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A Prescription of Positive Psychology: Bridging the Intention-Behavior Gap in Social Prescribing in the UK

Jill Rzym
University of Pennsylvania, jill.hancock@btinternet.com

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Keywords

social prescribing, intention-behavior gap, motivation, self-determination theory, positive emotions, mindfulness, mental contrasting, implementation intentions, self-control

Disciplines

Behavioral Disciplines and Activities | Behavior and Behavior Mechanisms | Community Health | Community Health and Preventive Medicine | Community Psychology | Health Psychology | Other Mental and Social Health | Other Psychiatry and Psychology | Other Psychology | Other Public Health

A Prescription of Positive Psychology:
Bridging the Intention-Behavior Gap in Social Prescribing in the UK

Jill Rzym Hancock

Master of Applied Positive Psychology Program, University of Pennsylvania

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Advisor: Kym Baum

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Although people have intentions to change their behavior, many do not take any action, and this discrepancy is called the intention-behavior gap. Studies estimate the gap is as high as 50%, a figure of some significance in health behavior change. This paper explores the intention-behavior gap in the context of social prescribing in the UK. It looks at the current problems of measurement and evaluation within social prescribing and the potential impact of the intention-behavior gap. The paper also considers the current research addressing the gap and proposes an alternative solution based on a positive psychology framework and positive psychology interventions. Research for these proposals is drawn from the field of motivation science, and the positive psychology models and concepts of self-determination theory, mindfulness, and positive emotions.

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Acknowledgements

I am somewhat bereft as I write this final section of my Masters of Applied Positive Psychology capstone project, knowing that I will miss the academic challenge the course has given me and the sense of belonging of being a Mappster. MAPP has exceeded all my expectations and more and has left me many avenues to explore. My sincerest thanks go to the wonderful members on the faculty team of the program, my fellow students, and the friendships that have sprung up during the year. I finish this course and this capstone in the knowledge connections made will be kept and nurtured.

In writing this capstone words cannot express how grateful I am for the support, academic input, honesty, flexibility, and understanding of my advisor Kym Baum. Without her I would have floundered, and I have truly never felt that someone has “had my back” before like Kym has during these last few months. Thank you.

Preamble: A Sad Truth

It is April 2020 and most of the world is in lockdown due to the COVID-19 pandemic (Onyeaka et al., 2021). I am walking with a friend and, as we discuss our new routines, I share the need to increase my exercise levels. She recommends a 10-minute, online, daily yoga workout. It sounds like just what I need, and she duly sends me the link. Some months later we meet again, and my friend asks me if I am enjoying the workout. She does not attempt to hide her incredulity when I confess that I have not even opened the link. Without the thirty-minute commute to work, my working day is shortened yet lack of time is the excuse I proffer.

It is October 2021, some eighteen months later and moving from *Downward-facing Dog* to *Pigeon Pose* seems a little more fluid than 16 days ago when I started the 10-minute yoga workout my friend recommended. My intention is to do this every morning. I ask myself, why didn't I start this routine months ago? What contributed to this change in mind?

It's a sad truth, but I am not unique in my failings to motivate myself. For many, spurts in motivation start on January 1st with clear goals and a promise to be self-disciplined, yet most have fallen by the wayside by mid-February (Luciani, 2015). But this paper is not about those of us who actually make it to the starting line. This is about those of us who don't even find our way there and are still on that old proverbial "road to hell paved with good intentions". A road typically referred to as the intention-behavior gap, it is the black box that sits between intention and action (Sniehotta et al., 2005). Understanding this black box and helping people move from intention to behavior is of vital importance for health-related change. This paper considers the lost opportunity of failing to realize our intentions in the healthcare setting of social prescribing in the United Kingdom (UK) and explores the value of a prescription of positive psychology interventions to help bridge the intention-behavior gap.

