

# Supporting Sustainable Health Behavior Change: The Whole is Greater Than the Sum of Its Parts

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## Abstract

Behavior change is the foundation for effective lifestyle prescriptions, yet such change is individualized, nonlinear and typically requires ongoing support. Health and wellness coaching (HWC) is a behavior change intervention with rapidly accruing evidence of positive impact on health behaviors such as exercise, nutrition and stress management. Furthermore, HWC enhances prevention and mitigates exacerbation of chronic lifestyle diseases, at least in the short-term (up to 6 months post intervention). Although the impact on long-term stability of behavior change remains unclear, it is evident that effective partnering with patients using key communication strategies, autonomy promotion, and flexible permissiveness can empower patients to develop healthy lifestyles. This partnership can be cultivated by clinicians as well as clinical team members including nationally board-certified coaches. Although much research is needed regarding the ongoing maintenance of lifestyle changes beyond 6 months, this article seeks to equip clinicians with current evidence, theoretical insights and practical strategies from a “coach approach” to foster more intrinsic forms of motivation which, in turn, empowers patients to adopt and maintain health-promoting behaviors.

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Behavior change is the foundation for effective lifestyle prescriptions, yet the journey toward health-promoting behaviors is an individualized and nonlinear experience influenced by myriad factors. This journey typically requires ongoing support and cultivation of intrinsic motivation as life challenges arise.

Key health-promoting behaviors include the following: eating a well-balanced diet of predominantly whole, plant-based foods; increasing physical activity; managing stress well; improving sleep; avoiding and mitigating risky substance use (eg, tobacco, alcohol, unnecessary medications, and vaping), and nourishing social connection. The adoption and maintenance of such behaviors have the greatest potential of any current approach to decrease mortality and morbidity, as well as improve quality of life.<sup>1,2</sup>

## UNDERSTANDING HEALTH BEHAVIOR CHANGE

Health behavior change is an evolving, multifaceted process that can be supported in a number of ways. In addition to public health campaigns that aim to educate and dissuade people from engaging in particularly harmful health behaviors, clinicians play a key role. They may provide health behavior instruction and work collaboratively with other care team members—such as health and wellness coaches—to support patients in improving health outcomes by exploring patients’ values and vision while shaping specific action steps that foster healthy change.

Health and wellness coaching (HWC) is a behavior change intervention with rapidly accruing and fairly consistent evidence that demonstrates positive impact on health behaviors such as exercise, nutrition, and stress management, at least in the short-term (up

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## ARTICLE HIGHLIGHTS

- Behavior change is the foundation for effective lifestyle prescriptions, yet the journey toward health-promoting behaviors is an individualized and nonlinear experience influenced by myriad factors in which ongoing support and cultivation of intrinsic motivation is required to navigate life challenges and set the stage for meaningful and lasting lifestyle change.
- Although necessary for lifestyle-focused prevention, treatment, and even reversal of chronic disease, maintenance of health behavior remains enigmatic for behavior change theorists, researchers, and clinicians with the most common practice in behavioral interventions being to use well-established behavior change strategies as maintenance strategies, despite a general lack of evidence that the 2 respond to the same strategies.
- A patient-centered, concordant communication style—as used in a “coach approach”—best empowers patients to enact and sustain health behavior change given the provision of autonomy and the cultivation of permissive flexibility, which are key components to a growth-fostering relationship that supports long-term change.
- Although there is still more research to be done regarding the maintenance of lifestyle changes, it is important to arm clinicians with the current evidence, theoretical insights, and practical strategies around effective and collaborative communication using a coach approach and also embed board-certified health and wellness coaches within the care team, clinicians can play a key role in cultivating autonomy-supporting care that empowers patients to foster intrinsic motivation, which, in turn, facilitates the adoption and maintenance of health-promoting behaviors.

to 6 months postintervention), as shown by systemic reviews.<sup>3-7</sup> In addition, meta-analyses have shown that HWC enhances prevention and mitigates exacerbation of chronic lifestyle diseases.<sup>8,9</sup>

