education. Besides, a study by Zhang & Liu (2018) underscores a connection between dissatisfaction with salary for specialisation, self-efficacy erosion and the subsequent reluctance to pursue advanced medical education. Low salary levels for those who have achieved specialisation led aspiring medical officers to perceive their work and expertise as undervalued. This perception erodes one's belief in one's professional worth, contributing to decreased self-efficacy. Due to diminished self-efficacy, they feel reluctant to embark on the PGME journey. Susyanty et al. (2020) suggested that by introducing more interventions, particularly in financial and non-financial benefits, the overall attractiveness of pursuing a specialist career is heightened. These interventions assure the junior doctors that their commitment and efforts for specialisation are recognised and valued, fostering a sense of self-efficacy and worth. This, in turn, influences their career aspirations and intentions for higher education. Based on the discussions above, perceived benefits may indirectly influence the intention to pursue postgraduate study by strengthening the self-efficacy level among medical officers. Thus, the following hypothesis is formed:

H4: Self-efficacy mediates the relationship between perceived benefits and the intention to pursue postgraduate medical education among medical officers.

Sullivan et al. (2021) offer valuable insights into the intricate relationship among perceived barriers, motivation, self-efficacy, and PGME intention. According to his findings, the barriers perceived by early career doctors during the decision-making phase for enrolling in postgraduate programs may persist over an extended period, leading to a gradual erosion of their self-efficacy. This diminishing self-efficacy, in turn, has a cascading effect on their proactive engagement in pursuing specialised education. In addition, Winkel's (2018) perspective on the impact of a poor confidence level among medical officers due to various barriers in pursuing PGME delves into the behavioural outcomes (overly compliant and rebellious behaviours). Overly compliant behaviour leads to a passive approach, lacking the assertiveness required to progress efficiently through the stages of specialisation. Rebellious behaviour, conversely, creates friction within the medical hierarchy, impeding the smooth progression toward specialisation. As a result of these behavioural tendencies, a decreased intention to apply for postgraduate education emerges. Walters et al. (2015) proposition contributes an additional layer to comprehend how obstacles (e.g., institutional constraints, limited resources, and unfavourable circumstances) influence self-efficacy and decision-making regarding PGME enrolment. The encapsulation of this concept emphasises that self-efficacy plays a pivotal role in shaping the perception of challenges. It influences whether medical officers perceive barriers as surmountable or insurmountable, subsequently impacting their commitment to enrolling in PGME. This mediation highlights the intricate psychological dynamics inherent in the decision-making process when confronted with obstacles in professional development. Building on the preceding discussion, the suggestion emerges that a constraining opportunity structure within the environment impacts medical officers' perceived capacity to surmount challenges, subsequently exerting a notable effect on PGME intention. Thus, the following hypothesis is formed:

H5: Self-efficacy mediates the relationship between perceived barriers and the intention to pursue postgraduate medical education among medical officers.

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Based on the discussions above, the following conceptual framework is formed.

