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Research Article

SELF-ASSESSMENT AND COMPETENCY DEVELOPMENT IN POST-GRADUATE GENERAL MEDICINE TRAINING: A NEEDS-BASED APPROACH

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ABSTRACT

A specialist physician needs to understand their personal expertise boundaries as well as their capabilities. A study examined doctor specialist training in general medicine to understand their self-evaluations across multiple subjects. The 139 post-graduate general practice trainees from Westfalen-Lippe Medical Association conduct subjective assessments of confidence regarding key competencies and 47 general practice counseling scenarios. A five-point Likert scale enabled the recording of participants' self-assessments. The examination evaluated self-evaluation acceptability together with feasibility and measured mean scores and reliability estimates and explored variations between groups and result probabilities. The measured subjective confidence level of all participants averaged at 3.4 points on a 5-point rating scale. The evaluation using Cronbach's alpha produced consistent results that met >0.8 yet it presented substantial variations both inside competency groups and between the participants. The biographical data collected helps to validate these study findings that display variations. Participants indicated that systematic learning needs data collection and mentor/trainer discussions about these requirements lead to improved specialist training outcomes. A postgraduate training portfolio should integrate elements for self-assessment. The assessment methods require additional formative approaches.

Key words:- self-assessment, portfolio, specialist training, general medicine.

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INTRODUCTION

Graduate education encourages different competency development. Research by Patterson et al. established eleven fundamental competencies general practitioners need to develop which include clinical expertise alongside professional ethics and empathy along with communication skills and conceptual thinking and expertise in managing stressful situations [1].

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Each medical specialist undergoing specialization training demonstrates particular strengths alongside selective weaknesses in their competencies.

The extent to which learners understand their abilities remains partial despite training potential and objective evaluation presents limited verification opportunities for these skills. Medical education which follows deliberate practice principles shows that repeating tasks by themselves does not lead to skill enhancement.

This training process depends most strongly on feedback and personal insight about individual strengths and weaknesses which guide targeted self-improvement [2]. Post-graduate training in Germany shifts educational obligations from the medical education authorities to the learners who must independently develop their required skills. A thorough mastery of every medical skill represents an optimal goal but proves impractical to achieve. Medical personnel need to establish precise self-assessment of capabilities along with recognition of their negative points to minimize errors harming patient care. A partial evaluation of these competencies takes place in Germany's Facharztprüfung through conventional testing methods. The current approach needs improvement for evaluation standards. The testing landscape for post-graduate family medicine and general practice education globally shows a shift toward competency-based assessments extending across extended time periods [3]. Each testing approach fails to detect specific areas that lead to either incorrect positive or negative findings. Multiple assessment techniques help decrease the assessment risks. Critical competencies unable to measure through standardized assessment methods need alternative feedback approaches. The ability to assess personal competence benefits from receiving feedback information [4]. Every assessment outcome depends heavily on both the level of perception and practical experience held by the observer. Feedback together with assessment scales produce the essential framework for determining genuine self-evaluation of personal abilities. German doctors must complete five years of training to become specialists in family medicine through hospital-based internal medicine practice accompanied by outpatient rotation and fulfillment of certain procedure requirements. The educational targets receive growing opposition from experts who support competence-based education and assessment programs [5]. Structured mentoring programs exist primarily in separate medical areas where mentors oversee training while monitoring that essential competencies develop across different clinical rotations [6]. Post-graduate training introduced logbooks several years ago to help trainers and trainees meet on a regular basis and measure acquired competencies while planning future training needs. The research examines version 3.5 of the post-graduate general practice logbook at Bochum University which combines Medical Association official logbook content with various general medical curricula items [7] [8] [9] [10] [11]. The primary contents encompass twenty basic competencies and specialist knowledge (27 items alongside practical skills (58 items) and general medical consultations (47 items) and various medical specialty content (122 items). Portfolios build upon the concepts found within logbooks. The implementation of learning guidance through portfolios includes features for self-reflection together with mechanisms for feedback and evaluation [12]. A portfolio of essential competencies for general medicine specialist physicians will be developed as both a quality control tool for personal use and an organizational basis for mentorship. Hands-on assessments of general medicine specialties form the basis for this portfolio system [13]. The (subjective) professional profile designation results through this self-assessment process. A work-based assessment system which delivers valid feedback over time enables students to better understand their abilities through re-evaluation of their initial self-evaluation [14]. Self-assessments function as quality measurement tools both for individual specialists and for evaluating the success of educational programs and training programs [15].

METHODS

Participants in six courses of a general practice specialization training completed evaluations of their confidence levels in 20 medical competencies. The second survey provided respondents with typical consultation situations along with a broader range of items for evaluation. The research collected sociodemographic data including year of birth and medical licensing date alongside years of full-time employment equivalent and medical specialization qualifications and current occupational field. The research relied on anonymous paper-based collection methods. During the survey respondents could enter their email to receive personalized feedback aligned with their self-evaluation results against the whole participant mean scores. Survey participants received the opportunity to submit additional qualitative information.