Although HWC helps empower patients to take ownership of their health and well-being,<sup>6</sup> the longevity of the behavioral outcomes remains unclear. Most HWC studies track patients in the short-term, often until the end of the intervention. Regarding long-term change, there is much less evidence available. A 4-year follow-up of heart failure patients who were coached found no long-term changes for quality of life, but did find small, sustained benefits

for exercise, nutrition, and stress management.<sup>10</sup> Another trial tracked Finnish patients with established type 2 diabetes and/or heart disease for 8 years and found no benefit in terms of long-term costs.<sup>11</sup> Per the authors, this HWC intervention may have been too short to promote long-term change, the sample size may have been too small given large variation in costs across individuals, and potential behavior and health changes have not been assessed. Hence, HWC research strongly needs longer term follow-up and clarification as to the populations in which HWC works best.

There is no universally accepted definition of what sustainability means, and how it is quantified as it relates to lifestyle change. What is clear, however, is that effectively communicating and partnering with patients in the behavior change journey—as well as using a team-based approach to care that supports patient autonomy—can effectively empower patients in cultivating health-promoting lifestyles, as the knowledge of improved behaviors alone is not sufficient.<sup>12</sup> As such, this article aims to equip clinicians with a deeper understanding of the theoretical underpinnings, current evidence, and variety of practical approaches applicable to short-term, long-term, and primary care settings to foster positive and productive patient-clinician relationships that set the stage for meaningful and lasting lifestyle change.

The principles of HWC can help clinicians understand how to enhance patient behavioral change. Familiarity with HWC skills and strategies as well as the underlying theories of behavior change will enable clinicians to use evidence-based concepts to both work collaboratively with health and wellness coaches and to support patients engaged in behavioral change.

## HEALTH AND WELLNESS COACHING

The empirically derived definition of HWC stems from a PRISMA-guided systematic review of how HWC has been operationalized in the peer-reviewed medical literature.<sup>13</sup> In this work, HWC is described as a patient-centered approach wherein patients at least partially determine their goals, use self-discovery or active learning process together with content education to work toward their

goals, and self-monitor behaviors to increase accountability, all within the context of an interpersonal relationship with the coach.

The coach is a health care professional trained in behavior change theory, motivational strategies, and communication techniques, which are used to assist patients to enhance intrinsic motivation and obtain skills to create sustainable change for improved health and well-being.<sup>13</sup> Although there are still no title acts regulating use of the term “health and wellness coach,” the abovementioned definition has been supported by the National Board for Health and Wellness Coaching (NBHWC), the first national board certification in the United States specifically designed to establish minimum standards for both content knowledge and practical skills needed to provide HWC. Certification requires training in a program that meets instruction standards, assessment of practical skills, and sitting a written (multiple choice) examination.

HWC overlaps considerably with motivational interviewing (MI) but has unique elements as well, extending beyond MI to include additional evidence-based behavioral change processes.<sup>14</sup> In particular, HWC uses change processes that build on each other over time to help individuals create and sustain new patterns of behavior that lead toward a longer-term goal.

### A Compelling Case for Coaching

Growing evidence supports HWC as a valuable intervention for behavior change in the prevention and treatment of chronic disease,<sup>15,16</sup> even in brief encounters.<sup>15-17</sup> Compared with usual care or information sharing through didactic materials aimed to help patients achieve targeted outcomes, using coaching communication practices such as MI in brief clinical encounters can be more effective. This has been shown for targeted outcomes such as blood pressure reduction, weight loss, and smoking cessation.<sup>18</sup> Importantly, the effects of MI on patient outcomes can vary greatly, with higher provider qualifications, more training, and practice demonstrating more efficacy.<sup>18-21</sup>

Despite inconsistent definitions of HWC, heterogeneous applications of coaching, and a lack of appropriate controls,<sup>22</sup> there is clear and promising evidence of the effectiveness