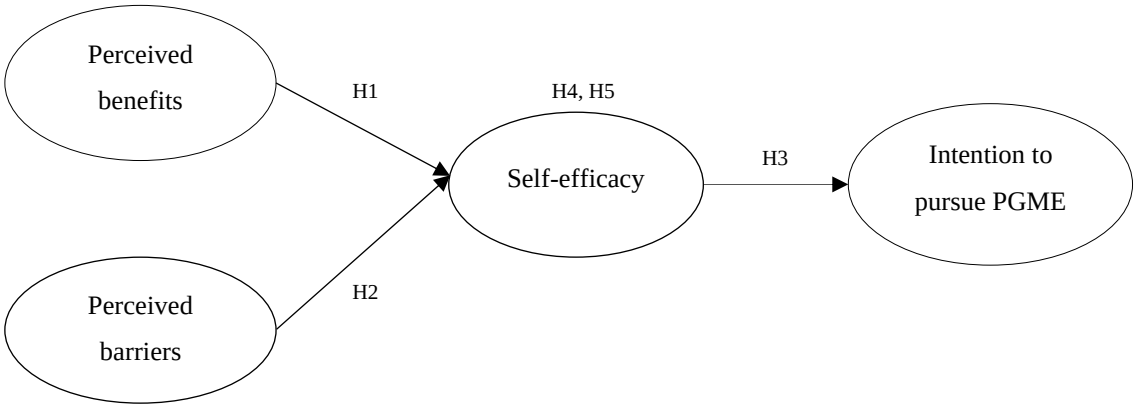

Figure 1: Conceptual Framework

Methodology

The study employed a self-administered questionnaire using purposive sampling to collect data from medical officers in various healthcare facilities across Selangor, Johor, Penang, and Perak. These locations are chosen due to the significant concentration of medical officers, constituting more than 50% of the targeted population (Malaysian Performance Unit, 2020). This approach ensures a robust representation of diverse perspectives within Malaysia's healthcare landscape. Respondents were required to be medical graduates with an MBBS degree who had completed housemanship in Malaysia but not yet pursue specialist career. The structured questionnaire included three sections: demographic information, screening questions, and variables under study, with perceived barriers and benefits adapted from Saeed (2018) and Ruban & Pierangeli (2019), self-efficacy measured using Schwarzer & Jerusalem's (1995) scale, and PGME intention from Burch et al. (2011), all using a five-point Likert scale. The questionnaires were distributed via the drop-off method from March to June 2023, with 318 questionnaires collected, of which 300 were suitable for analysis. Data were analysed using partial least squares (PLS) modelling with SmartPLS 4, following a two-step approach recommended by Anderson & Gerbing (1988) to assess the validity, reliability, and structural model hypotheses, ensuring robust and credible findings.

Results

Demographic analysis revealed that 64.3% (193) of the respondents identified as female, while 35.7% (107) identified as male. A significant portion, comprising 44.7% (134) of respondents, falls within the age range of 26-30, followed by 36.3% (109) are aged between 31-35, 10.7% (32) between 36-40, and only 8.3% (25) are aged above 40 years old. The marital status of the respondents indicates that the majority, accounting for 59.3% (178), are married, whereas 40.7% (122) are single. In terms of ethnicity, 43.7% (131) of respondents identified as Indians, 35.3% (106) as Malays, and 21% (63) as Chinese. Geographically, the distribution of respondents reveals that the highest proportion, at 30.3% (91), is from Selangor, followed by 29.3% (88) from Johor, 28.7% (86) from Perak, and lastly, 11.7% (35) from Penang. Employment status shows that 62.7% (188) of respondents hold contract positions, while 37.3% (112) hold permanent positions. A significant majority, 63.3% (190), work in the private sector, with the remaining 36.7% (110) employed in the government sector. Table 1 shows the results of the measurement model assessment. It revealed high reliability and validity, with factor loadings above 0.70, Cronbach's alpha values ranging from 0.805 to 0.927, composite reliability values from 0.855 to 0.917, and AVE values from 0.710 to 0.804 (Hair et al., 2016).

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Meanwhile, Table 2 demonstrates that HTMT values were below the criterion of 0.85 (Franke & Sarstedt, 2019), confirming discriminant validity.

Table 1: Measurement Model Results

Constructs	Indicators	Indicator Reliability	Convergent Validity	Internal Consistency Reliability	
		Factor Loadings (≥0.7)	AVE (>0.5)	Cronbach's Alpha (>0.7)	Composite Reliability (>0.7)
PBr	PBr1	0.863	0.782	0.874	0.855
	PBr2	0.725			
	PBr3	0.854			
	PBr4	0.811			
	PBr5	0.761			
PBn	PBn1	0.800	0.710	0.924	0.917
	PBn2	0.705			
	PBn3	0.850			
	PBn4	0.886			
	PBn5	0.785			
SE	SE1	0.880	0.804	0.805	0.915
	SE2	0.786			
	SE3	0.866			
	SE4	0.855			
	SE5	0.818			
	SE6	0.749			
	SE7	0.810			
	SE8	0.736			
PI	PI1	0.733	0.726	0.912	0.880
	PI2	0.761			
	PI3	0.868			
	PI4	0.723			
	PI5	0.769			

Note. PBr = Perceived barriers, PBn = Perceived benefits, SE = Self-efficacy, PI = PGME intention

Table 2: Heterotrait Monotrait Ratio (HTMT) of Discriminant Validity

	PB	PBn	PI	SE
PBr				
PBn	0.568			
PI	0.460	0.467		
SE	0.537	0.558	0.765	

Note.PBr = Perceived barriers, PBn = Perceived benefits, SE = Self-efficacy, PI = PGME intention

