Bridging the Science-Practice Gap in Obesity Treatment

Abstract: *The number of putative causes of obesity continues to increase at a rapid rate. As science identifies novel causes of obesity, innovations in the treatment of obesity also evolve. These innovations have important implications for clinical practice; however, a gap exists between research and the clinical application of research. Practical considerations about how to address this gap between research and practice are discussed.*

Keywords: science-practice gap; obesity; treatment

What treatment is most effective in managing obesity? Which factors are most responsible for causing obesity? If I choose to do only one thing to lose weight, what should it be? If you work in the field of obesity, it is likely that you are asked these questions on a regular basis. Many of the patients that seek treatment ultimately want these questions answered. The idea is that if we could just put our efforts into the one area that will give the greatest impact, the chance for successful weight loss and, perhaps more important, weight maintenance,

will increase significantly. Although most know and understand that the treatment of obesity needs to be multifactorial and is in need of multilevel solutions, the desire to find the “best” approach remains.

As discussed in this issue by Karasu,¹ one of the difficulties in treating and understanding obesity is that it is often

influenced by genetics^{8,9} and the environment in which one lives¹⁰ alters how one conceptualizes treatment. To further complicate the issue, viruses,¹¹ our microbiomes,^{12,13} epigenetics,¹⁴ and chronic exposure to chemicals that are in our food supply¹⁵ all have scientific support demonstrating independent roles in the development and maintenance of

. . . most know and understand
that the treatment of obesity needs
to be multifactorial and is in need of
multilevel solutions . . .

reduced to a singular concept with scientists and practitioners alike tending to focus on their paradigm alone. It is not surprising that many different treatments have been developed because of these multiple paradigms with little overlap across paradigms. For example, bariatric surgery has gained considerable support in the literature,²⁻⁴ and recent advances in pharmacotherapy have had a significant impact on the clinical management of obesity.⁵⁻⁷ Also, taking into account that obesity is directly

obesity, and this is by no means an exhaustive list.¹⁶ Conceptualizing a treatment approach across all of these domains is a daunting task and not likely to be attempted by those providing treatment.

This complexity not only exists across paradigms but within treatment approaches as well. Within behavior change approaches, one can be quickly overwhelmed in determining which type of cognitive behavioral therapy should be used,^{17,18} the benefits of group versus

DOI: 10.1177/1559827615620381. From the Department of Health and Human Performance, University of Houston, Houston, Texas (CAJ); and USDA/ARS Children's Nutrition Research Center, Department of Pediatrics-Nutrition, Baylor College of Medicine, Houston, Texas (JPM). Address correspondence to Craig A. Johnston, PhD, Department of Health and Human Performance, University of Houston, Houston, TX 77030; e-mail: cajohn25@central.uh.edu.

For reprints and permissions queries, please visit SAGE's Web site at <http://www.sagepub.com/journalsPermissions.nav>.

Copyright © 2015 The Author(s)

individual treatment,¹⁹ or the advantages of person-centered approaches²⁰ such as motivational interviewing.²¹ The number of publications on these topics and the numerous journals that publish obesity treatment articles additionally compounds this issue. All of these factors lead to what has been termed a science-practice gap.²² The science-practice gap refers to the concept that while research regarding evidence-based interventions and assessment is continually changing and evolving, actual practices in routine clinical care remain largely unchanged. This gap may occur for a multitude of reasons including attitudes about the value of research findings in real-world settings and practical challenges associated with implementation of evidence-based practices.²² In fairness to practitioners, the burgeoning number of causes of obesity may lead one to question the research methodology used to identify the causes of obesity.¹⁶

The Science-Practice Gap

In order to bridge this gap and to ensure that clinical practice is informed by science, several movements have taken place.²³ Evidence-based medicine has been discussed for almost 20 years in the literature.^{24,25} In psychology, this movement is now termed evidence-based practice.²⁶ Regardless of the terms used to describe it, the core of these approaches addresses the need to move research findings that have potential to improve patient care out of journals and into clinics. Some of the benefits of these approaches have included more studies taking place in applied settings,²⁷ determining not just what works but for whom it works,²⁸ and addressing the issue of improving the external validity of research to increase the generalizability to “real-world” settings.²⁹ Until recently, this process has primarily been unidirectional, relying almost entirely on scientists disseminating research findings to practitioners.³⁰ Work is now being conducted to make this communication bidirectional by facilitating the

dissemination of best clinical experiences of practitioners to researchers in order to develop a better understanding of what treatments produce the best outcomes in clinical settings.³⁰

This gap has been identified within the field of obesity treatment as well. For example, health professionals and policy makers alike often do not apply evidence from the literature to obesity interventions and clinical guidelines.³¹⁻³³ An in-depth study was conducted on this gap for adolescent weight management,³⁴ and it was determined that several “major gaps” existed between current research and practice. Specifically, care providers frequently failed to follow a specific theory during treatment or take into consideration adolescents’ social settings or their socioeconomic environment, despite clear evidence in the scientific literature that doing so improves treatment outcomes. And while scientific literature on adolescent weight management suggests an equality of outcomes using group or individual treatment approaches, practitioners stated that in their clinical experience, improved outcomes are achieved using a mixture of group and individual sessions. Similarly, research does not consistently support the need to involve families or the importance of taking a life stage approach; however, practitioners emphasize the importance of these techniques in their clinical practice.