Purpose and Goals

Failings like mine have kept philosophers and psychologists busy for centuries. Interest in trying to understand the mental processes of what motivates us dates to Plato's *Republic* and his tripartite theory of motivation (Cooper, 1984; Singpurwalla, 2010). A theory in which the human mind is driven by cognition, motivation and emotion, and a legacy that still remains today (Hilgard, 1980; Isen, 2004). This legacy has kept these three functions separate with research of behavior change mostly concentrating on the relationship between cognition and motivation and less so on the role of emotion (Aspinwall, 1998; Isen, 2004; Isen & Reeve, 2005). Over the last twenty years there has been a shift, a recognition of the importance of emotion as a topic of scientific interest (Fredrickson, 2001; Seligman & Csikszentmihalyi, 2000; Van Cappellen et al., 2017) resulting in a small, growing body of work looking at how positive emotions effect motivation and subsequent behavior change (Shiota et al., 2021).

More recently, there has been a shift too in the study of motivation and a call for a more unified, cross-disciplinary approach (Braver et al., 2014; Kruglanski et al., 2015; Murayama, 2018). The new science of motivation draws from cognitive systems and neuroscience, social and affective psychology, and developmental and lifespan research, with the goal of providing an integrated view on human motivation (Braver et al., 2014; Murayama, 2018).

In the context of social prescribing in the United Kingdom (UK), this paper identifies the intention-behavior gap and explores how it can be bridged. In keeping with the tripartite legacy, the work in positive emotion and motivation science will be explored within a positive psychology framework. More specifically, this paper considers whether positive emotions can improve our motivation to carry out an action and help bridge the intention-behavior gap and,

within the field of motivation science, explores additional positive psychology interventions that can help bridge the gap too.

This line of study is a “road less travelled” by researchers and scientists but one worthy of investigating particularly in the public health setting of social prescribing, where there is potential for great impact. Human behaviors such as poor diet, physical activity and psychosocial issues have a huge economic and social impact on economies worldwide, and in public health small changes in human behaviors can have substantial effects on the health outcomes of populations (Davis et al., 2014).

On this windy road exploring areas that may help bridge the intention-behavior gap, the following goals serve as signposts:

Goal One. Provide an overview of social prescribing in the UK, it’s strengths and weaknesses, and its role in the healthcare system;

Goal Two. Discuss the contribution positive psychology has made in the development of UK health policy and its links to social prescribing;

Goal Three. Review the role of behavior change theory, the concept of the intention-behavior gap and its impact on social prescribing;

Goal Four. Using the framework of self-determination theory, review current research on mindfulness, positive emotions, and motivation science in the context of bridging the gap between intention-behavior;

Goal Five. Gather a series of positive psychology interventions that conceptually contribute to bridging the gap between intention and behavior.

An Overview of Social Prescribing in the UK

Way back in 1989 the UK Chancellor of the Exchequer increased interest rates to curb inflation. In a new town in my first home, I struggled to pay my mortgage as it got higher and higher. The new job wasn't working out, I wasn't sleeping too well, and was lonely having recently moved from London. I visited my GP to see if they could help. They told me they didn't have a pill for happiness but offered me some anti-depressants.

The Trouble with the Current System

Some forty years on General Practice (GP) in most countries is still based on short consultations to provide treatment for common health problems (Salisbury et al., 2013). GP appointments in the UK last on average 11.9 minutes with an average of 2.5 problems discussed at each appointment (Salisbury et al., 2013). Yet approximately 20% of these appointments are for psychosocial problems such as housing, relationships, and loneliness and supporting these non-medical problems presents an ongoing challenge to the GP and healthcare system (Islam, 2020; Pescheny et al., 2018).

This is not the only challenge faced in primary care. An ageing population, increasing numbers of patients with multiple long-term conditions (Sutton, 2009) and a limited workforce (Rimmer, 2015) are all key issues faced by the National Health Service (NHS). Social prescribing holds the hopeful promise of a remedy for primary healthcare in the UK. It is supported by interest, investment, and innovation (Husk et al., 2018). It also has the potential for improving individual and community wellbeing. It would be a shame not to get this right.

A Potential Pill for Happiness

Social prescribing, sometimes referred to as community referral, is a means of enabling primary care workers such as GPs, nurses, and other healthcare professionals to refer people to a

range of local, non-clinical services. It is a key part of the NHS's long-term plan (NHS, 2019) which aims to address some of the challenges faced in primary healthcare (Islam, 2020).

