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ORIGINAL ARTICLE

Quality in aesthetic medicine and surgery: a systematic review of clinical practice guidelines.

Calidad en medicina y cirugía estética: revisión sistemática de las guías de práctica clínica.

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Apéndice: https://colombiamedica.univalle.edu.co/index.php/comedica/article/view/6257/8192

Abstract

Background:

Guidelines in medicine are essential tools to provide quality and standardised medical care. We analysed the quality of aesthetic medicine guidelines.

Methods:

A systematic review with a prospective registration protocol (https://osf.io/8pdyv) of databases (MEDLINE, EMBASE, Web of Science, Scopus, CDSR), web pages of scientific societies and grey literature was done from inception to February 2023 and without language restrictions. Quality was evaluated using AGREE II (% of the maximum score), RIGHT (% of the total 35 items) and a shared decision making (SDM) quality assessment tool (31 items score) individually and in duplicate, respectively.

Results:

Six (86%) guidelines were classified as not recommended; one (14%) was recommended with modifications, and all were classified as poorly reported (7/7; 100%). The median overall quality was 27% (IQR: 26-43) and 26% (IQR 15-36) for AGREE II and RIGHT, respectively. No document used these tools for its development. SDM appeared superfluity in almost all of the guidelines explored.

Conclusions:

Aesthetic medicine and surgical guidelines had low quality and must be improved. There is a wide range of improvement, especially in applicability, reporting of evidence, recommendations, conflict of interest, quality control and SDM. These guidelines require a rigorous methodology based on systematic reviews to ensure quality evidence-based recommendations.

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Resumen

Antecedentes:

Las guías en medicina son herramientas esenciales para brindar atención médica estandarizada y de calidad.

Métodos:

Se realizó una revisión sistemática donde analizamos la calidad de las guías de medicina y cirugía estética siguiendo un protocolo de registro prospectivo (https://osf.io/8pdyv) tras buscar en bases de datos (MEDLINE, EMBASE, Web of Science, Scopus, CDSR), páginas web de sociedades científicas y literatura gris publicadas sin restricciones de idioma y hasta febrero de 2023. La calidad se evaluó utilizando AGREE II (% de la puntuación máxima), RIGHT (% del total de 35 ítems) y una herramienta de evaluación de calidad de la toma de decisiones compartidas (TDC) (puntuación de 31 ítems) individualmente y por duplicado, respectivamente.

Resultados:

Seis (86%) guías analizadas fueron clasificadas como no recomendadas; una (14%) como recomendada con modificaciones y todas las guías fueron clasificadas como mal informadas (7/7; 100%). La media de la calidad general fue del 27% (IQ 26-43) y del 26% (IQ 15-36) para AGREE II y RIGHT, respectivamente. Ningún documento incluido utilizó estas herramientas para su desarrollo. La TDC apareció de manera superflua en casi todas las guías analizadas.

Conclusiones:

En suma, las guías sobre medicina y cirugía estética publicadas hasta la fecha son de baja calidad y deben mejorarse, especialmente en aplicabilidad, presentación de la evidencia, recomendaciones, conflicto de intereses, control de calidad y la TDC. Estas directrices requieren de una metodología rigurosa basada en revisiones sistemáticas para garantizar recomendaciones de calidad basadas en la evidencia.

Remark

1) Why was this study conducted?

Nowadays, clinical practice guidelines (CPG), clinical manuals (CM) and consensus documents (CSs) are crucial instruments for delivering high-quality medical care. They offer the possibility of moving towards a standardised treatment for patients with similar pathologies and clinical situations, regardless of the doctor, hospital or residence. These guidelines must be systematically designed with the most rigorous quality and objectivity, implementing evidence-based recommendations and medical advances. In a literature review prior to the beginning of this systematic review, we could not find any similar study in which the quality of guidelines in aesthetic medicine was evaluated. Considering the above background, we conducted a systematic review to consider the quality of guidelines in aesthetic medicine employing validated instruments and focusing on the method used by them for the analysis of the evidence.

2) What were the most relevant results of the study?

The overall quality of the aesthetic medicine and surgical guidelines was poor and heterogeneous, with weaknesses in critical areas. None of the reviewed guidelines reported the use of quality improvement tools in their development.

3) What do these results contribute?

Our systematic review discovered that existing aesthetic medicine and surgical guidelines were scarce and needed to be more robust and of better quality. None was prepared following a validated tool for its development and quality assessment, such as AGREE II or RIGHT.