This 2-way communication will likely be important in improving outcomes in the area of lifestyle management. Although considerable research has been conducted with clear recommendations made about treatment, understanding the important components from a “real-world” standpoint will further help reduce the gap between research and practice. Clinicians should not simply wait for research to catch up on these issues but should test their ideas through practice-based research and participate in practice-based networks.³⁵⁻³⁷

A Practical Approach

Practitioners face a difficult task in treating obesity. First, they are

encouraged to take an evidence-based approach, which is critical if the best care is to be provided to patients. However, the issues associated with a science-practice gap elucidate the difficulties of transferring the current scientific literature into practice. Next, practitioners are asked to take into account the many factors that may be affecting their patients at an individual level, and these factors seem to be increasing at an exponential rate.¹⁶ Finally, they are treating a disease that has been shown to be intractable.³⁸ Behavioral theory offers some insight into how to best conceptualize treatment under these conditions. Specifically, a central tenet of behavior management is the constant evaluation of the effect of treatment. In the case of obesity, a plan for weight management that is decided on by both the health care provider and the patient should be established. This plan should be based not only on possible determinants of obesity but also on factors maintaining obesity that are modifiable. After an agreed upon amount of time, that plan should be assessed for its outcomes and adjustments made. This process of planning, evaluating, and adjusting should continue throughout the duration of treatment. In essence, this is a direct application of the scientific method in clinical practice.

The process described above may seem simplistic, but this type of methodical approach is necessary to determine the effectiveness of intervention. Considerable trust between the health care provider and patient must be established, as this is a slow process toward change. From the outset, all parties should be prepared to have patience, as weight loss will likely not happen as fast as the patient wants and many barriers will be encountered along the way. If done correctly, “failures” are reframed as learning experiences about what does not work, and times of weight gain are viewed as opportunities to better understand behaviors specific to the individual that can be addressed. In order for this process to work most effectively, practitioners must allow concepts outside of their primary

paradigm to be a focus of treatment as they work together with their patients to treat the “obesities” discussed in this issue.¹

Conclusion

The field of obesity research is constantly evolving. New determinants of obesity are being identified, and new methods for addressing obesity through medical and behavioral interventions are being developed. Innovations in medical treatments of severe obesity such as bariatric surgery and pharmacotherapy have led to advancements in the clinical management of obesity. Despite advancement in lifestyle approaches to weight management, the behavioral management of obesity in health care settings remains largely unchanged. This science-practice gap is due to many factors including the practicality of implementing novel approaches within a primary care setting as well as misconceptions of research and attitudes regarding the value of research. Greater communication between practitioners and scientists is needed to bridge this gap so that research not only informs practice, but practice informs research. In the face of the enormous challenge of treating obesity and of the multiple obesity paradigms, health care providers are advised to step outside of their usual paradigm, consider the individual within their unique environment, and approach intervention in a methodical manner by continually evaluating effectiveness and making adjustments.

Authors' Note

This work is a publication of the Department of Health and Human Performance, University of Houston (Houston, Texas).

References

1. Karasu S. The obesities: an overview of convergent and divergent paradigms [published online July 4, 2014]. *Am J Lifestyle Med*. doi:10.1177/1559827614537773.