of a coach approach in improving internal motivation and self-efficacy, supporting behavior change, and enhancing health outcomes and quality of life. Whether provided in person or via telehealth, health coaching has shown statistically significant improvements in physical and mental health status among adult patients with chronic diseases.<sup>3</sup> Improvements in health behaviors such as increased physical activity, dietary changes, self-care behaviors, medication adherence, tobacco and alcohol cessation, and foot care in diabetes management have been documented, as well as an increase in patients' confidence in discussing their care plan with their clinician.<sup>3-5</sup> With respect to patient populations and clinical outcomes, health coaching has been found to be particularly effective among patients with diabetes and obesity,<sup>4,8,23</sup> yielding clinically relevant improvements in hemoglobin A1c<sup>4,22,24</sup> and reductions in weight and body mass index (BMI, calculated as the weight in kilograms divided by the height in meters squared).<sup>3,5,22</sup> There is also promising emerging evidence of reductions in blood pressure and low-density lipoprotein cholesterol.<sup>5,22</sup> In patients with chronic obstructive pulmonary disease, there is evidence of not only improved quality of life but also decrease in chronic obstructive pulmonary disease—related hospital admissions.<sup>9</sup>

### Key Theories of Change

Like MI, HWC rests on core foundational theories that explain how people learn, grow, and change. Both approaches have roots in self-perception theory, developed by Daryl Bem over 50 years ago.<sup>25</sup> This theory posits that individuals interpret their own inner states, including their attitudes, motivation, and emotions, on the basis of what they observe about themselves—what they hear themselves say and see themselves do. Rather than assuming that motivation leads to behavior, this theory suggests that behavior leads to motivation. Hence, the coach or clinician must create a context in which patients in essence talk themselves into change by planning and making small behavioral steps that are then reviewed to learn about one's own path and build self-efficacy. Telling patients what to do does not align with the theoretical underpinnings of HWC. Instead, because

**TABLE 1. Comparing an Expert Approach with a Coach Approach**

Expert approach	Coach approach
Assumes ownership of patient's health	Empowers patient to take ownership of their health
Clinician as the expert	Patient as the expert in their own life
Patient told what to do	Patient is an active partner in creating action steps to accomplish the lifestyle prescription
Leads the process	Guides the process
Delivers the right answers	Asks the right questions
Motivates to comply	Uncovers motivation within
Adapted from Matthews et al. <sup>33</sup>	

individuals are more changed by what they hear themselves say and see themselves do, the coach or clinician relies heavily on use of reflection and open-ended questions to cultivate motivation.

Studies evaluating HWC have suggested that the process aligns with self-determination theory (SDT),<sup>26,27</sup> which describes a range of motivational states that powerfully shape how we act; this range runs from extrinsic motivation to intrinsic motivation.<sup>28</sup> Intrinsic motivation originates from within the patient, where the behavior is pursued with genuine interest, enjoyment, and inherent satisfaction. This type of motivation requires little to no self-regulation, and the behavior itself is often in concert with the patient's personal values. Extrinsic motivation, on the other hand, is anchored in external sources such as rewards or extrinsic outcomes that govern the behavior. SDT highlights how the type of motivation a patient has could reveal more about future actions toward health behavior change as opposed to overall motivation.<sup>29</sup> At the core of SDT lies the recognition that in order for high-quality intrinsic motivation to occur, 3 basic psychological needs must be met—autonomy, competence, and relatedness.<sup>29,30</sup> These psychological needs, when satisfied, help facilitate lifestyle change and improve health outcomes.

As highlighted in SDT, HWC rests heavily on the importance of supporting autonomy while empowering the patient. Qualitative studies that focus on how health coaching works suggest that patient empowerment occurs when coaches do not direct patients' actions with planned education but instead use concordant communication to enhance active

learning by facilitating exploration and self-efficacy using strategies such as reflection, affirmation, focus on success and learning, and an iterative and nonjudgmental framing of successive action steps as experiments.<sup>31</sup>

### Key Communication Tenets

A patient-centered, concordant communication style best empowers patients to enact health behavior change.<sup>32</sup> Just as used in a “coach approach,” this collaborative, autonomy-promoting communication style supports patients in adopting self-directed behavior changes.<sup>15,17,33,34</sup> This collaborative communication style is distinct from the “expert approach” (Table 1).<sup>33</sup>