Introduction

Aesthetic medicine and surgery is one of the most innovative branches of modern medicine that focuses on improving the quality of life, enhancing the cosmetic appearance of patients and preventing the effect of ageing via the treatment of medical conditions [1,2]. This is achieved through minimally invasive and non-invasive procedures that improve the skin's tone and appearance and reduce wrinkles, blemishes, and scars. Aesthetic medicine typically deals with healthy individuals who are often dissatisfied with some minor deficiency, generally physical [2]. It is based on the fundamental knowledge of the medical sciences combining the scientific advances made in general medicine, surgery, endocrinology, internal medicine, dietetics, dermatology, angiology, orthopaedics, physiology, but also anthropology, philosophy, pedagogy, psychology and sociology [2].

Nowadays, clinical practice guidelines (CPG), clinical manuals (CM) and consensus documents (CSs) are crucial instruments for delivering high-quality medical care [3,4]. They offer the possibility of moving towards a standardised treatment for patients with similar pathologies and clinical situations, regardless of the doctor, hospital or residence. These guidelines must be systematically designed with the most rigorous quality and objectivity, implementing evidence-based recommendations and medical advances [3,4]. In a literature review prior to the beginning of this systematic review, we could not find any similar study in which the quality of guidelines in aesthetic medicine was evaluated. This fact was shocking as the importance of studying quality to identify a proper evidence-based guideline for clinical practice has been demonstrated as crucial [5]. In addition, the need to examine various

dimensions of quality has also been recognised. The first dimension questions the validity of the recommendations formulated, while the second examines the rigour of the presentation of the document prepared [6].

Furthermore, patient participation in decision-making, aka shared decision-making, has been proven to be a cornerstone of high-quality care [7]. It is imperative when there are various treatment options with a similar cosmetic result, but which can produce very different consequences depending on the preferences of the patients [8]. In developed countries, SDM has been shown to increase patient satisfaction [8]. It is also a legal obligation [9] that reduces lawsuits for malpractice [10].

Considering the above background, we conducted a systematic review to consider the quality of guidelines in aesthetic medicine employing validated instruments and focusing on the method used by them for the analysis of the evidence.

Materials and Methods

Following prospective registration (Center for Open Science, https://osf.io/8pdyv), this systematic review was designed and written by operating the recommended method and the requirements of the PRISMA statement [11,12]. (Appendix S1).

Data sources and search strategy

A comprehensive search strategy covering major electronic databases was deployed to capture online databases (EMBASE, Web of Science, MEDLINE, Scopus and CDSR) and grey literature from inception until February 2023. References from the primarily selected guidelines were reviewed for potential additional articles. The search term combination was designed using MESH terms "aesthetic medicine", "clinical practice guidelines", "consensus statements", and alternative words (Appendix S2). No language or time restrictions were applied. Only guidelines from professional societies of countries with an overall scientific performance greater than 0.01% and/or belonging to the UIME (Union Internationale de Médecine Esthétique) were included in the analysis (Appendix S3). This decision was supported by the methodology already employed by previous studies published with proven robust scientific rigour [13,14]. A search was carried out in Scopus in March 2023 to estimate the scientific production of each country (4767 "Aesthetic Medicine" documents) (Appendix S4).

Study selection and data extraction

This systematic review included guidelines (CPGs, CSs or MCs), where international professional organisations and societies or governmental agencies described and produced a compendium of aesthetic medicine or surgery techniques. We excluded guidelines about only one cosmetic procedure (i.e. inappropriate population), old guidelines substituted by updates from the same organisation (i.e. obsolete guidelines), and guidelines for education and information purpose intended for patients or Administration (i.e. inappropriate development purpose). Controlled trials, observational studies, editorials, narrative reviews, scientific reports, conference abstracts and posters were also refused.

Guidelines were selected through a multi-step approach, including deletion of duplicates, reading titles and abstracts, and assessment of full texts. Four reviewers analysed the titles and abstracts (CREL, CAR, CCM and CMM). Then, full texts were obtained and assessed for eligibility by these four reviewers. Where multiple versions were retrieved, the most updated version of the guidelines was included. Potential disagreements or inconsistencies were resolved by arbitration (MMC).

Three reviewers (CREL, CCM and CMM) independently extracted the characteristics of the included guidelines and their quality into a piloted electronic Excel data extraction sheet.

Methodological quality assessment

The methodological quality appraisal of the guidelines was estimated by two reviewers (CREL and CMM) employing three validated assessment tools, the AGREE II instrument, the RIGHT statement and a SDM developed tool (Appendix S5) [15-17]. The quality of guidelines was defined as the "trustworthiness that potential development biases have been properly handled, and recommendations are internally and externally valid" following AGREE II manual description [18]. These reviewers (CREL and CMM) and an arbitrator (MMC) held training meetings to understand and unify the quality assessment criteria to avoid significant deviations.