For further analysis, five distinct groups of participants were created based on sociodemographic factors:

1. Immediate specialization in general medicine (time since graduation from medical school <7 years).
2. Second career pathway (already completed training in another medical specialty).
3. Delayed specialization (time since graduation >7 years and medical activity >50% of the time).
4. Re-entry into the profession (same as III but medical activity <50% of the time).
5. Other/unknown.

Each participant could take part in up to three courses without any particular order requirements to complete multiple surveys. Process adjustments were made to personal data when forming the groups so that systematic distortions referred to as "simple participants" would not be present. The study employed multivariate regression analysis to test variable independence using all factors with p-values below 0.1 to develop the maximum model. The researchers progressively minimized the model. Significant and meaningful differences (OR<0.75 for less confident participants or OR>1.5 for more confident participants) between groups functioned as independent predictors. For participants who completed multiple questionnaires the initial survey response serving

as "single participant" self-assessment was utilized. A comparison of individual rating scores occurred in specified situations when interview participants included their feedback email addresses. An analysis of self-assessment evolution between survey dates occurred through rating comparisons directed to individual participants identified by their email addresses.

RESULTS

The core competency self-evaluation received responses from 139 participants who achieved a 57% response rate including 108 participants who evaluated the consultation scenarios. A total of 44 data sets required multiple participation estimates through biographical data analysis. Single-participant status was determined when 95 data sets displayed conflicting biographical details unable to link to the same individual. The specialization focus of participants in the second career option fell mainly into anesthesia (10) while surgery or orthopedic surgery held eight spots along with psychiatry/neurology (3) and pediatrics (2) each with a single participant in dermatology, radiology, radiotherapy, occupation medicine, and physical medicine/rehabilitation. Participants classified as "others" fall into the category because their registration details do not allow clear identification (general practitioners who take attending the course for refreshers or individuals pursuing different areas of specialty). Yet the mean age together with years since graduation between Groups II and III demonstrated minimal differences. The re-entering physicians in group IV demonstrated similar levels of professional experience through medical activity full-time equivalence to female doctors continuing their advanced training within group I even though the returning group averaged older. Internal medicine held the position as the most encountered practical experience among participants with 68% cases followed by general medicine with 56% and surgery with 32% and anesthetics at 15% and psychiatry at 15% and neurology at 7% and gynecology at 6% and orthopedics at 11% and geriatrics at 5% and pediatrics at 5% and dermatology at 2% and thirteen additional lesser-represented specialties combined for the remaining 13%. A total of 55% of respondents maintained their medical practice while hospital staff accounted for 15% among participants and 31% were active in different specialties with two doctors in general medicine and unknown classification details. The participants evaluated their overall medical subject-matter expertise on a five-point confidence scale at 3.6. The rate of responses showing "more confident" on the 4-point scale reached 43%. Self-assessment variations measured averagely at 0.8 while data is displayed in Table 2. The Cronbach's alpha value reached 0.863 following removal of invalid cases from the evaluation of these 20 items.

Table 1: Characterization of the participants (single participation*)

Category	Details
Total Participants	139 (Response Rate: 57%)
Responses for Core Competencies	139
Responses for Consultation Situations	108
Multiple Participations (Inferred)	44 (Based on biographical data)
Single Participation	95 (Based on differing biographical information)
Primary Specialization of Participants (Second Pathway)	Anesthesia (10), Surgery/Orthopedic Surgery (8), Psychiatry/Neurology (3), Pediatrics (2), Other specialties (1 each)
"Others" Participants	General practitioners taking the course as a refresher or pursuing another specialty
Mean Age	Similar for Groups II and III (slightly different)
Years Since Graduation	Similar for Groups II and III (slightly different)
Professional Experience (Full-Time Equivalence)	Group IV (Re-entering) with higher age but similar to Group I (Direct Training) in terms of activity
Practical Experience	Internal Medicine (68%), General Medicine (56%), Surgery (32%), Anesthetics (15%), Psychiatry (15%), Neurology (7%), Gynecology (6%), Orthopedics (11%), Geriatrics (5%), Pediatrics (5%), Dermatology (2%), Other (13 fields with 1 entry each)
Work Setting at Survey Time	Practice (55%), Hospital Setting (15%), Other Subject Areas (31%), Specialists in General Medicine (2), Unknown (remaining)
Self-Assessment Average Confidence (Scale 1-5)	3.6 (Most common rating: 4 points - "more confident")
Self-Assessment Variance	0.8
Cronbach's Alpha	0.863 (After exclusion of invalid cases)

