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Self-confidence of general surgery residents: an integrative literature review

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ABSTRACT

OBJECTIVE

To describe aspects related to self-confidence, self-assessment, and the number of procedures performed during general surgery residency, considering associated pedagogical and psychological factors.

METHODS

Integrative review conducted in the PubMed, SciELO, and Medline databases, without time restriction, using English descriptors and Boolean operators.

RESULTS

Eleven studies were included after eligibility criteria, totaling 11,537 residents. A tendency toward underestimation of performance was observed, especially among residents with higher technical performance. Practical experience increased perceived confidence but did not guarantee accuracy of self-perception.

CONCLUSION

Self-assessment is a relevant tool; however, it presents limitations when used in isolation and should be integrated with structured feedback and formal pedagogical strategies.

KEYWORDS

Residents; General surgery; Self-assessment.

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INTRODUCTION

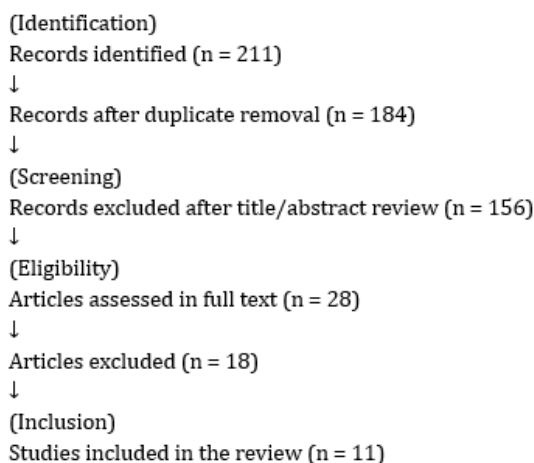
General surgery residency constitutes a period of intensive training involving the progressive acquisition of technical, cognitive, and emotional competencies. Formative assessment strategies, such as self-assessment, promote self-regulated learning and the identification of performance gaps [1]. The perception of competence is a central element in the self-regulated learning process and is directly related to intrinsic motivation and professional development. Self-determination theory proposes that autonomy, competence, and belonging are fundamental pillars for individual growth, with self-assessment serving as a potential instrument to strengthen such dimensions when adequately structured [1].

In this context, integrative reviews that synthesize the available evidence and guide more structured educational strategies become relevant [2]. Studies indicate that the relationship between the number of procedures performed and self-confidence is not linear, being modulated by the quality of training, supervision, and structured feedback [3,6]. However, cognitive biases may compromise the accuracy of this tool, including excessive insecurity, overestimation of abilities, and impostor syndrome [4,5]. Therefore, the objective of this study was to describe aspects related to self-confidence, self-assessment, and the number of procedures performed in general surgery residency.

METHODS

This is an integrative literature review conducted in the PubMed, Medline, and SciELO databases between April and May 2024, without time restriction, using the search strategy (“Residents” AND “General Surgery” AND “Self-Assessment”) AND (“Confidence” OR “Self-efficacy” OR “Impostor Syndrome”), with combinations through Boolean operators. Original studies involving general surgery residents that used formal instruments of self-assessment, self-confidence, or impostor syndrome were included, while studies involving undergraduate students, narrative reviews, and studies without a structured assessment method were excluded. The selection process followed adapted PRISMA recommendations, resulting in 211 records initially identified, 184 after duplicate removal, 28 evaluated in full, and 11 included in the final analysis (figure 1). Data were organized into a synoptic table containing authorship, sample, design, instrument, and main findings, followed by qualitative and descriptive analysis. Since only secondary public-domain data were used, ethics committee approval was not required.

Figure 1 - Study selection flowchart according to adapted PRISMA.



Source: The authors.

RESULTS AND DISCUSSION

Eleven studies were included (Table 1), totaling 11,537 residents from different surgical programs [2-12]. Methods varied between structured questionnaires and self-perception scales [3,6,12], repeated simulations [8,10], video-based assessments [2], and direct comparison between self-assessment and external

assessment by faculty or peers [3,7,11]. Overall, a consistent tendency toward underestimation of performance was observed, especially among residents with better technical performance [3,4,7,10,11]. Practical experience and repeated procedures were associated with greater perceived confidence [6,12], but did not guarantee accuracy in self-perception [3,4]. Programs incorporating structured simulation and formal feedback demonstrated better calibration between self-confidence and actual performance [2,8,9].

Impostor syndrome showed high prevalence among residents [5], reinforcing the need for emotional support and continuous pedagogical follow-up. These findings reinforce that self-assessment, although relevant, presents limitations when used in isolation due to cognitive biases and the frequent underestimation of performance [3,4,7,11]. In addition, they demonstrate that self-confidence does not evolve solely through practical experience, requiring institutional support [5]. Models integrating structured feedback and simulation demonstrate better calibration between objective competence and perceived confidence [2,8,9], supporting the need for more structured evaluative strategies in surgical training despite the methodological heterogeneity of the included studies [2-12].

Table 1 - Characterization of the included studies.

Author	N	Design	Instrument	Study focus	Main findings
Balvardi et al. [2]	35	Observational	GOALS / OPRS (video assessment)	Validation of laparoscopic self-assessment	Greater accuracy in objective criteria
Stahl et al. [3]	1857	Longitudinal	EPAs via application	Resident-faculty agreement	Predominant underestimation
Karnick et al. [4]	34	Experimental	Standardized technical tests	Cognitive bias	High performance → greater underestimation
Bhama et al. [5]	144	Cross-sectional	Clance Impostor Phenomenon Scale	Impostor syndrome	High prevalence
Suwanabol et al. [6]	25	Observational	Structured questionnaire	Experience vs comfort	More experience → greater confidence
Rosenzweig et al. [7]	55	Observational	Interview circuit + self-assessment questionnaire	Self-assessment vs interview performance	Negative correlation: high performance → underestimation
MacDonald et al. [8]	21	Simulation	Comparative simulator assessment	Self-assessment in simulation	Improved calibration
Meier et al. [9]	44	Educational	ACGME Milestones	Formative feedback	Engagement and progression
Thinggaard et al. [10]	22	Simulation	Gap Analysis	Identification of gaps	Recurrent underestimation
Deveze et al. [11]	25	Retrospective cohort	Self vs Peer Assessment	Agreement between assessments	Greater agreement in objective criteria
Schmiederer et al. [12]	9275	National survey	Self-efficacy scale (FLS)	FLS and self-confidence	Increase in self-efficacy

N = number of residents

Source: The authors.

CONCLUSION

Self-assessment constitutes a relevant pedagogical tool in general surgery residency; however, it presents limitations when used in isolation due to cognitive biases and the frequent underestimation of performance. The high prevalence of impostor syndrome reinforces that self-confidence does not evolve solely through practical experience and requires institutional support. Evidence indicates that models integrating structured feedback and simulation promote better calibration between objective competence and perceived confidence. Despite the methodological heterogeneity of the included studies, the findings support the need for more structured evaluative strategies in surgical training. Thus,

surgical training should establish formal mechanisms for calibrating self-confidence, ensuring that technical competence and performance perception evolve proportionally and safely.

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