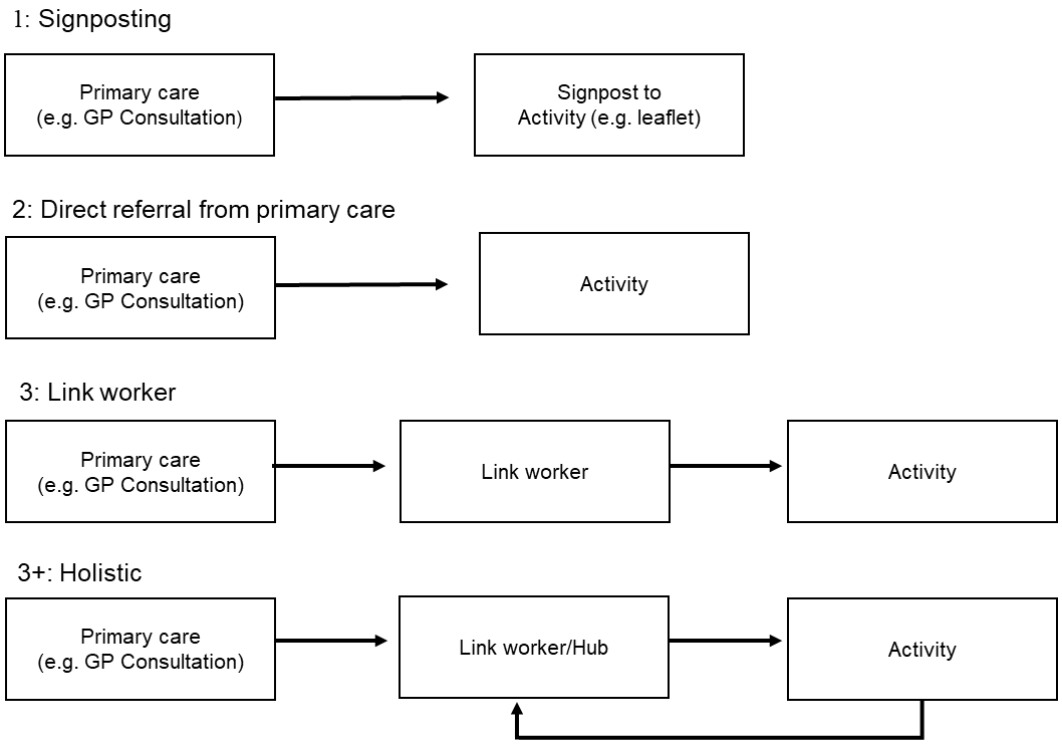
If I had lived in East London back in 1989, I may have had a different response to my woes when visiting the GP. The concept of social prescribing dates to 1984 when the Bromley-by-Bow Centre in East London was established by a group of GPs to offer a more holistic approach to patient healthcare and wellbeing. Rather than prescribing pills, the Centre began to prescribe other activities such as mindfulness and art classes. During the 1990s the concept of social prescribing slowly evolved then gained momentum with the shift from the biomedical model of healthcare, which focuses on only the biological factors of health, to the biopsychosocial model (Carnes et al., 2017). The biopsychosocial model fits well with social prescribing, offers a holistic view of healthcare, and advocates that the biological, psychological, and social dimensions of illness need to be considered when assessing patients (Borrell-Carrio, 2004; Engel, 1977).

There are different models of social prescribing, ranging from simple signposting by a GP to an activity (perhaps via a leaflet or to a website) to a holistic approach in which the GP is part of a healthcare hub which includes link workers and on-site activities (Husk et al., 2019). Ideally there should be three key components in the process: a referral from a healthcare professional; a consultation with a link worker; and an agreed referral to a local voluntary, community, or social enterprise organization (Polley et al., 2017). Link workers (sometimes referred to as navigators, social prescribers, or community connectors) work with individuals to access non-medical sources of support provided by the community and voluntary sector (Buck & Ewbank, 2020; Chatterjee et al., 2017) and are seen as important determinants of success (Holding et al., 2020; Husk et al., 2019; Wildman et al., 2019). Community structures (e.g.,

community groups and other third sector organizations) also need to be in place for referral and have access to funding (Chatterjee et al., 2017). Husk et al. (2019) defines these components as patient pathways from primary care to support in whatever prescription is undertaken, pathways which will vary locally and regionally. Figure 1 offers a simplified version of these pathways.