As part of a concordant, patient-centered communication style, clinicians can enhance patient self-discovery using open-ended questions and a truly curious mindset. For example, a patient with obesity may express a need to lose weight. Rather than immediately prescribing dietary changes or some other intervention, the clinician can explore what makes losing weight important to the person. As seen in Table 2,<sup>35</sup> curious questions will prompt the patient to express their personal values, desires, and needs (eg, to travel more with my spouse, to be alive to see and play with my grandchildren, to meet the challenges and demands of my work, and to be able to hike in the mountains). Interventions that use such noncontrolling language positively impact patient autonomy.<sup>36</sup>

Open exploration of the patients' personal reasons for change provide a compelling rationale for change, aided by genuine curiosity on the part of the clinician. This exploration helps to ensure that the deeply rooted desires and

TABLE 2. Examples of Inquiry

Inquiries on vision and motivation	Inquiries on action steps
What is important to you about improving your health?	If you were smoking/drinking less, what would you be doing more of?
As your health improves, what would you like to be doing that you are not currently doing?	On a 0-10 scale, how important is strength training/eating more vegetables to you/etc?
Which area of your health is most important for you to focus on right now?	On a 0-10 scale, how confident do you feel to walk 2 miles a day?
What is making that important? What matters about that?	Share with me what you most enjoyed this past week as you worked on this goal?
Who would you most like to tell, that you have achieved this milestone?	What are you learning as you work toward this change?
What have not I asked you about that is important for me to know?	On a 0-10 scale, where are you currently in relation to achieving your goal?
What will be a small sign to you that you are having some success here?	What would an increase of just 1 more point look like?

For a deeper exploration of inquiry and its role in behavior change, see the study by Matthews.<sup>35</sup>

needs of the patient become foundational for longer-term goals. This strong communication focus and clinician interest in the patient's motivations encourage patient "buy-in"<sup>37</sup> and creates a safe space of unconditional positive regard that supports psychological safety for patients to be open and honest about what matters to them.<sup>38</sup> In addition, when clinicians take time to connect with patients and learn more about them on a personal level, patients are more likely to rate their medical care as excellent.<sup>39</sup> Intentionally fostering key components (ie, trust, empathy, and respect) of a successful therapeutic relationship has also been shown to have a small, yet significant effect on health care outcomes.<sup>40</sup> As seen in the behavioral health literature, 2 other components to a growth-fostering relationship that support long-term change include the provision of autonomy and the cultivation of permissive flexibility.

### The Power of Autonomy

The powerful role of autonomy in behavior change is well documented and embodies the essence of a patient-centered approach. Autonomy is embodied in the Wagner model of long-term care<sup>41</sup> and is broadly recognized as a key driver of both motivation and well-being,<sup>42</sup> as understanding the patient's own personal motivations and their own lifestyle

preferences is vital.<sup>43</sup> The extent to which physicians can harness patient autonomy may well determine the sustainability of behavioral changes.

Compared with those with lower autonomous motivation, individuals with higher autonomous motivation consistently exercised for more minutes each week.<sup>30</sup> Similarly, Ryan and Deci<sup>44</sup> found that more autonomous forms of motivation led to increased engagement and learning among students. Multiple factors influence autonomous motivation. For example, autonomous motivation increases as a person progresses through the stages of change<sup>30</sup> as outlined in the Trans-theoretical Model of Behavior Change. Other factors that influence the type and level of motivation a patient may experience include exposure to external pressures, enjoyment of an activity (or lack thereof), identifying with a given behavior, perceived barriers, and health limitations.<sup>45</sup>

In addition to increasing patient autonomy, SDT-based interventions can positively influence the other 2 constructs of SDT, including competence and relatedness.<sup>35,45,46</sup> Ultimately, the use of SDT-based intervention strategies in a clinical setting is linked to the prevention and management of chronic disease and the promotion of long-lasting behavior change.<sup>46,47</sup> To date, most studies

that implemented SDT-based interventions targeted physical activity, diet, sedentary behavior, and smoking cessation.<sup>47</sup> Compared with interventions performed elsewhere, those delivered in a community setting can more effectively reduce amotivation and improve relatedness.<sup>45</sup> Identifying barriers can increase autonomous motivation, and interventions that convey a person is valued can increase autonomy satisfaction, reduce amotivation, and improve relatedness satisfaction.<sup>45</sup> In short, when significant people (eg, health care practitioners, family, and friends) support an individual's basic psychological needs of autonomy, competence, and relatedness, the patient's perceptions of need satisfaction is increased. More importantly, these improvements lead to positive changes in health behavior throughout the course of the intervention period.<sup>45</sup>

Although the degree of behavior change is small, SDT-based interventions consistently lead to significant changes in health behaviors.<sup>47</sup> When examining physical and psychological health outcomes, a recent meta-analysis of SDT interventions found that changes in the effect sizes of SDT theory constructs and interventions had a nonsignificant effect at the end of the intervention period but a small benefit at follow-up,<sup>45</sup> suggesting a gradual process in which patients truly learn to engage with themselves and the world in a different way.

