

The role of the modern surgeon as leader of health care teams: a narrative review of a ubiquitous but loosely defined faculty

El papel del cirujano moderno como líder de los equipos de atención sanitaria: una revisión narrativa sobre una facultad ubicua, pero poco definida

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Abstract

Objective: The objective is to describe the role of leadership in the training of the general surgeon and to point out its relevance. **Method:** A search of the medical literature was carried out to identify studies that reported on topics related to leadership in the context of medical education and surgery. We used the search engine of Medline/PubMed databases including related terms such as "leadership" AND "medicine" OR "surgery". **Results:** Leadership is a valued characteristic in surgery, it implies professionalism, technical competence, motivation, innovation, teamwork, communication skills, decision making, emotional competence, resilience, and effective teaching. Leadership is measurable and can be developed through experience, observation, and education. **Conclusions:** Priority must be given to actions that improve leader traits. This has been shown to create a work environment where efficient work is performed, and failures are minimized. The current vision of the leader must be expanded to reduce the gender gap between the positions as leader occupy in this moment.

Keywords: Leadership. Gender gap. Surgical education.

Resumen

Objetivo: Describir el papel de liderazgo en la formación del cirujano general y puntualizar su relevancia en nuestro entorno. **Método:** Se realizó una búsqueda en la literatura médica para identificar estudios que informaran sobre temas relacionados al liderazgo en el contexto de la enseñanza médica y en cirugía. Se utilizó el motor de búsqueda de las bases de datos Medline/PubMed incluyendo términos relacionados como "leadership" AND "medicine" OR "surgery". **Resultados:** El liderazgo es una característica valorada en cirugía, que implica profesionalismo, competencia técnica, motivación, innovación, trabajo en equipo, habilidades comunicativas, toma de decisiones, competencia emocional, resiliencia y enseñanza eficaz. Es medible y susceptible de desarrollarse a través de la experiencia, la observación y la educación. **Conclusiones:** En la formación del cirujano general se deben priorizar las acciones que mejoren los rasgos

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de líder. Se ha demostrado que esto genera un ambiente de trabajo donde se realiza una labor eficiente y se minimizan las fallas. Se debe expandir la visión actual que se tiene de líder y permitir que se disminuya la brecha de género entre los puestos que hoy se ocupan.

Palabras clave: Liderazgo. Brecha de género. Educación en cirugía.

Introduction

Leadership is a well studied and defined construct, with a deep impact on the performance of a team. It is an ability that can be built, developed, and perfected, and can be influenced by the features, the culture and the principles of those who practice it, giving a unique sense to each leader¹. It is a comprehensive component of team work and, in the context of health care, it has been proven to have an impact in the outcome of the surgical patient, being an essential quality in health care teams who lack formal training²⁻⁶.

The American College of Surgeons has created annual training programs in order to prepare surgeons to turn into leaders in clinical, administrative and, educational settings⁷. In our environment, this topic is not included in the curricular load of a general surgeon⁸. Therefore, it is necessary to establish the guidelines that allow the staff in training to obtain the required tools to establish themselves as leaders, encourage gender diversity in the involvement of leadership roles, and, at the same time, allow the growth of the most inexperienced staff in the academic setting⁹.

The aim of this paper is to describe the leadership role in the training of the general surgeon, specify its relevance in the clinical and academic settings, and to describe the gender gaps in relation to the positions of leadership in the medical and surgical contexts.

Method

It is a narrative review of the literature about the topic of leadership in surgery. Research in the universal medical literature was conducted to identify studies that would inform about subjects related to leadership in the context of the medical and surgical training. The research was conducted with the search engine End-Note (Thomson Reuters) in the databases Medline/PubMed and Web of Science, including related terms in the English language such as "leadership" AND "medicine" OR "surgery". A manual search with the search engine Academic Google was also conducted (Google Inc.) with the same terms with the purpose of including those relevant papers in Spanish.

The definition of leadership

In the medical and surgical context it is difficult to establish a precise definition of leadership; maybe it is a term commonly employed in the administrative realm¹. John C. Maxwell¹⁰ describes it as "an ability in which, under its influence, the leader serves as a guide so that their subordinates improve their skills and abilities." Vroom and Jago¹¹ describe it as a process that involves motivation, and it encourages collaboration to pursue a common objective. These definitions adhere to the model of a transformational leader introduced for the first time by Burns and Bass, according to which the leader role is to achieve leading to the success of those they lead and it has evolved to describe four dimensions about the leader's behavior. These dimensions can be applied in the surgical context^{7,10}, as stated in table 1^{12,13}.

A leader's characteristics

It is difficult to establish the characteristics a leader must have in the surgical environment, as these are within the intangible and the subjective realm. There are six most commonly quoted leadership styles: transformational, transactional, autocratic, *laissez-faire*, and relationship-oriented¹⁴. The medical characteristics they must have in the context of the medical and surgical areas^{4,15,16}, are listed in the medical literature, where different authors seem to agree (Table 2).

Nowadays, the predominant trends are those of transactional and transformational leadership. The transactional leader focuses on the tasks, a clear assignment of responsibility for performance goals and rewards or sanctions. While it is an effective approach, it can also predispose the subordinates to exhaustion or frustration. In contrast, the transformational leaders are characterized by having an emphasis in the collective mission, motivation, inspiration, intellectual stimulation, and individual considerations^{17,18}.