Figure 1:

Patient Pathways in Social Prescribing



Note. Based on the work of Husk et al., (2019) "What approaches to social prescribing work, for whom, and in what circumstances? a realist review". *Health & Social Care in the Community, 28*(2), 309–324. https://doi.org/10.1111/hsc.12839.

The Proliferation of Social Prescribing

In the last few years there has been a significant growth in the number of interventions available through social prescriptions, such as art activities, singing, walking groups and physical activities (Carnes et al., 2017; Chatterjee et al., 2017). Originally operating in deprived areas, social prescribing principles have a much wider application now including older populations, people with chronic conditions, and people suffering from social isolation. In all there is a strong emphasis on improving individual wellbeing (Carnes et al., 2017; Husk et al., 2018). As traction in social prescribing increases (Clarke & Hameed, 2018) it forms a key component in Government plans which estimate a minimum of 900,000 referrals to social prescribing by 2023/24 (NHS, 2019).

The narrative behind social prescribing is compelling with pockets of qualitative data showing how well liked the services are by patients and GPs (Polley et al., 2017). It offers the potential to improve individual wellbeing and empower communities (Brandling & House, 2009) thus supporting the Government's vision of individual wellbeing as a priority for local government (UK Government, 2014).

However, social prescribing has been accepted at face value. With no comparative measures to evaluate its success it is without a strong evidence base (Bickerdike et al., 2017; Husk et al., 2018). This almost blind faith in social prescribing and its potential to improve individual wellbeing, leads one to wonder: Why did the UK Government become so committed to social prescribing as a pathway to wellbeing and how was it justified?

The UK's Road to Wellbeing

The measurement of wellbeing is fundamental if it is to find a place in Government policy (Diener et al., 2004; Seligman, 2019). It was the emergence of positive psychology as an academic field combining scientific and applied approaches to the study of wellbeing that enabled this in the UK (Diener et al., 2004; Oades & Mossman, 2017; Seligman, 2019). Positive psychology provided measurable indicators of wellbeing and by 2010 national wellbeing began to be measured in the UK. Then, the Care Act of 2014 enshrined individual wellbeing as a national priority (Frijters et al., 2020; UK Government, 2014). Subsequently, wellbeing featured on the UK political agenda and in Government policy with social prescribing seen as an important route in delivering this policy (NHS, 2019). But how did we get on this route in the first place?

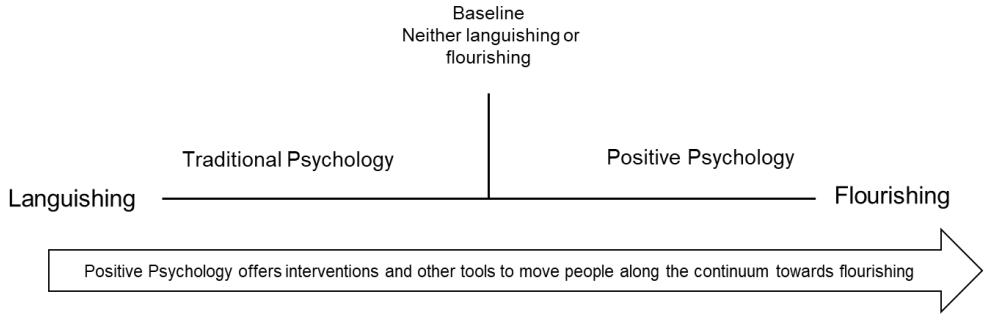
Positive Psychology and its Influence on UK Policy

When Martin Seligman gave his presidential address to the American Psychological Association in 1998, he provided researchers and practitioners an umbrella under which work on human strengths and positive attributes could come together in a new field of scientific study. Although great strides had been made in the field of traditional psychology in understanding, treating, and preventing psychological disorders, Seligman contended that by concentrating on the negative we had not considered what was good in life and what can go right for people (Peterson, 2006). Seligman's mission was to introduce a new perspective on psychology, a science of positive human functioning and effective interventions enabling individuals, families, and communities to flourish (Seligman & Csikszentmihalyi, 2000). The mental health continuum from languishing to flourishing (Keyes, 2002) offers a useful schema to help visualize the concept of flourishing and the relationship between traditional psychology and positive

psychology (see Figure 2). The term languishing was coined by Keyes (2002) who was struck by the many people who were not depressed but neither were they thriving. Languishing is the absence of wellbeing (and mental ill health) and Keyes (2002) posited there was a *pandora's box* of economic and social burdens associated with people who were languishing, such as higher risks of slipping into poor mental health (Keyes, 2002). Positive psychology can help people move along this continuum by increasing their wellbeing and so reduce these risks.