Regarding general quality using AGREE II, reviewers collected 23 items from six domains: scope and purpose (items 1 to 3), stakeholder involvement (items 4 to 6), the rigour of development (items 7 to 14), clarity and presentation (items 15 to 17), applicability (items 18 to 21) and editorial independence (items 22 and 23). A 7-point scale was utilised to score each item (from 1 or strongly disagree, i.e. if there was no appropriate information about the item, to 7 or strongly agree, i.e. if the quality of reporting was excellent, and the criteria were comprehensively satisfied). Reviewers´ particular scores were summed up, rising as a percentage of the maximum possible score into domain quality scores (0-100%) [18].

Furthermore, the mean scores of the six standardised domains were calculated to provide an overall guideline assessment and recommendation: a guideline with a mean score of domains > 80% was labelled as "recommended" [19], "recommended with modifications" when it was 50-80%, and "not recommended" when <49% [20].

The RIGHT statement explored the general quality of reporting analysis [16]. Seven domains contained 35 items: basic information (items 1 to 4), background (items 5 to 9), evidence (items 10 to 12), recommendations (items 13 to 15), review and quality assurance (items 16 and 17), funding and declaration and management of interests (items 18 and 19), and other information (items 20 to 22). Each item reached a numeric score depending on completion, being "1" when the item was totally reported, 0.5 when it was partially reported, or 0 when it was not reported. The two reviewers (CREL and CMM) examined disagreements, and the arbitrator helped to reach a consensus (MMD). An overall reporting assessment score was estimated as a percentage of the average. This score helped to rank guidelines as "well-reported" when the score was >80%, "moderate-reported" when it was 50-80%, and "low-reported" when <50% [20].

Finally, the quality of the appearance of SDM in the guidelines was studied using a validated SDM tool [17]. This instrument consisted of 11 domains containing 31 items: basic information on SDM (items 1 to 4), background (items 5 to 7), selection criteria (items 8 to 9), strengths and limitations (items 10 to 14).), SDM recommendations (items 15-17), facilitators and barriers (items 18-19), implementation (items 20-21), resource implications (items 22-24), monitoring and audit criteria (items 25-27), recommendations for future research and limitations of these recommendations (items 28-29) and editorial independence and declaration of interest (items 30-31). The items' compliance was scored on a dichotomous scale: "0" if the item was not met and "1" if it was met. As the authors of the tool recommended, the higher the rate of completed items, the higher SDM quality in the considered guidelines. No cut-off point was specified to define quality [17].

Evidence synthesis

We performed a descriptive analysis of domains and overall scores, tabulating the characteristics and quality of the guidelines. The Kruskal-Wallis compared scores and stratified for factors that could affect the quality of aesthetic medicine guidelines. The statistical significance was settled in p <0.05. The intraclass correlation coefficient (ICC) was calculated to determine consistency between reviewers, determining excellent compliance if the ICC >0.90 [21]. All statistical analyses were obtained using Stata 16.

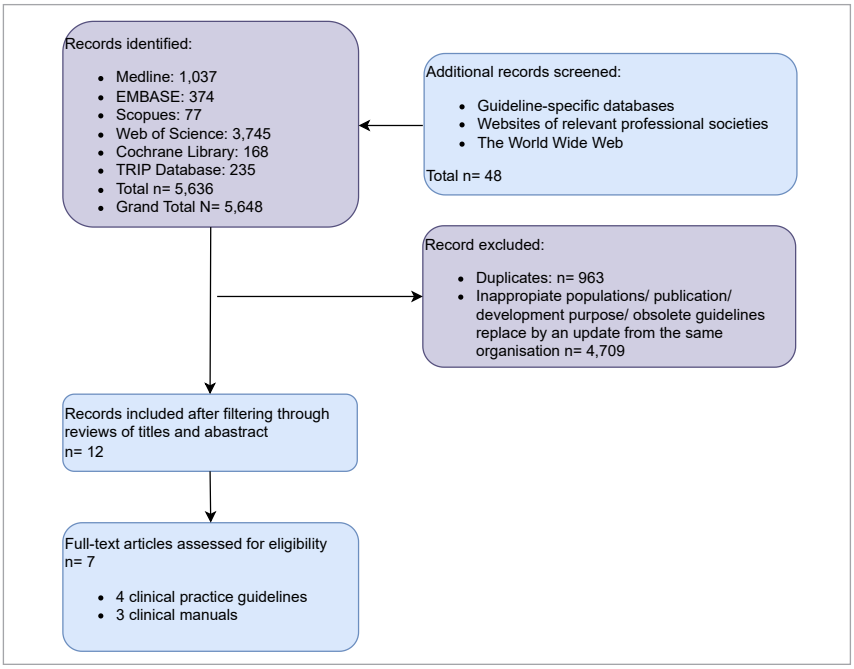

Figure 1. Flow chart of the systematic review.