### The Power of Permissive Flexibility

Permissive flexibility—also known as psychological or cognitive flexibility—has growing support as a possible determinant of health behavior maintenance. This type of flexibility is generally described as an ability to adapt to changing situational demands and competing desires, shifting perspective, mental resources, and strategies, regulating emotions, and reconnecting with personal values in order to sustain behavior over time. Permissive flexibility has experienced mixed success with behavior change over the past several decades, with most notable application in clinical settings and from theories of self-regulation that focus on the process of monitoring and changing behavior to stay in line with a health-related goal.<sup>47-51</sup>

Qualitative research suggests that those successful with physical activity and weight

loss maintenance report higher levels of permissive flexibility.<sup>52,53</sup> Segar et al<sup>54</sup> incorporated permissive flexibility as a core intervention component, by teaching greater flexibility toward fitting exercise into patients' lives. They found a 65% increase in physical activity participation from baseline to program end that was sustained 10 months postprogram by 75% of participants. Although more research is needed, permissive flexibility might be a key component of successful self-regulation, as patients will continually be faced with navigating choice points when health behaviors are met with other competing priorities.

### Collaboration to Support Continued Health Behavior Change

Given the continuing growing body of evidence as well as the establishment and maintenance of education and training standards through NBHWC national board certification, clinicians can feel more confident collaborating with and referring patients to well-qualified health and wellness coaches. Specifically, NBHWC maintains a directory of national board-certified health and wellness coaches (NBC-HWCs), enabling physicians to easily identify, collaborate with and refer to qualified coaches who can provide additional support to patients in the behavior change journey. These advances have helped to not only better position NBC-HWCs as collaborative, trusted members of the patient-centered care team but also ensure more consistent and quality care.

### EVIDENCE OF SUSTAINABILITY

Although necessary for lifestyle-focused prevention, treatment, and even reversal of chronic disease, maintenance of health behavior remains enigmatic for behavior change theorists, researchers, and clinicians. Behavioral maintenance is defined across varying time periods, but in general is the repetition of behavior over a period of time, even if lapses occur.<sup>55</sup> At this time, the most common practice in behavioral interventions is to utilize well-established behavior change strategies as maintenance strategies, despite a general lack of evidence that the 2 respond to the same strategies. In fact, an extensive evaluation of commonly promoted behavior

changes strategies—many of which are often practiced by health and wellness coaches and clinicians—has found generally inconsistent, poor-quality evidence for self-monitoring, goal setting, personalized feedback, barrier identification/problem solving, relapse prevention/coping planning, action planning, self-talk, self-affirmation, implementation intentions, and time management.<sup>56</sup> In fact, no intervention components reviewed were consistently successful. Such findings encourage more rigorous research that clinicians can depend on for their evidence-based practice. These findings also raise caution against widespread acceptance that determinants of behavior change also reflect determinants of maintenance.

The current status of the evidence can be likened to exercise physiology after World War II, with its early lack of clarity related to specificity of exercise training to produce specific adaptations.<sup>57</sup> Today, we take for granted that we can prescribe an exercise program for patients who want specific outcomes, such as muscular strength versus endurance. For example, the prescription for improving muscular strength may differ from one that would optimally target cardiorespiratory endurance. In fact, an exercise prescription for strength may undermine endurance benefit (ie, reduce mitochondrial density).

