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Identifying and Addressing Individuals Resistant to Behavioral Lifestyle Treatment

Abstract: *The prevention and treatment of lifestyle disease involves overlapping factors. Those at the highest risk for the development of lifestyle disease are also at the highest risk for poor treatment outcomes. Although behavioral treatment of lifestyle disease has demonstrated efficacy on average, considerable individual variation exists in treatment response. In clinical settings, individuals unresponsive to treatment are typically provided escalated care. Community-based care is designed to reach high-risk populations unlikely to seek medical care. However, in community settings escalated treatment options are not usually available for individuals unresponsive to treatment. Addressing this gap is imperative to improve health outcomes of high-risk populations and to identify individuals who may be resistant to behavioral lifestyle treatment.*

Keywords: response; behavioral treatment; individual; resistance; community-based

A foundational benefit of using the scientific method in medicine is having security that a particular

treatment is better than doing nothing at all (control) or is better than usual treatment. Studies assess both benefits and risks of treatment so that patients and clinicians can make informed treatment decisions.¹ While risks are typically low in behavioral intervention, it is critical that treatment efficacy be evaluated. The first step in determining treatment efficacy is to understand if the intervention “works” on average among a particular population. Interventions are

Schuette and colleagues,² this process has resulted in numerous effective behavioral interventions for lifestyle medicine, as well as the identification of effective intervention components.

A related line of research has begun to test individual response to an intervention. Specifically, studies have started to identify and predict individuals who respond to intervention.^{3,4} These studies acknowledge the great individual variation in treatment response.⁵

Identifying individuals who are responsive to interventions is important because it allows intervention resources to be directed to those who are most likely to benefit from the intervention.

continually adapted and tested to determine if additional benefits and/or reduced risk can be achieved through slightly different treatment methods or if the intervention is effective among a different population. As discussed by

Although randomized controlled trials evaluating the efficacy of interventions are the “gold standard,” it is up to clinicians to decide if those results will be generalizable to the individual patient they are treating.⁶ Identifying individuals

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who are responsive to interventions is important because it allows intervention resources to be directed to those who are most likely to benefit from the intervention. While this is clearly an imperative area of research, there is a paucity of attention on identifying individuals on the other end of the spectrum: those who do not respond to intervention.

Although primarily unaddressed, variation in treatment response is widely acknowledged.⁷ Variability in response has been a fundamental principle in behavioral science for a long time. The father of behaviorism, B. F. Skinner, stated, “A prediction of what the *average* individual will do is often of little or no value in dealing with a particular individual.”⁸ This is also recognized in best practice guidelines for conducting randomized controlled trials. CONSORT guidelines for randomized controlled trials require researchers to account for attrition because it is suspected that those who do not complete studies are likely to have a differing response than completers (ie, the intervention may have only been better than control on average because a lot of individuals for whom it did not work dropped out).⁹ While this is accounted for through the development of intention-to-treat models, the treatment needs of those lost to follow-up are rarely addressed. Individuals who are lost to follow-up are one example of a group likely to be unresponsive to treatment.^{10,11} Identifying and treating individuals unresponsive to treatment is important because an inequity exists in treatment response and those unresponsive to care may stop seeking treatment.¹²⁻¹⁴ For these reasons, it is critical to attend to those who are unresponsive to interventions.

Response Inequity

Inequity is pervasive in health care and is a key priority in the national health agenda.¹⁵ The World Health Organization defines social determinants of health as “the conditions in which people are born, grow, live, work, and age.”¹⁶ Given this, social determinants of health are

typically viewed as the factors that lead to disease. However, it is important to understand that social determinants of health are the factors that lead to inequitable distribution of disease, which encompasses both prevention and treatment. This creates great disparity in chronic disease because the factors that contribute to an individual developing the disease are the same factors that may lead individuals to be unresponsive to treatment. Racial/ethnic minority groups of low socioeconomic status do not carry a disproportionate share of the disease burden solely because they are at higher risk for developing disease or because they have inadequate access to medical care.^{17,18} This population also has a higher prevalence of disease because they experience inferior treatment outcomes.¹²⁻¹⁴ For this reason, health inequities cannot be fully addressed without identifying and treating those who are unresponsive to behavioral treatment.