Results

Study selection

The initial search identified 5,684 records in PubMed, EMBASE, Web of Science, Scopus, CDSR, and Trip database, and 48 records from grey literature (specific databases of guidelines, professional societies, and the world wide web). Reviewers removed 963 duplicates and 4,709 records that did not meet the inclusion criteria (inappropriate population, outdated guideline documents or an inappropriate development purpose). Twelve documents were included for examination after examining only the title and abstract. Finally, only seven guidelines were included in the final appraisal as they completed all the inclusion criteria of our systematic review [22-28]. Five were removed (1 conference abstract, 1 poster, and 3 guidelines for patient education and information). Figure 1 shows flow chart of the review.

Characteristics of the guidelines

Table 1 summarises the selected guidelines and their characteristics. Of the total of 7 documents selected for the systematic review, 4 were CPGs and 3 CMs. None of the scrutinised documents reported on using quality tools in their development.

Quality and reporting assessment of the guidelines

The guidelines analysis using AGREE II instrument showed a wide but poor overall score range (21-52%). Figure 2 and Table 2 compiled the data. ICC between reviewers was classified as excellent (ICC=0.97). The median overall quality was 27.0% (IQR 26.0-43.0). Only one guideline [28] (1/7; 14%) was classified as "recommended with modifications" (median overall score: 50% and 79%). The rest of the records (6/7; 86%) were defined as "not recommended" (median overall score <50%). None of the guidelines (6/7; 86%) obtained a score greater or equal to 80% that would allow classifying it as "recommended". The quality of the domains in each guideline was low and very heterogeneous. (Figure 1S and 2S) show the guidelines' detailed compliance with the AGREE II domains. Regarding the AGREE II median domain score in the documents analysed, we observed that domains 4 (Clarity of presentation) with 69% and domain 1 (Scope and objective) with 44% obtained a moderate result of compliance.

Table 1. Description of the selected guidelines aesthetic medical and surgical guidelines (n = 7).

References	Name of the CPG or protocol (Abbreviated name)	Type of document	Entity	Country	Year	Publication in a Journal	Version	Evidence analysis	Quality tool referral	UIME
22	Manuale di Medicina Estetica. Tomo I. Approccio Diagnostico (Italian Manual Vol. I)	Clinical Manual	SIME	Italy	2014	Acta Medica Edizione	1	Not reported	Not reported	Yes
23	Manuale di Medicina Estetica Tomo 2 - Diagnosi in Medicina Estetica (Italian Manual Vol. II)	Clinical Manual	SIME	Italy	2014	Acta Medica Edizione	1	Not reported	Not reported	Yes
24	Manual Práctico de Medicina Estética (Argentinian Manual)	Clinical Manual	SOAR-ME	Argentina	2009	World Congress Editorial	4	Not reported	Not reported	Yes
25	Protocolos de Práctica Clínica en Medicina Estética (Spanish aesthetic medicine CPG)	CPG	SEME	Spain	2018	Not published	1	Opinions of experts	Not reported	Yes
26	La Médicine Esthéthique (Canadian CPG)	CPG	CMQ	Canada	2020	Not published	1	Opinions of experts	Not reported	No
27	Linee guida per i principali interventi di chiru rgia estetica (Italian CPG)	CPG	AICPE	Italy	2013	Minerva Medica Edizione	1	Opinions of experts	Not reported	No
28	Manual de protocolos de tratamiento estético facial y corporal (Spanish Facial and body CPG)	CPG	ISTL	Spain	2018	Not published	1	Revew, Opinions of experts	Not reported	No

In comparison, domains 6 (Editorial independence) and 5 (Applicability) achieved inferior results with 0% and 13%, respectively. Three out of 7 (42.9%) obtained compliance >50% in domain 1 (Scope and objective) while 6/7 (%) in domain 4 (Clarity of presentation). The rest of the domains (stakeholder involvement (domain 2), the rigour of development (domain 3), applicability (domain 5) and editorial independence (domain 6) scored poorly. The guidelines with the best scores were those developed by the ISTL [28], the SEME [25], and the CMQ [26].