Similarly, many psychological variables, skills and processes have been elucidated for the initial and early phase of behavior change but not for maintenance of that behavior. Rather, lifestyle modification maintenance might very well demand its own, specific prescription beyond the early stages of behavior change. Such a prescription would target adherence to psychological and behavioral factors known to contribute to behavior change maintenance—or to put it another way, “medication adherence, when lifestyle is the medicine.”<sup>58</sup>

### Weight Loss Maintenance

Perhaps the most robust evidence gathered to date on maintenance has been with weight loss maintenance. This typically includes attempts to improve or maintain improved dietary intake, enhancing physical activity, and potential psychosocial mediators and moderators. Several registries of those who have

maintained 5%-10% weight loss for  $\geq 1$  year allow for a scoping assessment of the contribution of various factors. Paixão et al<sup>59</sup> examined all such registries and documented the following approaches used by the registrants who were successful at maintaining weight loss: 49% used goal setting for weight loss and associated behaviors; 49% reported support from friends; 36% recorded dietary intake or physical activity; 31% received advice from a health care professional; 29% counted calories; and 25% spent more time with friends who exercise. In addition, 20% attended a self-help weight control group, 17% followed a special diet, and only 7% used meal substitutes (eg, shakes and bars).

In stark contrast, much higher frequencies were reported in maintainers for keeping healthy foods available at home (90%), increasing vegetable consumption (88%), reducing access to high-fat foods at home (83%), holding regular meal frequency (81%), self-weighing (73%), and physical activity/exercise (68%). Many weight loss maintenance studies also include behavioral training with various versions of self-monitoring (eg, regular meal patterns, portion control, and daily weighing).<sup>60</sup> Despite inconsistent findings across the weight maintenance studies phase,<sup>61</sup> lifestyle prescriptions might steer patients to these latter behaviors, given their prevalence in successful maintainers.

Certain behaviors clearly correlate with weight loss maintenance and associated health outcomes (eg, increased exercise and continued healthy eating). Nonetheless, it is still unclear which psychosocial determinants predict successful continuation of those behaviors. A systematic review of determinants of weight loss maintenance found consistent evidence that demographic-related factors (eg, age, sex, ethnicity/race, and socioeconomic status) were not predictive of weight loss maintenance.<sup>62</sup> Further examination of 51 psychological or cognitive determinants found that only self-efficacy for exercise and/or weight management (particularly management of barriers) was strongly supported as a predictor. Other commonly proposed determinants held nonsignificant to only moderate support, including psychological stress, high physical self-worth, disinhibition/low impulse control, and change in personal reinforcement

derived from participating in healthy behaviors.

Although this review found positive yet insufficient evidence for self-determined motivation during the weight maintenance phase, other research supports the specific contribution of autonomy. Autonomously motivated people, “participate in health behaviors because the behaviors are experienced as volitional, chosen, and internalized.”<sup>63</sup> However, autonomy must be supported by health coaches and clinicians, or it can undermine the behavior change process. Autonomy support describes a person’s perceived support for their own psychological need for autonomy and can be expressed with various behaviors of the health coach, physician, or other clinicians.<sup>64-67</sup> For example:

1. Providing choices and options for health behavior change that honor autonomy
2. Understanding how the patient sees things related to health behavior, especially before offering relevant education or providing a lifestyle prescription
3. Expressing confidence in the patient’s ability to make decisions related to health behavior
4. Encouraging the patient to ask questions and share feelings about the health behavior, as well as also curiously asking the patient questions and offering meaningful reflections that highlight their values and demonstrate genuine trust and care

For weight loss maintenance, autonomy support from treatment staff is a significant predictor of weight loss up to 3 years after program participation. Such support allows participants to build internal perceptions of autonomy for healthy lifestyle behaviors (eg, healthy eating and physical activity), which in turn, positively impact adherence to those behaviors.<sup>68,69</sup> Support for autonomy can also come from family and significant others, positively predicting weight loss outcomes at 12 months after a 6-month weight loss program—assuming that such “encouragement” is not perceived as controlling (other-determined) or blocking one’s internalization of behavior as self-determined.<sup>70</sup>

In summary, these findings are consistent with theoretical presuppositions from SDT, highlighting the importance of environments

that support personal autonomy in goal pursuits, effortful program/prescription participation, and successful self-regulation of healthy lifestyle behavior maintenance.<sup>71</sup> Moreover, we can confidently conclude that autonomy support that honors an individual’s values would benefit other long-term behavioral outcomes (eg, those related to chronic conditions).<sup>69,72</sup>

