

ASMBS guidelines/statements

Reporting of weight loss outcomes in bariatric surgery following introduction of 2015 ASMBS guidelines

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Abstract

Background: Heterogeneity in reporting weight loss (WL) outcomes within the bariatric surgery literature limits synthesis and meta-analysis. In 2015, the American Society for Metabolic and Bariatric Surgery (ASMBS) published reporting guidelines to achieve consistency in the literature.

Objectives: We aimed to assess the effect of the ASMBS guidelines in the bariatric surgery literature.

Methods: Nine PubMed-indexed bariatric surgery journals were screened for articles published in the first 6 months of 2015 and 2021. Of 1807 articles, 105 and 158 articles in 2015 and 2021, respectively, reported primarily on WL outcomes following surgery.

Results: Overall ASMBS compliance increased from 5% to 20%, $P < .05$. Initial weight and body mass index (BMI) was reported in all studies, but specification of this as the immediate preoperative weight reduced from 15% to 6%, $P < .05$. The percent total WL (%TWL) increased from 17% to 61%, $P < .05$. Change in the BMI (ΔBMI) remained 41%. The percent excess BMI or WL (%EBMIL or %EWL) did not significantly change from 76% to 69%, $P = .203$. In 2021, 2 of the 9 journals gave guidance on reporting WL in their instructions to authors. Thirty percent (42/142) of articles did not comply with the journals' WL reporting guidance. The number of unique WL outcomes used increased from 45 to 54.

Conclusions: Significant heterogeneity in reporting WL outcomes remains, hindering robust meta-analysis of articles. Use of referral weight instead of preoperative weight can inflate WL in those with mandated preoperative WL, clarifying initial weight is needed. Use of nonstandard measures of WL remains high. (*Surg Obes Relat Dis* 2022;18:1195–1198.) © 2022 American Society for Metabolic and Bariatric Surgery. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Keywords:

Treatment outcome; Bariatric surgery; Outcome assessment

Prevalence of obesity continues to grow worldwide, leading to physical, mental, and financial consequences. According to the World Health Organization, there are 1.9 billion people across the world living with obesity [1].

That is approximately one in 4 people worldwide. Bariatric and metabolic surgery remains an effective treatment for obesity and its associated co-morbidities with increasing availability and ongoing developments of surgical techniques [2]. Naturally, large amounts of data exist within the bariatric surgery literature, the synthesis and analysis of which is necessary to drive clinical progress. Heterogeneity in reporting weight loss (WL) outcomes stands as a barrier to this—an issue which has been highlighted by the

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American Society for Metabolic and Bariatric Surgery (ASMBS) [3], the BARIACT Project [4], and systematic reviews which highlight difficulties around synthesizing heterogeneous data [5,6].

In 2015, ASMBS published guidance recommending uniform reporting of outcomes in the bariatric and metabolic surgery literature [3]. They recommended the inclusion of 4 different WL outcomes. They are the mean initial body mass index (BMI), change in the BMI (Δ BMI), and percent total WL (%TWL). The fourth outcome is percent excess BMI loss (%EBMIL) and/or percent excess WL (%EWL). The guidance also highlighted that initial weight and the BMI ought to be measured closest to surgery.

Using these WL outcomes collectively, as outlined by the ASMBS guidance, is more favorable than reporting a single outcome on its own. It provides a more robust evidence base and maximizes the chances of multiple publications containing comparable outcome measures that can be combined into a meta-analysis [6]. Furthermore, it also reduces the chances of authors using novel outcome measures which can inadvertently amplify the magnitude and significance of results [7].

This study primarily aimed to investigate the effect of the 2015 ASMBS guidance for minimum WL reporting standards on literature reporting WL outcomes following bariatric surgery. Secondary aims included assessing how many journals had specific guidance on reporting WL outcomes and the adherence of published papers to their guidance, as well as documenting the number of different unique WL outcomes reported.

Materials and methods

Journals with a focus on obesity and bariatric surgery which are also published via PubMed were identified. They included Surgery for Obesity and Related Diseases, Obesity Surgery, Bariatric Surgical Practice and Patient Care, Clinical Obesity, Obesity Research & Clinical Practice, International Journal of Obesity, Obesity, Current Obesity Reports, and Journal of Obesity. All published articles within the first 6 months of 2015 and 2021 were identified within these journals. Articles eligible for inclusion had bariatric surgery performed on humans and WL outcomes stated as one of the main outcomes. Case reports, systematic reviews, meta-analysis, editorials, and comments were excluded. Screening was conducted by 2 independent authors, with a third author intervening during conflicting decisions.