Concerning general reporting analysed with the RIGHT statement, this was highly variable, with a wide overall score range (13-43%). The median overall reporting compliance was 26% (IQR 15.0-36.0). ICC between reviewers was excellent (ICC=0.96). Table 3 and (Figure 3S) collect the scores regarding the quality of the data report measured with the RIGHT instrument. All the guidelines were classified as "low-reported" (7/7; 100%) with a mean score of less than 50%. Figure 3 showed that reporting in domains was heterogeneous and very poor with no domain reported as high (>75%). The median of the domain scores was 50% (25-67%) for domain 1 (basic information), 31% (6-94%) for domain 2 (background), 0% (0-40%) for domain 3 (evidence), 14% (7-29%) for domain 4 (recommendations), 0% (0-50%) for domain 5 (review and quality control), 0 (0-0%) for domain 6 (financing and declaration and management of interests) and 17% (17-33%) for domain 7 (other information). Focusing on the specific analysis by domains, only domain 2 (background) scored moderate, with 3/7 (%) of the guidelines obtaining an accomplishment rate overall score > 50%. The rest of the domains had poor compliance rates. Table 3 and (Figure 4S) show the compliance of the RIGHT domains in the guides and summarise the overall score obtained in each guide with the analysis. The guidelines with the best score, as well as in the quality analysis with AGREE II, were those developed by the ISTL [28], the SEME [25], and the CMQ [26].

(Figure 4S and Appendix 6S) indicate poor adherence to the items and domains employing the SDM quality and reporting analysis tool. Reviewers ICC was excellent (ICC=0.94). SDM appeared in 6/7 (%) of the guidelines explored. However, its characterisation could have been more explicit and specific in most of the items achieved and not only one guideline meeting at a time. The study design and methodology limitations were considered in 4/7 (%) (item 10).

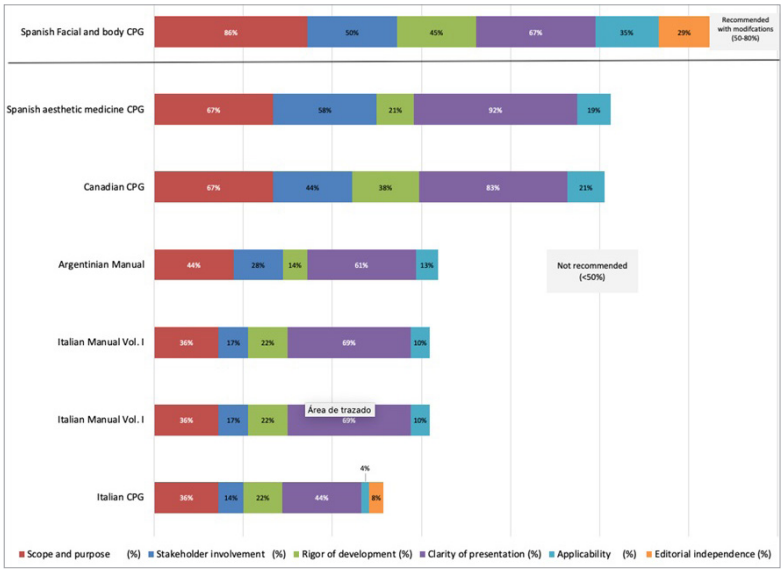

Figure 2. AGREE II overall score of aesthetic medicine guidelines.

Table 2. AGREE II adherence by each aesthetic medicine and surgery CPG and CS (n = 7).

	Abbreviated name	Domain 1 Scope and purpose (%)	Domain 2 Stakeholder involvement (%)	Domain 3 Rigor of development (%)	Domain 4 Clarity of presentation (%)	Domain 5 Applicability (%)	Domain 6 Editorial independence (%)	Overall Guideline Assessment	Quality score (1 up to 7) of this guideline	Media of total Score (%)
22	Italian Manual Vol. I	36	17	22	69	10	0	NR	2	26
23	Italian Manual Vol. II	36	17	22	69	10	0	NR	2	26
24	Argentinian Manual	44	28	14	61	13	0	NR	2	27
25	Spanish aesthetic medicine CPG	67	58	21	92	19	0	NR	4	43
26	Canadian CPG	67	44	38	83	21	0	NR	4	42
27	Italian CPG	36	14	22	44	4	8	NR	2	21
28	Spanish Facial and body CPG	86	50	45	67	35	29	RWM	4	52
	Media (Rango)	44 (36-86)	28 (14-58)	22 (14-45)	69 (44-92)	13 (4-35)	0 (0-29)			27 (26-43)