An essential quality, regardless the trend, is the ability to coordinate and balance the conflicts of interests that may appear among the members of an organization¹. A surgeon, as a leader in a multidisciplinary team, must have emotional intelligence for conflict resolution,

Table 1. The four dimensions on the behavior of a transformational leader and examples of its application in the environment of the general surgeon

Dimension	Definition	Application
Idealized influence	The degree in which the leaders behave in a charismatic way that prompts their followers to identify with them.	A surgeon that shows empathy and respect achieves a better relationship with their work team.
Inspirational motivation	The degree in which leaders articulate attractive visions for others	The surgeon proposes the goal of improving the quality of patient care and teaching surgeons in training by means of a stimulating dialogue
Intellectual stimulation	The degree in which leaders challenge their presumptions, take risks, and request ideas from their followers	The academic surgeon requests feedback or opinions from their subordinates
Individualized consideration	The degree in which leaders meet the needs of their followers, act as mentors, and listen to their problems	The surgeon advises their subordinate in the academic environment about their tasks, promotes, growth and a strong work bond.

Table 2. Characteristics of a leader according different authors

Author	Characteristics
Alpert, 2020, United States ¹⁵	Equitable Fair Effective communicator Work ethic Balance between work and social life Empathy Interest in staff in training Organization skills
Patelet al., 2010, United Kingdom ¹⁶	Professionalism Technical expertise Motivation and innovation Team work Communication skills Decision making Entrepreneurship Emotional skills Resilience Effective teaching
Büchler et al., 2006, Germany ⁴	High energy levels Intuitiveness Maturity Team work-oriented Empathy and charisma Open minded

be an effective communicator, have the ability to innovate for problem solving, make use of technologies to encourage scientific advances, communicate their ideas, and improve health care^{4,19,20}.

How to measure leadership?

Currently there are some resources such as the *Multifactor Leadership Questionnaire* (MLQ), the *Surgeon's*

Leadership Inventory (SLI), and the *Leadership Skills Inventory 360°* (LIS), among others. These resources allow for the analysis, by means of a series of items, of the perceived qualities and the observed behaviors in leadership key areas at an organizational level²¹.

The SLI deserves a special mention: it was designed to provide a model of abilities based on evidence, which allows a structured observation and evaluates leadership skills inside the operating room. It has shown to possess an acceptable inter-examination concordance ($\kappa = 0.70$) and it includes eight elements to be assessed: meet standards, decision-making, training, support, communication, and dealing with pressure²². However, despite being a promising resource in academic hospitals, it still needs to obtain external validity to be used globally as a resource to measure the leadership skills in the surgical context.

Implications of leadership in health care and the academic environment

Unfortunately, there are few studies that evaluate the results of the implementation of formal leadership programs and their impact on the surgeon's context^{13,14,23}. The vast majority of these programs has been implemented in clinical specialties with little representation in the surgical specialties²³.

Sie et al.⁶ carried out an observational study in which they discovered that inadequate leadership is highly correlated with avoidable intraoperative incidents. Sfaunt et al.¹⁴ carried out a systematic review that included 18 articles on leadership, discovering that some leadership styles are related to a lower mortality and others are related to higher level of care quality, proving their effects

in the practical application. Sanfey et al.¹³ assessed the results of implementing a formal leadership program in the University of Virginia and discovered an improvement in the leadership skills of its participants. It was also observed that facing the implementation of this program, the participants were able to improve their ability to recognize their weaknesses and establish relationships, but with a decreasing effect with the passing of time, stressing the importance of its daily application.

Pradarelli et al.²³ observed that after completing a leadership program in The University of Michigan, the participating surgeons reported having improved their ability to lead, with better introspection, a better ability on team formations and an improvement in their knowledge about businesses and leadership. The participants reported that the program had an impact on their daily activities and on their perspective on their current careers and in the future. Hu et al.²¹ observed surgeon behaviors during complex surgical procedures and discovered that those with a transformational leadership managed to obtain greater participation and better communication of the surgical team, encouraging the exchange of ideas and minimizing errors during procedures (transformational leadership).

These studies reflect the need of providing formal training that allows the surgeon, upon graduation, to become a guide for their subordinates, to manage to meet the demands of a multidisciplinary team and the needs of the health systems^{6,13,14,21,23}.

Leadership and the gender gap

In a historical context, leadership has only been conceptualized from a masculine stereotype standpoint, making male involvement in leader roles more normalized, and although there is increasing participation of women in leadership roles, the gap is still wide^{19,23-27}. Tanius et al.²⁵ analyzed 259 academic surgical programs in the United States of America and they only found 5.7% of female participation in headship positions of the services. This result is consistent with other studies reporting that women are poorly represented in management positions in academic institutions^{9,26,28}.

The difference in monetary compensation may be a factor that also contributes to the difference in gender representation in this context. The researchers in the United States of America earn less than their male counterparts (12,194 dollars less), independently of their specialty, academic rank, position, and research time²⁹. Yedida and Bickel³⁰ identified the barriers that

must be addressed so that women can play a more important part in leadership roles, and some of them are traditional gender role restrictions, displays of sexism, and shortage of female leaders as mentors. By listing the areas of opportunity, possible interventions to reduce this gap are also mentioned, which can be found in their original work³⁰.

The gender gap observed in the field is an important subject because it shows a missed opportunity for having access to the diversity of the intellectual capital in the clinical and surgical environments^{26,28}. Encouraging the latter in the leadership roles is an area of improvement that can help to overcome the gender discrepancy³⁰. Diversity is required in an organization in order to innovate, create opportunities, and provide resilience, and it is essential to promote new models for health care teams.

Conclusions

The implementation of leadership programs must be a priority to face the challenges and the ever-changing environment to which surgeons subject themselves in their training, and the most important qualities are those required to manage human capital, such as effective communication and conflict resolution. Implementing objective measurement tools to document the acquisition of this competence is a priority in view of the need for effective leaders in the multidisciplinary teams, as well as to shortening the gender gaps to promote growth in the institutions. Providing leaders in the health care field, inside and outside the operating room, is a requirement demanded by the 21st-century medicine.

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