The Issue of Nonresponse

Reasons for being unresponsive to treatment are not well understood, and it is likely that reasons interact and accumulate. For example, compared with those who initially respond, individuals nonresponsive to behavioral treatment may have more challenging barriers to overcome, have greater genetic susceptibility, have more severe conditions, or have competing life circumstances that prohibit a focus on health. In obesity treatment, the primary predictor of long-term outcomes is initial weight loss.^{11,19,20} Although the mechanism behind this observation is not fully known, it is likely that early weight loss provides positive reinforcement of the behavior changes made by an individual. Those who make behavioral changes but do not lose weight initially are not reinforced to continue their efforts and may feel as if they have failed.⁷ A greater number of failed weight loss attempts in the past is associated with lower weight loss in the current intervention.¹¹ It is critical that

providers reinforce behavioral changes rather than health outcomes to help mitigate this sense of “failure” and to prevent patients from quitting behavioral change attempts.^{7,21} For these reasons, clinicians should identify individuals unresponsive to treatment as early as possible.

Behavioral intervention is the foundation for all lifestyle medicine, both prevention and treatment.²² Past failed weight loss attempts predict current weight loss response possibly because past and current treatments do not substantially differ. The same key messages are provided across lifestyle medicine: move more, sit less, eat more vegetables, eat less junk food, reduce screen time, and sleep more. Individuals who previously did not have improved outcomes from attempting to follow such advice are likely to also be unsuccessful a second time unless treatment is escalated. This is acknowledged by the staged clinical treatment guidelines for many lifestyle diseases.^{23,24} However, far too often, especially in community-based settings, individuals unresponsive to treatment are simply advised to try again with the same treatment.⁷ Providing interventions that are not likely to be effective for an individual can simply “set one up for failure,” which has future treatment implications.

Addressing Those Unresponsive to Treatment

Defining nonresponse depends on the particular lifestyle disease, the age, and the gender of the individual. Once identified, the primary question becomes how to help those unresponsive to treatment. First, stop advising the same treatment to which the individual was unresponsive and provide escalated care. One of the primary goals of community-based treatment options is to make health care more accessible. Community-based care recognizes that individuals with many barriers require more help from health care providers. However, a lack of escalated treatment options in the community setting for such high-risk

individuals is a critical oversight. The provision of greater access to health care is important, but not sufficient to reduce disparities in treatment outcomes. Providing equitable care also includes providing escalated care to those initially unresponsive to treatment.

The same mechanisms for escalating care used in a clinical setting—increased dose, structure, support, and the addition of adjunct therapies—can be applied to community settings. Most often care is escalated through increased structure. Specifically, recommendations are tailored to create a specific plan for individual patients. However, treatment can also be escalated by increasing the frequency and intensity of treatment or by including additional members in the medical care team. Last, escalated care may also include identifying and addressing barriers to patient adherence. These types of escalated behavioral care can continue indefinitely.²³ However, at some point, behavioral treatment escalation becomes incredibly resource intensive and may become infeasible on a broad scale. At this point, individuals may be seen as resistant to behavioral treatment.

Resistance to Behavioral Lifestyle Treatment

The idea of resistance is common in clinical treatment modalities. Patients are often referred to as being resistant to medications²⁵ or antibiotics.²⁶ The development of resistance or tolerance occurs in the treatment of multiple infections (ie, viral, parasitic, fungal, bacterial).²⁷ Although bariatric surgery results in weight loss and metabolic improvements for most patients, many individuals do not experience health improvements following bariatric surgery.²⁸ These patients are considered resistant to treatment. Compared with antibiotic resistance, however, the mechanisms of treatment resistance for lifestyle disease are less understood. With bariatric surgery, predictors of resistance include a person's age, sex, race/ethnicity, level of inflammation, and insulin resistance.²⁸ A clear distinction

between resistance to lifestyle disease treatment compared with infectious disease is that the characteristics that predict lifestyle disease resistance are present prior to the individual being treated, whereas infections become resistant to treatment following exposure to a treatment. A better understanding of characteristics of lifestyle disease resistance could enable interventions to be tailored to increase the likelihood of response.