Only 2/7 (28.6%) guidelines accomplished more than 1 item out of 31 (3.2%). None of the guidelines met all the quality domains. Basic information (domain 1), background (domain 2), evidence strengths and limitations (domain 4), recommendations (domain 5), facilitators and barriers (domain 6) and implementation (domain 7) of SDM were inadequately described. The guidelines scrutinised did not satisfy any items about selection criteria (domain 3), facilitators and barriers (domain 6), resource implications (domain 8), monitoring and audit criteria (domain 9), recommendations for future research and their limitations (domain 10), and editorial independence and conflict of interest (domain 11). None of the guidelines stood out for explicitly focusing on SDM. Two referred to informed consent as a fundamental part of the doctor-patient interview, specifically those in which SDM had a better contemplation [25,26].

Analysis of factors regarding quality and reporting

Table 4 reveals the general and SDM quality and reporting in aesthetic medicine guidelines. Regarding general quality and reporting, there were no significant differences regarding the type of document (p= 0.280; p= 0.610), year of publication (p= 0.330; p= 0.990), publication in a journal (p= 0.330; p= 0.990), and the evidence analysis (p= 0.850; p= 0.570). Concerning SDM, CMs demonstrated a better description that CPGs (p= 0.032). The origin (p= 0.658), the publication year (p= 0.748), the appearance in a journal (p= 0.224), and version of the guidance (p= 0.887), the evidence analysis (p= 0.570) and the appearance of the informed consent (p= 0.184) did not influence SDM quality or reporting.

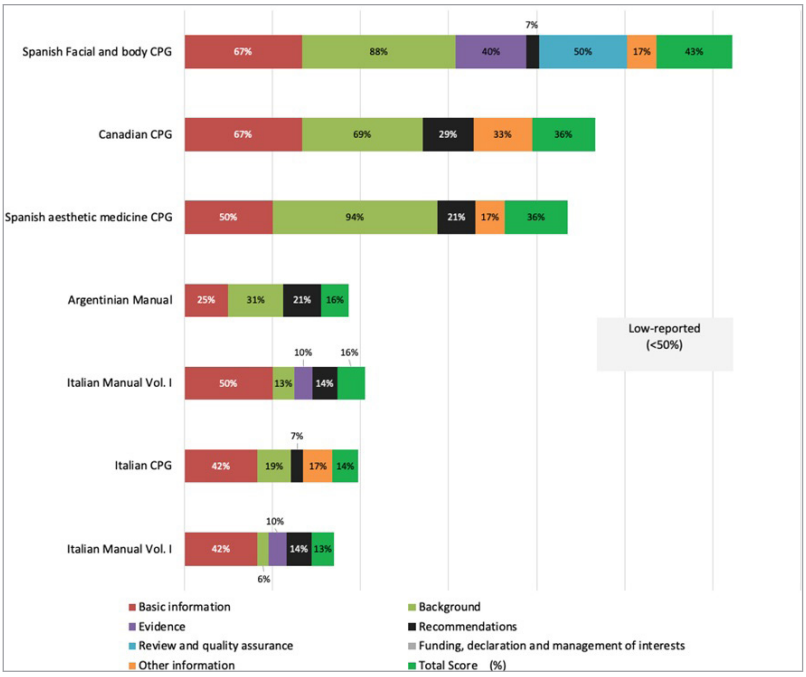

Figure 3. RIGHT overall score of aesthetic medicine guidelines.

Table 3. Adherence to RIGHT Statement items (n1 = 35) by each aesthetic medicine and surgery CPG and CS included (n2 = 7)

	Abbreviated name of CPG	Domain 1 Basic information (n = 6)		Domain 2 Background (n = 8)		Domain 3 Evidence (n = 5)		Domain 4 Recommendations (n = 7)		Domain 5 Review and quality assurance (n = 2)		Domain 6 Funding, declaration and management of interests (n = 4)		Domain 7 Other information (n = 3)		Total Score (n= 35)	Total Score (%)
22	Italian Manual Vol. I	3	50%	1	13%	0.5	10%	1.0	14%	0	0%	0	0%	0.0	0%	5.5	16%
23	Italian Manual Vol. II	2,5	42%	0,5	6%	0.5	10%	1.0	14%	0	0%	0	0%	0.0	0%	4.5	13%
24	Argentinian Manual	1,5	25%	2,5	31%	0.0	0%	1.5	21%	0	0%	0	0%	0.0	0%	5.5	16%
25	Spanish aesthetic medicine CPG	3	50%	7,5	94%	0.0	0%	1.5	21%	0	0%	0	0%	0.5	17%	12.5	36%
26	Canadian CPG	4	67%	5,5	69%	0.0	0%	2.0	29%	0	0%	0	0%	1.0	33%	12.5	36%
27	Italian CPG	2,5	42%	1,5	19%	0.0	0%	0.5	7%	0	0%	0	0%	0.5	17%	5.0	14%
28	Spanish Facial and body CPG	4	67%	7	88%	2.0	40%	0.5	7%	1	50%	0	0%	0.5	17%	15.0	43%
Mode		1		1		0		1		0		0		0,5			
Median (Range)		50 (25-67)		31 (6-94)		0 (0-40)		14 (7-29)		0 (0-50)		0 (0-0)		17 (0-33)			26 (13-43)