Structural model assessment used SmartPLS 4 for partial least squares (PLS) modelling and bootstrapping to test hypotheses (Ringle et al., 2022). Table 3 shows the significant positive effects of perceived benefits on self-efficacy ($\beta = 0.520$, t-value = 5.444, $p < 0.05$), negative effects of perceived barriers on self-efficacy ($\beta = -0.393$, t-value = 4.410, $p < 0.05$), and positive effects of self-efficacy on PGME intention ($\beta = 0.944$, t-value = 12.93, $p < 0.05$), supporting hypotheses H1, H2, and H3. Meanwhile, Table 4 displays mediation analysis confirming

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significant indirect effects, supporting the mediation role of self-efficacy between perceived benefits and PGME intention (β = 0.415, t-value = 5.433, p < 0.05) and between perceived barriers and PGME intention (β = -0.371, t-value = 4.398, p < 0.05), thus supporting hypotheses H4 and H5.

Table 3: Results of hypothesis testing (direct effects)

Structural path	Standardised beta	Standard error	T values	P values	Results
PBn -> SE	0.520	0.095	5.444	0.000	Supported
PBr-> SE	-0.393	0.089	4.410	0.000	Supported
SE -> PI	0.944	0.073	12.930	0.000	Supported

Note. PBr = Perceived barriers, PBn = Perceived benefits, SE = Self-efficacy, PI = PGME intention

Table 4: Results of hypothesis testing (indirect effects)

Structural path	Standardised beta	Direct effect	Total effect	T values	P values	Results
PBn-> SE -> PI	0.415	0.520	0.935	5.433	0.000	Supported
PBr -> SE -> PI	-0.371	-0.393	-0.764	4.398	0.000	Supported

Note. PBr = Perceived barriers, PBn = Perceived benefits, SE = Self-efficacy, PI = PGME intention

Discussion

The study reveals five significant findings. The study's first key finding supports Hypothesis 1 (H1), revealing a statistically significant impact of perceived benefits on the self-efficacy of medical officers. This finding aligns with existing literature (Nwatu et al., 2020; Verulava, 2022; Bajpai et al., 2015; Lipworth et al., 2013). The anticipation of financial rewards alongside non-financial gains, in terms of personal and professional development associated with PGME, serves as a form of validation for medical officers' expertise. The understanding that their efforts can positively impact healthcare and society through PGME further contributes to a sense of fulfilment and confidence in their ability for career progression, as highlighted by Atkinson et al. (2018).

The study also empirically illuminates a negative relationship between perceived barriers and the self-efficacy of medical officers, affirming Hypothesis 2 (H2). The finding emphasises the intricate dynamics between external challenges—from institutional hurdles to personal struggles—and the internal belief systems of medical officers. It indicates that the external challenges do not solely determine the impact of perceived barriers on self-efficacy but are deeply influenced by the medical officers' internal cognitive and emotional responses. This resonates perfectly with prior research (Forbes et al., 2019; Milam et al., 2019; Rizan et al., 2019), as managing multiple challenges simultaneously in the PGME pathway are believed to overwhelm medical officers, taxing cognitive resources, leading to self-doubt and psychological exhaustion. This, in turn, impacts their overall confidence levels in handling the demands associated with postgraduate medical education (PGME).

Furthermore, the results demonstrated a significant positive relationship between self-efficacy and the PGME intention among the medical officers, supporting Hypothesis 3. This finding resonates with existing literature, particularly the works of Isaac et al. (2018), Epstein & Fischer

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(2017), and Scanlan et al. (2018), emphasising the role of self-efficacy in influencing behaviours and intentions related to education and career advancement. This internal belief in one's capabilities catalyses goal setting and proactive engagement with educational opportunities, fostering a positive intention to navigate the demanding journey of PGME. The observed positive relationship aligns seamlessly with Social Cognitive Theory. According to this theoretical framework, individuals who perceive themselves as capable are likelier to engage in goal-directed behaviour. In the context of this study, the higher PGME intention indicated by the findings resonates perfectly with the tenets of Social Cognitive Theory.