Figure 2

The Languishing to Flourishing Continuum



Note. Based on the work of Keyes (2002) and Seligman (2011). "The Mental Health Continuum: From languishing to flourishing in life" by C.L.M. Keyes, 2002, *Journal of Health and Social Behavior,* 43(2), pp207-222 (DOI.10.2307/3090197). Copyright 2002 by American Sociological Association. "Flourish: A visionary new understanding of happiness and well-being". By M.E.P. Seligman, 2011 (ASIN:1439190763). Copyright 2011 by Martin Seligman, PhD.

The idea of concentrating on what is good in life is not new. Wellbeing as a goal for governments and the individual dates to the ancient Greeks and their concept of the *good life* (Frijters et al., 2020). In 1948 wellbeing was recognized in the World Health Organization's definition of health "a state of complete physical, mental and social well-being and not merely

the absence of disease or infirmity" (WHO, 1948). However, if Governments were to recognize the importance of wellbeing as an indicator of societal progress, a scientific grounding and evidence base underpinning the concept was needed (Huppert & So, 2011). Seligman was all too aware of this (Seligman, 2019) and in a landmark paper "Beyond Money: Toward an Economy of Well-Being" (Diener et al., 2004) positive psychologists argued for a new set of national wellbeing indicators. Subjective measures including feelings of satisfaction with life, self-worth, and positive and negative emotions that could supplement traditional economic measures and help shape government policy.

Wellbeing indicators appealed to the UK Prime Minister at the time, David Cameron (McVeigh, 2011) and, importantly, to the Government's senior economists and advisors, namely Richard Layard and Amartya Sen (Seligman, 2019). In 2008 the Government commissioned a foresight project on mental capital and wellbeing with the aim of creating a vision "so that everyone can realize their potential and flourish in the future" (Government Office for Science, 2008, p 9). Positive psychology had arrived in the UK, not to replace traditional psychology, but to create a new dimension of mental health for improved psychosocial wellbeing (Seligman & Csikszentmihalyi, 2000).

Realizing our Potential and Flourishing in the Future

The purpose of positive psychology is to help individuals, organizations, and communities to move along Keyes's (2002) continuum, away from languishing towards flourishing. It provides a unified field for the many lines of research and constructs that contribute to helping us find what makes life worth living. There are several scientific-based theories and models aimed at improving wellbeing. For example, Deci and Ryan's Self-Determination Theory of motivation posits that we are motivated to grow and develop if our

needs of autonomy, competence, and relatedness are met (Brown & Ryan, 2015). Fredrickson's Broaden and Build Theory introduced the importance of positive emotions and how they broaden mindsets with the net impact of improving wellbeing (Fredrickson, 2001). Seligman's theory, collectively known as PERMA, has five measurable elements that contribute to wellbeing. They are positive emotion, engagement, relationships, meaning, and achievement. Each element works in concert with each other, but they are pursued individually and focusing on these elements will help individuals achieve a higher level of wellbeing, which is known as flourishing (Seligman, 2011).

Social Prescribing – A Route to Wellbeing

Social prescribing sits well within the ethos of positive psychology. Indeed, if it works as intended, it has the potential to contribute to Seligman and Csikszentmihalyi's (2000) vision of individuals, families, and communities flourishing. Whilst overall the evidence supporting social prescriptions is sparse (Husk et al., 2018), the existing evidence suggests that social prescribing reduces anxiety and social isolation (Fixsen & Polley, 2019; Pescheny et al., 2019) and can improve aspects of wellbeing such as self-esteem, self-confidence, and overall mood (Chatterjee et al., 2017).