Data collected from each article included adherence of each publication to the 4 ASMBS WL reporting guidelines, adherence to the journal's author guidance, and any other reported WL outcomes. Data were also collected on the presence of author guidance from journals specifying minimum WL reporting requirements for manuscripts and adherence

of journals' author instructions to the ASBMS guidance. The 2015 versions of journals' author instructions were not retrievable; hence, these data were only retrieved for 2021.

Adherence to the ASMBS guidelines was defined as adherence to all 4 ASMBS criteria. Likewise, adherence to journal author guidance was defined as adherence to all the reporting requirements of a journal. The initial weight/BMI was accepted as that closest to surgery when it was specified to be measured within 2 weeks of surgery.

Statistical analyses were performed using SPSS Statistics for Windows, version 27.0 (IBM, Armonk, NY). Categorical variables were described as numbers and percentages. They were compared using the Pearson χ^2 analysis. Differences were considered of statistical significance if they reached a $P < .05$.

Results

A total of 1807 articles were identified from the included journals in the first 6 months of 2015 and 2021 combined, with 105 of 808 (13.0%) from 2015 and 158 of 999 (15.8%) from 2021 meeting the criteria for inclusion. Compliance of the published articles with the ASMBS guidance is outlined in Fig. 1.

Of the 9 journals, 2 provide specific guidance to authors on reporting WL outcomes. Thirty percent ($n = 42/142$) of articles did not comply with the journals' WL reporting guidance. The remaining 7 journals either had no specified guidance or referred authors to using guidelines available through the Equator Network [8]. Only one journal had reporting guidelines that matched the ASMBS guidance.

In total, 71 unique outcomes were used across all articles included. The number of reported unique different outcome measures increased from 45 in 2015 to 54 in 2021. The most common reported outcome measures were the set recommended by the 2015 ASMBS guidance. Of the remaining reported outcomes, 14 of them were used by ≥ 5 articles. They include postoperative weight, postoperative BMI, WL, % change in weight, % body fat, TWL, Reinhold's criteria (% of patients with EWL 50%), waist circumference, Δ waist circumference, fat mass, fat-free mass, Δ fat mass, visceral adipose tissue, and subcutaneous adipose tissue. The remaining 53 outcomes were used by ≤ 5 articles.

Discussion

The ASMBS guidance appears to have had a positive effect on unifying the measurements we use for reporting WL outcomes. At an overall compliance of 20%, however, heterogeneity of outcome reporting in the literature remains an issue worthy of attention. In addition, only 2 of 9 journals gave specific instructions to authors regarding