While resistance is used to describe clinical treatment, it is not frequently discussed in terms of behavioral treatment of lifestyle disease. This is a critical oversight given the necessity of behavioral treatment in the treatment and management of lifestyle diseases. Tertiary care interventions have superior outcomes when provided alongside behavioral treatment.^{20,29,30} Patient outcomes would likely improve if patients' resistance to behavioral treatment could be predicted early in treatment. Individuals nonresponsive to early stages of behavioral treatment may represent a group that would be candidates for early initiation of adjunct care such as pharmaceutical intervention. Such assistance may help patients have early outcome improvements, promoting sustained behavioral change attempts and improved long-term outcomes.

In our estimation, treatment resistance extends past the issue of nonadherence. Some behavioral treatments may be implausible or unrealistic for an individual to follow. For example, advising a single mother who works 3 jobs, lives pay check to pay check, and resides in a neighborhood without sidewalks and with high crime rates to squeeze in an exercise routine in the morning may not be prudent. The effort on the part of the mother to wake up early in the morning and do a short workout in her apartment (quietly to not wake her children) is likely to outweigh the benefit from doing the workout. Furthermore, short-term health outcome benefits may not be seen from her monumental efforts, which will decrease the likelihood of her sustaining the

behavior change. Encouraging this woman to find a time in the morning to exercise is an example of a bad recommendation because it does not consider her circumstances. Given her situation, it is unrealistic to expect her to adhere to incorporating a morning exercise routine into her day. However, what if the same number of barriers existed for almost all lifestyle recommendations she was given? What if she was also genetically at a greater risk for the disease? In these instances, her inability to adhere to recommendations is not a typical case of nonadherence. The interaction and accumulation of barriers creates a situation in which one is resistant to behavioral treatment of lifestyle disease.

Too often individuals are "blamed" for being nonadherent to recommendations when they are nonresponsive to treatment. The thought process is that "It can't be the treatment or the recommendation's fault that the individual didn't respond because this is the gold standard recommendation." Clinicians might assume that the individual was not trying hard enough to follow the recommendation, and neglect to remember that no individual is the average person from which the gold standard recommendation was based. Instead of blaming the individual, it is crucial that we try to gain a better understanding for the circumstances under which individuals are trying to adhere to recommendations. We also need to acknowledge that, at some point, the escalated amount of tailoring required for behavioral treatment alone to result in meaningful health improvements becomes an unrealistic treatment plan. In other words, it is critical that we address the idea that some individuals may be resistant to behavioral lifestyle treatment.

Conclusion

The treatment of lifestyle disease inherently involves many of the same factors that contributed to disease onset. This observation illustrates the importance of behavioral treatment and

offers a perspective to understand how treatment response is not equitable. Behavioral treatment of lifestyle disease is personal. Treatment requires changing one's behaviors each day to be more in line with treatment goals. Response or resistance to a clinical modality is not as personal because the outcomes of a medication or surgery is not entirely dependent on an individual's behaviors. Especially in a society that values individualism, such as in the United States, being repeatedly unresponsive to behavioral treatment can be demoralizing and individuals are likely to stop treatment.¹¹ For obesity treatment in particular, being unresponsive to behavioral treatment may lead to the internalization of social stigmas such as laziness or a lack of will-power, which is associated with worsening health behaviors and weight outcomes.³¹⁻³³ Some of the patient shame or guilt often associated with being unresponsive to behavioral treatment may be avoided by applying the idea of resistance to the behavioral treatment of lifestyle diseases. Resistance to behavioral treatment, however, cannot be fully assessed without escalated community-based treatment options. Thus, community-based escalated treatment options are needed to both improve health outcomes among those initially unresponsive to treatment and to explore the idea of resistance to behavioral treatment for lifestyle disease.

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