Social prescribing interventions also sit well within the ethos of positive psychological interventions (PPIs). In pioneering the principles of positive psychology, Seligman and Csikszentmihalyi (2000) called for evidence-based interventions that help people move along the continuum from languishing to flourishing. PPIs are defined as intentional activities aimed at cultivating positive emotions, cognitions or behaviours that enhance wellbeing (Sin & Lyubomirsky, 2009), and are based on theoretical models and scientific research. Though empirical exploitation of social prescriptions has been scant to date, existing research does show

that social prescriptions align with PPIs. For example, one program, *Museums on Prescription*, is an intervention based on research that has shown museums provide opportunities for improved positive emotions, which are considered a reflection of psychological wellbeing (Thompson et al., 2018This quantitative study measured the change in six positive emotions (absorbed, active, cheerful, encouraged, enlightened, and inspired) of 115 older people engaged in 10-week museum programs (Thompson et al., 2018). The Museum Wellbeing Measure for Older Adults (MWM-OA) was used which assesses psychological wellbeing based on these six positive emotions which research has demonstrated to be aspects of wellbeing most likely to change as a result of a short intervention, such as a museum or gallery visit (Thomson & Chatterjee, 2015). All six emotions were measured at the start-, mid-, and end of the program and results showed that psychological wellbeing, as measured by increases in positive emotions, improved significantly. The emotion *cheerful* consistently achieved the highest score and the scores for *absorbed* and *enlightened* increased the most (Thompson et al., 2018). Though these results give hope for social prescribing overall, there is a shocking dearth of research for a concept embraced and championed in government policy.

Social prescribing is being widely advocated and implemented but current evidence fails to provide sufficient detail to judge either success or value for money. There is a collective call from researchers, policy makers and practitioners for a framework and more evidence to show what works and what doesn't (Bickerdike et al., 2017; Husk et al., 2019). Whilst Seligman all too well recognized the need for the measurement of wellbeing if it was to be taken seriously by Governments (Seligman, 2019), social prescribing currently seems to be resting solely on our belief in common sense rather than science-based psychology, "it's such a good idea, it must work."

And in fact, social prescribing does seem like a great idea. It has potential as one of the major routes on the UK's wellbeing journey. But currently this model is lacking a framework and without a framework we do not know what is working and why.

Social Prescribing: A Flawed Model

At the heart of social prescribing is behavior change. It's about encouraging individuals to do something different whether it be to change their diet, join a local activity or even follow a 10-minute yoga routine each morning. Most health-related interventions have limited impact, yet they are more effective when based on a suitable framework, such as a behavior change model (Davis et al., 2014).

Any behavior change model should be informed by theory, research, and practice (Glanz et al., 2008) yet in the case of social prescribing, practice is ahead of the research and in many cases is not being informed by the theory (Husk et al., 2019; Husk et al., 2018). Social prescribing has been described as an atheoretical practice lacking an evidence-based model (Stevenson et al., 2021). A recent systematic mapping exercise based on 137 social prescribing articles found only 11 which explicitly used theories to inform practice (Bertotti, 2022, March 10–11). Without a theoretical framework there is no consistent mechanism by which results can be measured (Bertotti et al., 2017; Husk et al., 2018; Vidovic et al., 2021) and comparative outcomes made (Carnes et al., 2017; Griffiths et al., 2022; Husk et al., 2018). In addition to this there is a paucity of gold standard, randomized controlled research studies (Griffiths et al., 2022; Polley et al., 2017; Vidovic et al., 2021).

Conceivably, the young woman who went to her GP back in 1989 could receive a completely different prescription today depending on where she lives. Yes, she may still get the

anti-depressants, but she may also get referred to a six-week course of cognitive behavioral therapy. She may even be referred to a mindfulness workshop or a reading group. Since it is not clear what works or why, a social prescription for the young woman would be at the whim of the prescriber and dependent on local context. Moreover, the quality and efficacy of the interventions can vary greatly as there is no evidence-based standards for the third-party activity providers in the voluntary sector, who often have limited or no evaluation measures (Bickerdike et al., 2017). This lack of uniformity, confusion about what is and what is not a social prescription, varying components of the process, and lack of outcome data all contribute to the difficulties in establishing a framework and evaluating social prescribing (Husk et al., 2018). Back in 1989 I flushed the anti-depressants I was prescribed down the toilet. The limited data that has been collected on social prescriptions suggests they may also be getting tossed aside. Is the NHS on its own proverbial "road to hell paved with good intentions"?