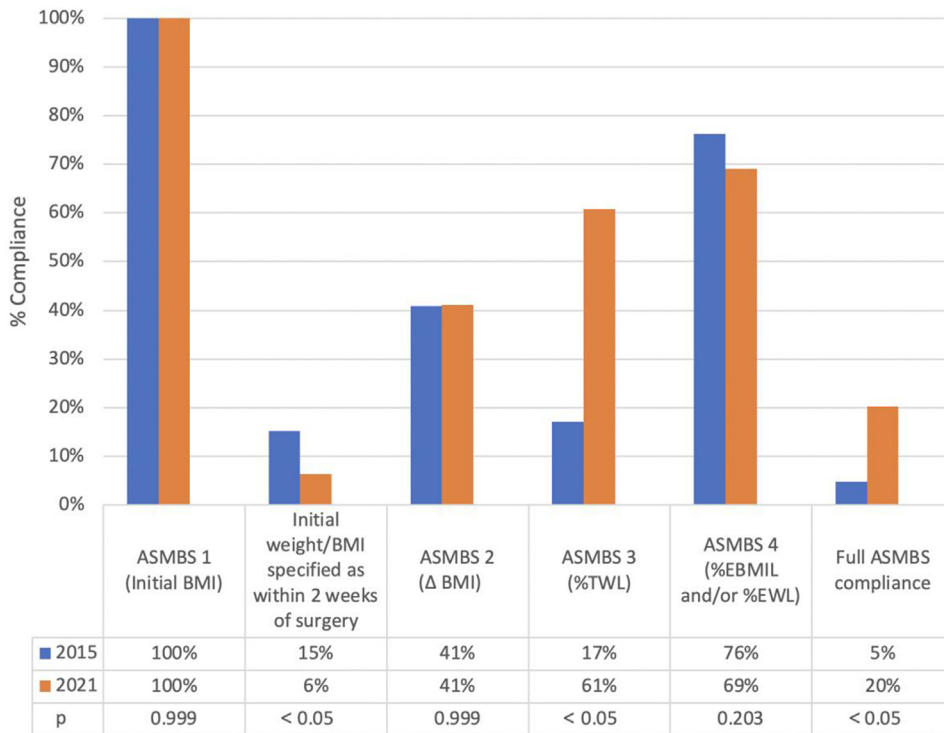


Fig. 1. Compliance of articles to the ASMBs weight loss reporting outcome guidelines.

reporting WL outcomes. Where guidance was provided, one in 3 articles did not comply with the journals' instructions. This is another potential area of focus in the effort to reduce heterogeneity of outcome reporting. Finally, there was an increase in the overall number of WL outcomes used. An overall total of 71 unique outcomes clearly displays the diverse nature of reporting outcomes which impacts on the ability to produce effective synthesis and meta-analyses.

Other recent studies have also highlighted aspects of issues created from heterogeneous outcome reporting. A systematic review by Mocanu et al. [5] of 73 randomized clinical trials (RCTs) found that a third of included studies had discrepancies in the WL measures used, thereby precluding these studies from synthesis and meta-analysis. Our study reinforces these findings, providing evidence that this issue exists in non-RCT literature as well. Another recent position statement from the Dutch Society for Metabolic and Bariatric Surgery also highlighted the issues created by the selective use of WL outcomes [9]. They describe potential error-sensitive measures such as %EWL and %EBMIL and recommend the use of measures such as %TWL or the creation of dynamic evidence-based WL percentile charts to guide decisions around WL and weight regain. This demonstrates the ongoing discussion around the subject of WL reporting and the need for engagement from all parties in addressing this. Our study highlights a gap in the requirements that journals place on authors on this

subject, which is a potential opportunity for improvement in this regard.

There was a noticeable lack of clarity in the timing of pre-operative weight measurements. Initial measurements in studies have ranged from being measured on the day of referral to the day of surgery. As part of the ASMBs guidelines, initial BMI/weight are defined as the value measured closest to surgery; however, no time-specific definition exists. This has led to subjectivity around what is determined "closest to surgery." As this measurement forms the basis of all other WL outcomes, results from studies can appear more inflated the longer the period between surgery and the initial weight. This is due to surgical candidates usually undertaking nutritional WL plans prior to surgery. We accepted initial weight as measured closest to surgery when it was stated to be within 2 weeks of surgery. Perhaps future studies should standardize the initial BMI/weight as on the day of surgery and state the date of measurements clearly.

This was a snapshot review of the relevant literature from all PubMed-indexed journals with a focus on obesity or bariatric surgery. To our knowledge, this is the first such investigation into not only the heterogeneity of outcome reporting in the literature but also the heterogeneity of guidance by journals regarding reporting WL outcomes. Compared to a previous similar review that only looked at RCTs [5], we looked at all types of publications, except for case reports and reviews. We were unable to find and

compare journal guidance to authors from 2015, hence limiting that part of our investigation.

Further adoption of guidelines by bodies such as the ASMBS and the International Federation for the Surgery of Obesity and Metabolic Disorders is needed from the bariatric surgery community. It is also important for relevant journals to highlight guidelines on reporting WL outcomes and maximize compliance to these from submitting authors.

Conclusion

Despite the presence of clearly defined guidelines on minimum outcome reporting standards for WL following bariatric surgery, there continues to be notable heterogeneity in outcome measures. Only 2 of 9 included journals provided guidance regarding reporting WL outcomes to submitting authors. Robust synthesis and meta-analyses of the available literature continue to be hindered by lack of clarity on how WL has been defined and measured.

Disclosures

The authors have no commercial associations that might be a conflict of interest in relation to this article.

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