Discussion

Main findings

The overall quality of the aesthetic medicine and surgical guidelines was poor and heterogeneous, with weaknesses in critical areas. None of the reviewed guidelines reported the use of quality improvement tools in their development. Regarding the validity of the recommendations, all but one [23] obtained low results in all domains. They were defined as "not recommended". Only one [23] was classified as "recommended with modifications". In the specific analysis, the guidelines highlighted their excellent synthesis of the purpose and their clarity of presentation. Editorial independence and applicability were areas that needed significant improvement. All the guidelines were categorised as "poorly reported," and no domain was well developed. The best-presented area was basic information, while we highlighted an urgent necessity to improve the background report, the evidence, the declaration of conflict of interest and the quality control. SDM appeared superfluously in almost all the guidelines. None of the guidelines specifically used the SDM term.

Table 4. Characteristics of aesthetic medical and surgical guidelines concerning quality and reporting.

Continent	Agree II		Right		SDM tool	
	Mean	DT	Mean	DT	Mean	IQR Range
Type of document						
CPGs	76.5	15.54	39.2	12.76	1	1
CSs	59	5.19	19.3	11.01	1.8*	3.8*
Continent						
Europe	69.8	15	30.4	18.75	1.8	3.5
North America	81	N/A	31	N/A	1	1
Other countries	53	N/A	32	N/A	1	1
Publication Year						
Before 2015	58	4.69	21.25	9.74	1.4	3
After 2015	83.66	7.37	43.33	12.01	1.6	2.5
Publication in a journal						
Yes	58	4.69	21.25	9.74	0.8	N/A
No	83.66	7.37	43.33	12.01	2.3	3.1
Version number						
1	71.66	14.18	30.5	16.77	1.3	1.7
Other	53	N/A	32	N/A	2	1
Evidence analysis						
Consensus	71.33	14.22	34	8.88	1.7	1.2
Not reported	59	5,19	19.33	10.97	4	4
Review	N/A	N/A	N/A	N/A	N/A	N/A
Systematic review	N/A	N/A	N/A	N/A	N/A	N/A
					Informed consent	
				Yes	1.5	1.3
				No	1.3	2.3

Strengths and limitations

To the best of our knowledge, this is the first systematic review to analyse quality in aesthetic medicine and surgical guidelines. One of this review's major strengths is its comprehensive search strategy without language or time restrictions, which was established on a broad conceptual framework and gave a global perspective.

A prospective registration protocol was tracked (https://osf.io/8pdyv) to build a rigorous methodological process in this systematic review. For the evaluation of quality in all its dimensions, three validated evaluation tools were used: AGREE II (for general quality), RIGHT (for general reporting) and a SDM tool (for SDM quality and reporting) [15-17]. These three tools had some elements that partially overlapped even when AGREE II was focused on the quality of the validity of the recommendations formulated, the RIGHT statement on the rigour of the information presented, and the SDM tool on SDM specifically [6]. Our results suggested that these quality dimensions were closely correlated. Therefore, a well-reported document (high RIGHT score results) will most likely imply a recommended guideline after evaluating with AGREE and vice-versa.

A potential limitation of this systematic review could be the subjectivity of the data extraction. Three experts on guideline quality assessment reviewed the assessment tool manuals to create a mutual understanding of scoring procedures before duplicate data extraction to minimise this inconvenience. Meaningful differences were solved by reaching a consensus between the reviewers and an independent arbitrator. Nevertheless, we obtained an excellent reviewers' agreement (ICC >90%).