When the NHS was established in 1948 it was recognized as a remarkable experiment in health care, an outstanding example of socialized medicine in the western world (Webster, 2002). In comparison the promise of social prescribing seems a little lackluster. For instance, although recruitment of link workers is in the UK Governments' long-term plan for social prescribing (NHS, 2019), they are currently woefully short of the 2021 target of 1,000 with only an estimated 430 currently employed (Nuffield Trust, 2022).

Social prescribing has the potential to be a remarkable social experiment with goals that align well to positive psychology. If successful, social prescribing could contribute to Seligman's (2011) moonshot mission of 51% of the world's people flourishing by 2051 (Seligman, 2011). But, as noted, it's an experiment lacking structured theory, research, and practice (Husk et al., 2018). It is beyond the scope of this paper to attempt to address these major issues. What I can

attempt to address is how we can avoid the social prescriptions being flushed away. To answer, that I need to return to my initial question, why did it take me 18 months to start a 10-minute yoga routine? A potential answer comes from the theory and research of behavior change. In concert with positive psychology, the science of behavior change may help us illuminate the black box and provide a bridge for the intention-behavior gap.

The Theory Behind Behavior Change

Although 82 behavior change theories were identified in a comprehensive scoping review (Davis et al., 2014), it is surprising that social prescribing has not yet adopted one theory, or even many theories, to support their utilization in behavior change. Notably, behavioral change is about altering habits and behaviors for the long term. The theories and models behind behavior change contribute to designing effective interventions to help individuals adopt healthy behaviors (Davis et al., 2014). Of the identified 82 theories, the Transtheoretical Model of Behavior Change (Prochaska, 2020) was the most cited, followed by the Theory of Planned Behavior (Ajzen, 1991).

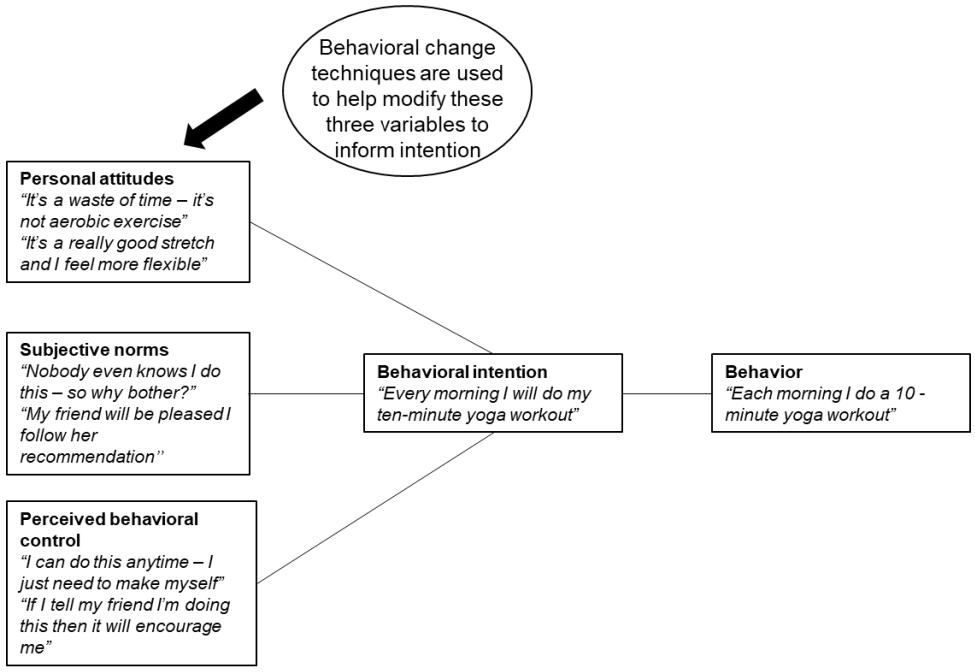
Some of the most frequently used behavior change models are motivational theories addressing the role of intention in behavior change (Davis et al., 2014). Intention is not a goal but rather is defined as a willingness to undertake a certain action or behavior and the stronger our intention is the more likely we are to succeed in changing our behavior (Fishbein & Ajzen, 2009). I was certainly willing to undertake a 10-minute yoga workout when my friend suggested it. How does my behavior fit with the theory?