2. Arterburn DE, Courcoulas AP. Bariatric surgery for obesity and metabolic conditions in adults. *BMJ*. 2014;349:g3962.
3. Courcoulas AP, Yanovski SZ, Bonds D, et al. Long-term outcomes of bariatric surgery: a National Institutes of Health symposium. *JAMA Surg*. 2014;149:1323-1329.
4. Maggard-Gibbons M, Maglione M, Livhits M, et al. Bariatric surgery for weight loss and glycemic control in nonmorbidly obese adults with diabetes: a systematic review. *JAMA*. 2013;309:2250-2261.
5. Nuffer WA, Trujillo JM. Liraglutide: a new option for the treatment of obesity. *Pharmacotherapy*. 2015;35:926-934.
6. Patel D. Pharmacotherapy for the management of obesity. *Metabolism*. 2015;64:1376-1385.
7. Soleymani T, Daniel S, Garvey WT. Weight maintenance: challenges, tools and strategies for primary care physicians [published online October 21, 2015]. *Obes Rev*. doi:10.1111/obr.12322.
8. Demerath EW. The genetics of obesity in transition. *Coll Antropol*. 2012;36:1161-1168.
9. Mei H, Chen W, Jiang F, et al. Longitudinal replication studies of GWAS risk SNPs influencing body mass index over the course of childhood and adulthood. *PLoS One*. 2012;7:e31470.
10. Oppert JM, Charreire H. The importance of the food and physical activity environments. *Nestle Nutr Inst Workshop Ser*. 2012;73:113-121.
11. Esposito S, Preti V, Consolo S, Nazzari E, Principi N. Adenovirus 36 infection and obesity. *J Clin Virol*. 2012;55:95-100.
12. Belizario JE, Napolitano M. Human microbiomes and their roles in dysbiosis, common diseases, and novel therapeutic approaches. *Front Microbiol*. 2015;6:1050.
13. Devaraj S, Hemarajata P, Versalovic J. The human gut microbiome and body metabolism: implications for obesity and diabetes. *Clin Chem*. 2013;59:617-628.
14. Graham MR, Baker JS, Davies B. Causes and consequences of obesity: epigenetics or hypokineses? *Diabetes Metab Syndr Obes*. 2015;8:455-460.
15. Baillie-Hamilton PF. Chemical toxins: a hypothesis to explain the global obesity epidemic. *J Altern Complement Med*. 2002;8:185-192.
16. Downey M. The putative 104 causes of obesity. <http://www.downeyobesityreport.com/2015/10/the-putative-104-causes-of-obesity-update/>. Published October 22, 2015. Accessed November 4, 2015.
17. Executive summary: Guidelines (2013) for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Obesity Society published by the Obesity Society and American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Based on a systematic review from the Obesity Expert Panel, 2013. *Obesity*. 2014;22(suppl 2):S5-S39.
18. Kushner RF, Ryan DH. Assessment and lifestyle management of patients with obesity: clinical recommendations from systematic reviews. *JAMA*. 2014;312:943-952.
19. Paul-Ebhohimhen V, Avenell A. A systematic review of the effectiveness of group versus individual treatments for adult obesity. *Obes Facts*. 2009;2:17-24.
20. Cheng JK, Cox JE, Taveras EM. Patient-centered approaches to childhood obesity care. *Child Obes*. 2013;9:85-88.
21. Christie D, Channon S. The potential for motivational interviewing to improve outcomes in the management of diabetes and obesity in paediatric and adult populations: a clinical review. *Diabetes Obes Metab*. 2014;16:381-387.
22. Lilienfeld SO, Ritschel LA, Lynn SJ, Cautin RL, Latzman RD. Science-practice gap. In: *Encyclopedia of Clinical Psychology*. New York, NY: Wiley; 2015:1-7.
23. Ollendick TH. Advances toward evidence-based practice: where to from here? *Behav Ther*. 2014;45:51-55.
24. Sackett D, Richardson W, Rosenberg W, Haynes B. *Evidence-Based Medicine*. 2nd ed. London, England: Churchill Livingstone; 2000.
25. Sackett D, Richardson W, Rosenberg W, Haynes B. *Evidence-Based Medicine*. London, England: Churchill Livingstone; 1997.
26. APA Presidential Task Force on Evidence-Based Practice. Evidence-based practice in psychology. *Am Psychol*. 2006;61:271-285.
27. Wadden TA, Butryn ML, Hong PS, Tsai AG. Behavioral treatment of obesity in patients encountered in primary care settings: a systematic review. *JAMA*. 2014;312:1779-1791.
28. Stubbs J, Whybrow S, Teixeira P, et al. Problems in identifying predictors and correlates of weight loss and maintenance: implications for weight control therapies based on behaviour change. *Obes Rev*. 2011;12:688-708.

29. Partridge SR, Juan SJ, McGeechan K, Bauman A, Allman-Farinelli M. Poor quality of external validity reporting limits generalizability of overweight and/or obesity lifestyle prevention interventions in young adults: a systematic review. *Obes Rev.* 2015;16:13-31.
30. Wolf A, Goldfried M. Clinical experiences in using cognitive-behavior therapy to treat panic disorder. *Behav Ther.* 2014;45:36-46.
31. Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. *Lancet.* 2003;362:1225-1230.
32. Lang T, Rayner G. Overcoming policy cacophony on obesity: an ecological public health framework for policymakers. *Obes Rev.* 2007;8:165-181.
33. Green L. What can we generalize from research on patient education and clinical health promotion to physician counseling on diet? *Eur J Clin Nutr.* 1999;53:S9-S18.
34. Swan E, Bouwman L, de Roos N, Koelen M. How science thinks and practice acts: bridging the gap in weight management interventions for adolescents. *Fam Pract.* 2012;29(suppl 1):i117-i125.
35. Rosser W. Bringing important research evidence into practice: Canadian developments. *Fam Pract.* 2008;25(suppl 1):i38-i43.
36. Tierney WM, Oppenheimer CC, Hudson BL, et al. A national survey of primary care practice-based research networks. *Ann Fam Med.* 2007;5:242-250.
37. van Weel C, de Grauw W. Family practices registration networks contributed to primary care research. *J Clin Epidemiol.* 2006;59:779-783.
38. Rippe JM. The obesity epidemic: challenges and opportunities. *J Am Diet Assoc.* 1998;98(10 suppl 2):S5.