DISCUSSION

Research participants found self-assessment both useful and easy to implement. Respondents chose self-assessment with individualized feedback about personal strengths and weaknesses over group outcomes by a rate of 57 percent. Reliability outcomes from self-assessment data are strong because participants displayed repeated patterned results within the extended participant group. Most questionnaire items received variable responses among five participants during three and six-month testing periods. Over the time period five items out of the 67 questions demonstrated consistency in their results. Results demonstrate validity for the entire cohort because substantial distinctions emerge between participants who display varied professional experience and respond during different survey periods. Research utilizing standardized testing methods cannot detect these important patterns that analysis of subgroups enables [15 -18]. The amount of practical experience in general practice demonstrates a strong impact on confidence ratings for several items and practical experience in surgery appears to influence additional items. Learning needs for those in general practitioner training programs should be considered diverse because their professional experience shows wide variation. Other possible independent contributors such as gender remained unassessable because the study included few participants. Factors such as gender and age and professional experience affect self-assessment to only a small extent according to the dimensional evaluation results. Investigations with extensive participant samples need to explore this subject area in more detail.Certain general patterns emerge. Most medical graduates participating in this study exhibit a sense of comfort regarding their capabilities to conduct physical assessments and manage emergencies and build patient relationships as well as document office visits and conduct self-study. Subjective uncertainties tend to appear most often within the domains of caring for chronically ill patients and palliative care as well as screening examinations and legal aspects and organizational standards and business elements of general medical practice. [19-20] The reporting of uncertainty is uncommon among specific counseling topics such as fever or vomiting or burning during urination or diarrhea but commonly occurs for other topics including skin conditions or vaginal discharge or eye problems and more. Many participants experienced substantial doubt when it came to providing counseling for psychogenic matters including addiction and violence and sexual issues. Assessing participant profiles through self-assessments allows post-graduate training program designers to better match their content and design structure. Group-specific uncertainties receive better treatment during training programs that extend their meeting durations.Such surveys evaluate students' personal requirements through a structured assessment system. Post-graduate education for general medicine seeks to develop competence across all fields instead of achieving flawlessly confident abilities. People must understand their diagnostic and therapeutic uncertainties while developing targeted methods for dealing with them [21-22]. The way individuals view their competency and reliability levels depends on numerous elements that include personality type and gender. The format effectively shows both relative performance differences between single items and between each item and the benchmark comparison group. The survey lets participants spot their most and least adept clinical areas while viewing their capabilities versus their peers currently in medical school. The educational design helps medical practitioners concentrate on particular domains of learning. Existing weaknesses need identification in order to prevent patients from receiving poor care due to doctors who overvalue their knowledge or skill level. Individuals gain understanding through self-assessment of their correct or inaccurate skill and knowledge perception. PC can achieve its goal through the development of means for assessing personal abilities and shortcomings and determining optimal learning directions.

CONCLUSION

This study highlights the importance and practicality of self-assessment in postgraduate specialist training in general medicine. The participants, comprised of diverse career paths and medical experiences, demonstrated a broad range of confidence levels across core competencies and common consultation scenarios. The overall positive reliability and consistency of the self-evaluation data, indicated by a strong Cronbach's alpha, validate the feasibility of integrating structured self-assessment tools into specialist training programs. These assessments allow physicians to identify both strengths and weaknesses in their knowledge and skills, providing an essential foundation for targeted learning and professional growth. The variations in confidence across competencies and consultation topics emphasize the need for individualized educational approaches that recognize differing backgrounds, career pathways, and practical experiences. While many participants felt assured in managing acute physical assessments and emergencies, uncertainties remained prevalent in areas such as chronic disease management, palliative care, and complex psychosocial issues including addiction and sexual health counseling. Such findings underscore the necessity for postgraduate programs to tailor content and mentoring according to specific trainee needs, thereby optimizing training efficacy and patient safety. Self-assessment, especially when coupled with personalized feedback, emerges as a powerful tool to facilitate reflective practice and enhance metacognitive awareness among medical trainees. This process encourages physicians to reconcile their perceived competence with actual performance, mitigating risks of both

overconfidence and underconfidence that could adversely affect patient care. Moreover, fostering an environment that supports ongoing self-evaluation and formative feedback aligns well with contemporary competency-based medical education models, which emphasize continual skill development and adaptive learning. The study also highlights challenges in measuring certain competencies through standardized testing alone, advocating for a complementary system incorporating portfolios, mentoring, and multi-modal assessments. A well-designed portfolio system, integrating self-assessment and regular trainer interactions, can provide a more comprehensive and dynamic picture of a trainee's progress over time. In embedding structured self-assessment methods within postgraduate specialist training offers significant benefits for learners, educators, and ultimately patients. It supports precise identification of learning needs, promotes lifelong reflective practice, and strengthens the overall quality of medical education. Future research with larger samples should further investigate factors influencing self-assessment accuracy and explore strategies to enhance the integration of self-assessment into formal training curricula.

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