### Physical Activity

Determinants of physical activity maintenance follow a similar trend to that of weight loss maintenance. Despite the health benefits of physical activity, 80% of Americans do not meet the guidelines for aerobic exercise or strength training.<sup>73</sup> Furthermore, of those that are motivated enough to enroll in a structured exercise program through a lifestyle intervention trial, 20%-30% are unable to maintain their programs after study completion.<sup>74</sup> It does appear that dropout from structured exercise interventions occurs early, typically before the individual has reached their prescribed exercise intensity.<sup>74</sup> One systematic review of workplace-based physical activity assessed 14 health coaching studies that covered 17 interventions. All 17 reported improvement in at least 1 physical activity outcome.<sup>75</sup> However, the studies had a moderate to high risk of bias and encompassed a wide variety of behavior change techniques, making it impossible to say which techniques used in the coaching brought about the specific changes.

It is difficult to plan specific intervention components for physical activity maintenance as very little is understood about the target themselves. Across 38 studies, putative mediators of physical activity at 6 months or more postbaseline included perceived benefits, intention to change, stage of change/motivational readiness, self-efficacy, perceived behavioral control, goal setting, social support, enjoyment, and action planning, all of which revealed significant but weak effects.<sup>76</sup> Although only observed in few studies, the strongest support for physical activity maintenance was found when patients know their physical activity level and its benefits (3 studies), have self-regulatory skills (3 studies), integrate physical activity into their self-concept (1 study), and demonstrate self-determined



motivation and/or key behavioral beliefs (1 study). These findings support a previous systematic review and meta-analysis that found few psychosocial variables had even a moderate effect (via “standard mean difference”) when comparing those who maintained physical activity and those who relapsed.<sup>77</sup> Murray et al<sup>76</sup> concluded from their large review of determinants, “there are limited definitive conclusions that we can draw from the current evidence base (p523).”

### Healthy Eating

Samdal et al<sup>78</sup> reviewed behavior change techniques for healthy eating in adults classified as having overweight and obesity—finding that only 1 intervention, according to forest plot analysis, had a remarkable long-term effect on diet ( $\geq 12$  months). In this randomized controlled intervention,<sup>79</sup> participants received monthly counseling calls inspired by MI, with focus on lifestyle changes drawing on recent experience, identifying specific behavioral goals, making short-term implementation intentions, self-monitoring of weight, and feedback on areas of success and difficulty/relapse (for details, see Caswell et al<sup>80</sup>). However, keeping clinical significance in mind, this well-designed intervention translated to an average change in BMI of approximately  $1 \text{ kg/m}^2$ , from  $31.0 \text{ kg/m}^2$  at baseline to  $29.9 \text{ kg/m}^2$  at 12 months. Similar effects have been found across 60 randomized control trials of weight management interventions provided by a dietitian, with a BMI mean difference of  $-1.5 \text{ kg/m}^2$ .<sup>81</sup> Outside of the weight loss and weight loss maintenance research, there exists a notable dearth of research in the psychological predictors of healthful dietary maintenance.

### NEW FRONTIERS

Health behavior research and coaching practice look on a new frontier of opportunity. With the current shortcomings of evidence for long-term behavioral maintenance, it is unclear if the gap lies in the current behavior change theories, translation of those theories to interventions, or both. It is even unclear if the assumption is accurate that using theory produces greater health behavior change and interventions often achieve only achieve small-to-moderate effects.<sup>82</sup> In addition,

nearly 90% of health interventions do not appear to be based in theory, and many “theory-based” interventions do not fully apply the underlying theory.

Answering such questions will likely challenge current paradigms and assumptions in clinical practice. For example, MI has become commonplace in both HWC and in clinicians utilizing a “coach approach.” However, only small beneficial effects of MI have been found<sup>83</sup>—which appears to vary greatly on the basis of the skill of the practitioner,<sup>18-21</sup> making proper in-depth education and skill-oriented training critical.