The current study empirically revealed that self-efficacy mediates the relationship between perceived benefits, perceived barriers, and PGME intention. This supports Hypotheses 4 and 5. For the finding for hypothesis 4, it resonates with the notion provided by Holloway et al. (2020), Zhang & Liu (2018) and Susyanty et al. (2020). The positive influence of perceived benefits is channelled through the lens of self-efficacy, shaping medical officers' confidence and belief in their ability to succeed in the demanding journey of PGME. This indirect pathway implies that the perceived benefits play a crucial role in building the internal resources, such as self-efficacy, that are instrumental in driving PGME intention. For H5, the results confirm and build upon previous literature, reinforcing the pivotal role of self-efficacy in explaining the relationship between perceived barriers and PGME intention (Sullivan et al., 2021; Winkel, 2018; Walters et al., 2015). The essence lies in recognising that self-efficacy undergoes a gradual decline in the face of persistent barriers medical officers face. This erosion unfolds as a nuanced dynamic influenced by external challenges and internal perceptions of competence. The mediation takes centre stage as these perceptions transform into intention, whereby when barriers appear insurmountable, self-efficacy diminishes, setting the stage for a weakened PGME intention.

Theoretical Implications

By grounding the investigation in Social Cognitive Theory, the research provides a structured framework for comprehending the interplay between perceived benefits, perceived barriers, self-efficacy, and PGME intention. The study's findings validate key constructs within this theoretical framework, illustrating how positive outcomes associated with PGME enhance medical officers' belief in their capabilities. At the same time, challenges erode medical officers' internal belief systems and confidence levels in pursuing PGME. Moreover, the identification of self-efficacy as a mediator between perceived benefits, perceived barriers, and PGME intention extends the understanding of the cognitive processes underlying decision-making in educational pursuits. Future theoretical developments could benefit from acknowledging and incorporating this intricacy, moving beyond linear models to capture the multifaceted nature of PGME decision-making processes.

Practical Implications

Understanding the nuanced impact of financial and non-financial benefits in the context of postgraduate medical education (PGME) calls for a tailored approach to program design. Institutions and policymakers involved in PGME should consider a balanced combination of financial incentives and opportunities for personal and professional growth specific to the medical field. Clear communication of these benefits and their potential positive impact on self-efficacy among medical officers is crucial in driving PGME intention. Specifically, highlighting how PGME can lead to enhanced clinical skills, career advancement opportunities, and a greater impact on patient care can motivate medical officers to pursue further specialisation. Moreover, addressing perceived barriers to PGME, such as competitive enrolment processes, limited program spots, and work-life balance concerns, is essential. Practical interventions should

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encompass institutional efforts to streamline application processes, increase program capacity, and provide adequate support systems for medical officers. Additionally, individual-focused interventions, such as mentorship programs and resources for coping strategies, can assist medical officers in overcoming individual challenges and bolstering their self-efficacy to pursue PGME successfully. Given the central role of self-efficacy in shaping PGME intentions, practical initiatives should focus on building and reinforcing medical officers' confidence in their abilities. Training programs incorporating skill development, resilience-building, and strategies for managing challenges can contribute to a more confident and capable workforce. In conclusion, the practical implications emphasise actionable steps for institutions, policymakers, and healthcare stakeholders to create a supportive environment that maximises benefits, addresses barriers and fosters self-efficacy among medical officers pursuing postgraduate medical education.

Recommendations and future research

The study is grounded solely in Social Cognitive Theory (SCT), future research can explore additional theoretical frameworks or integrate multiple theories to provide a more holistic understanding of the factors influencing medical officers' PGME intention. Considering alternative perspectives, such as motivational or organisational behaviour theories, could enrich the theoretical foundation and offer a broader context for interpretation. The study's use of a non-probability sampling technique, coupled with the absence of a sampling frame and a focus on only four states in Malaysia, raises concerns about the generalisability of the findings. To enhance the external validity and broaden the generalisability of the study, future research should prioritise the inclusion of a diverse range of states or regions in Malaysia. Employing probability sampling methods, such as stratified random sampling, can ensure a more representative sample, allowing for more robust generalisations.

Conclusion

The comprehensive examination of factors influencing medical officers' intentions toward postgraduate medical education (PGME) has yielded valuable insights. Grounded in Social Cognitive Theory (SCT), the study not only provides actionable insights into the distinct influences of perceived benefits and perceived barriers on the self-efficacy of medical officers to pursue PGME. Importantly, recognising self-efficacy's mediating role, a novel contribution not found in previous literature, enhances understanding of the intricate dynamics in PGME intention. The research refines theoretical understanding and adds practical value for educational institutions, policymakers, and healthcare stakeholders. Educational support strategies can be tailored to address specific barriers, policies can be refined to facilitate career progression, and professional development initiatives can be personalised to enhance medical officers' confidence and engagement. This nuanced perspective contributes to a more informed and responsive approach to the complex decision-making processes in postgraduate medical education.

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