On the other hand, the controversy continues about the different cut-off points when categorising the guidelines using AGREE II or RIGHT, as well as on the scoring criteria of the items of each domain. These aspects should be evaluated in the future to reduce subjectivity. Therefore, our main findings, although consistent, may present unavoidable limitations inherent to the lack rules on the weighting of domains and items [16,18]. Although the RIGHT statement suggested against getting an overall score after going through the checklist, we found

it helpful to compare the diverse guidelines. To establish the cut-off points to differentiate between low, medium, or high-quality guidelines for our analyses, we use limits previously validated in other published research [14,19,20,29]. Therefore, we are confident that our main findings on the poor quality of guidelines, and the negative impact of the lack of a systematic review as a basis for evidence synthesis of recommendations, are robust. These deficiencies merit urgent attention.

There was significant heterogeneity between the guidelines initially found in the preliminary search. Only those guidelines that dealt with a single aesthetic procedure were included, given the wide variety of procedures and the difficulty of comparing them. We are aware that our decision meant that some excellent guidelines on aesthetic medicine-specific procedures might be excluded. However, we avoided the heterogeneity of the guidelines that would make comparison difficult and make it arduous to have consistent conclusions since the guidelines would differ enormously in their development, structure, context, definitions of endpoints, etc.

Implications

Our review and analysis highlighted that the quality of aesthetic medicine and surgical guidelines has a wide area for improvement. This was especially evident in the domains related to the applicability, reporting of evidence in recommendations, editorial independence and declaration of conflict of interest, and the guideline's internal and external quality control. Although the SDM appeared in most guidelines, it did not get the importance it deserves. To increase the quality of guidelines, it would be necessary to improve evidence-based studies as there is a lack of internationally accepted action protocols for the different techniques and a low level of evidence in the recommendations [30].

On the other hand, it was shocking not to find any guidelines with recommendations based on systematic reviews or expert consensus. The guidelines analysed were based on the opinion of experts or literary reviews. Therefore, the level of evidence was low. Although the terms GPC, DCs, and MCs are used interchangeably on many occasions, they have differences and fulfil a specific role in guiding clinicians in clinical practice. The CPGs are, by definition, "a set of recommendations based on systematic reviews of the existing evidence and with a risk-benefit assessment of the different options available for the management of a specific clinical condition" [31]. The CSs are statements done by a group of experts from various disciplines who are in charge of analysing the existing bibliography on a specific topic that is generally controversial and reaching an agreement on it. Although the CPGs and CSs have a similar purpose (to guide physicians in decision-making in daily clinical practice), each has defining characteristics and aspects. The CSs have more often sponsorship from a pharmaceutical company and tend to focus into more controversial specific issues where the level of evidence is low [32]. Therefore, CSs are known to score lower than CPGs in terms of development and editorial independence rigour [32]. However, despite their differences, both guidance documents should have a precise, rigorous and transparent methodology in common. On the other hand, the MCs are a formal source of information and guidance on carrying out a specific job [33]. Compiles the basic and essential aspects of a process, understanding its operation, and accessing its knowledge in an orderly and concise manner.

Our observations were that the aesthetic medicine and surgical guidelines selected have a wide margin for improvement. There is an urgent need to elaborate or redesign aesthetic medicine guidelines and increase their evidence level. The use of quality assessment instruments based on systematic reviews (i.e. AGREE II or RIGHT) might be an instrument to ensure quality evidence-based recommendations in the future. Furthermore, there is still a debate about the cut points to define acceptable scores and the weighting of the items and domains. These issues should be researched in the future. In the current climate of formality and transparency, it should not be acceptable that some guidelines do not meet even essential quality and reporting

criteria. Our systematic review has revealed that nowadays, there are no clear, unanimous and evidence-based CPGs in aesthetic medicine and surgery. These failures will inevitably reduce the possibility of achieving quality clinical practice to provide the best care to patients.

Conclusions

Our systematic review discovered that existing aesthetic medicine and surgical guidelines were scarce and needed to be more robust and of better quality. None was prepared following a validated tool for its development and quality assessment, such as AGREE II or RIGHT. In future, aesthetic medicine and surgical guidelines should have a rigorous approach that follows these quality assessment instruments and should be based on systematic reviews to ensure quality evidence-based recommendations.

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Glossary

Abbreviations

AICPE	Associazione Italiana Chirurgia Plastica Estetica
CMQ	Collège des Médecines du Québec
CPG	guías de práctica clínica
CS	documentos de consenso
ICC	intraclass coeficient
IQR	rango intercuartil
ISTL	Comisión de Investigación del Instituto Superior Tecnológico Lendan
CM	manual clínico
SEME	Sociedad Española de Medicina Estética
SIME	Scuola Internazionale di Medicina Estetica
SOARME	Sociedad Argentina de Medicina Estética), UIME (Unión Internacional de Medicina Estética