One key concern is the lack of studies that test and report long-term maintenance of behavior change.<sup>84</sup> In addition, although many interventions include cognitive and/or behavioral strategies, few elucidate which individual strategies or combinations therein contribute most to adherence or successful sustainability of health behavior changes (eg, behavioral “toolbox” approaches). The result is an ongoing request from the research community for more of this work.<sup>85-87</sup>

No universal definition of behavioral maintenance or “sustainable” is valid in all contexts. The word may evoke environmental considerations, the avoidance of resource depletion or the notion of a system or process which can be continued. In the context of health behavior change, all 3 of these dimensions may be relevant. Although current research suggests that there is insufficient high-quality evidence to determine the general cost-effectiveness of health coaching interventions,<sup>88</sup> some studies suggest that health coaching may have the greatest impact in cost reduction and hospitalization in patients younger than 65 years.<sup>89,90</sup>

### An Expanded View on Sustainability

Considering sustainable change in a broader context, health behavior changes maintained across some period, even if lapses occur, reflect sustainability. Behavioral interventions need not be considered solely “once-for-all-of-time.” Rather, if a coaching intervention supports a patient to better manage or control their chronic disease for a period that is a worthwhile outcome. Similarly, if processes of care are improved, that too supports sustainability from a system perspective. If quality

of life improves, or patient satisfaction is increased, or provider satisfaction is enhanced, these too may individually and collectively serve as measures of sustainability, in that the process is more likely to be maintained by all parties if it is achieving the desired outcomes at acceptable costs (financial, personal, social, and psychological). In fact, with more than 40% of physicians in the United States reporting feelings of burnout<sup>91</sup>—an adverse effect correlated with decreased quality of care, patient satisfaction, productivity, and mental health<sup>92</sup>—any health intervention that contributes toward provider well-being could be considered “sustainable.”

With this broader perspective comes the recognition that multifaceted team-based interventions in primary care are more impactful in motivating optimal lifestyle behaviors in comparison with isolated specialty care.<sup>93</sup> A team-based approach allows clinicians to collaborate in providing specific lifestyle guidance and to further support development and maintenance of health behaviors through other care team members, including registered dietitians, nutritionists, psychologists, exercise physiologists, and health and wellness.<sup>93,94</sup> A team approach to lifestyle medicine improves biomarkers as well as nutrition and physical activity habits.<sup>94</sup>

## CONCLUSION

Many clinicians have long held notions about unmotivated or noncompliant patients who do not see, do not know, do not know how, and/or do not care.<sup>17</sup> Lifestyle medicine provides a shift in perspective, helping clinicians recognize that health behavior change is the foundation on which the pillars of an effective lifestyle prescription are built. Moreover, the process of change is highly individualized, with complexities, unforeseen challenges, and difficulties. However, this journey is also replete with opportunities to educate, elicit values, and empower patients to attain specific action steps to initiate and ultimately sustain positive health behavior changes. Although there is still research to be done regarding the maintenance of lifestyle changes, arming clinicians with the current evidence, theoretical insights, and practical strategies around effective and collaborative communication using a “coach approach” and embedding board-

certified coaches within the care team, clinicians can play a key role in cultivating autonomy-supporting care that empowers patients to foster intrinsic motivation which, in turn, facilitates the adoption and maintenance of health-promoting behaviors.

## POTENTIAL COMPETING INTERESTS

Dr Jessica Matthews serves as a volunteer board member and vice chair of the National Board for Health and Wellness Coaching and volunteer board member of the American College of Lifestyle Medicine. Mr Matthews serves as lead coach of Wellcoaches Australia. Dr Faries declares no conflicts of interest. Dr Wolever serves as a volunteer board member and chair of the certification commission of the National Board for Health and Wellness Coaching and as a volunteer science advisor for the Institute of Coaching; she also has grants or contract funding from the Coalition for Better Health, Meharry Medical College, and the National Institute of Diabetes and Digestive and Kidney Disease (NIDDK) and has received consultancy fees from Sharecare, Wondr, and Fullfill in the past 3 years for coach-related training and advisory roles.

**Abbreviations and Acronyms:** HWC, health and wellness coaching; MI, motivational interviewing; NBHWC, National Board for Health and Wellness Coaching; NBC-HWC, national board-certified health and wellness coach; SDT, self-determination theory

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