The Theory of Planned Behavior

One of the most prominent and effective theories for behavior change has been the Theory of Planned Behavior (TPB) (Ajzen, 1991; Armitage & Conner, 2001; Steinmetz et al., 2016). TPB assumes that our behaviors are best predicted by our intention which is shaped by three variables: our attitude towards the behavior; subjective norms (how people view this behavior); and our perceived behavioral control over the particular action (Ajzen, 1991). Using my intention to do yoga as an example, Figure 3 offers an illustrative example of the variables underlying intentions in TPB. Theoretically, interventions that changed attitudes, norms, and/or behavioral controls could conceivably change intentions and subsequently behavior.

Figure 3

The Theory of Planned Behavior



Note. Based on the work of Ajzen (1991). "The Theory of Planned Behavior" by I Ajzen, 1991. *Organization Behavior and Human Decision Processes*, 50(2), 179-211. (DOI.10.1016/0749-5978(91)90020).

In social prescribing, prescriptions are provided before intentions are formed, and link workers may make efforts to change intentions through, for instance, goal setting. However, there are many people like me who do not follow through, suggesting having good intentions is not enough to change behavior.

The Intention – Behavior Gap

A recurrent problem in behavior change is that intentions are often not translated into behaviour, and this is known as the intention-behaviour gap (Sheeran & Webb, 2016). When I said goodbye to my friend after our walk in April 2020, I had every intention to get up each morning and follow her recommended workout. Unbeknown to me at the time, even with good intentions, data suggests there was only about a 50% chance that I would turn my intention into action and start my yoga routine (Rhodes & de Bruijn, 2013). This very large proportion of individuals who do not follow through on their intentions presents a potential major hindrance to the effectiveness of social prescriptions and clearly one for me.

Indeed, there are numerous studies which indicate that intention predicts behavior, and in fact, many behavioral models suggest intention is the dominant cause for undertaking a particular behavior (Armitage, 2005; Davis et al., 2014; Rhodes & de Bruijn, 2013; Sutton, 1998). However, as illustrated in Figure 3 our intention is dependent on several variables (e.g., in TPB they are attitude, social norms and perceived behavioral control). Numerous studies have shown that these variables are better at predicting our intention rather than behavior (Armitage & Conner, 2001). One study showed TPB explained between 40% and 50% of the variance in intention, yet only a variance of between 19% and 38% for behavior (Sutton, 1998). Findings like this have been evaluated in several important meta-analyses showing that interventions

aimed at changing intention have a medium to large effect on intention but only a small to medium effect on behavior (Rhodes & Dickau, 2012; Webb & Sheeran, 2006). Whilst this confirms the gap exists, it doesn't address who makes up this gap and how large it is.

Who Makes up the Intention-Behavior Gap?

To better understand the relationship between motivation and behavior, Orbell and Sheeran (1998) conducted a longitudinal study of women invited to undertake a cervical screening test who had never been screened. A random sample of 166 women with a mean age of 44 years were visited up to eight times by an interviewer to assess how many women followed through and had a cervical smear test within a one-year period. At the initial interview 63 women (38%; the "inclined") were willing to have a test but only 27 (43%) of these women were subsequently screened. Of the women who initially were unwilling to have the test (the "disinclined"), 12 women ultimately underwent a test. As shown in Figure 4, the participants were placed into one of four categories: Inclined actors (intention led to action); inclined abstainers (intention did not lead to action); disinclined actors (no intention but acted); and disinclined abstainers (had no intention and took no action).

Figure 4

The Breakdown of the Inclined and Disinclined

	Inclined to be tested	**Disinclined to be tested**
Tested	Inclined Actors (27 women)	Disinclined Actors (12 women)
Untested	Inclined Abstainer (36 women)	Disinclined Abstainers (91 women)

Note. Based on the work of Orbell & Sheeran (1998). "Inclined abstainers: A problem for predicting health-related behavior" by Orbell & Sheeran, 1998. *British Journal of Social Psychology*, 37(2), 151-165. (DOI.1111/j.2044-8309.1998.tb01162.x).

These researchers identified that the source of the discrepancy between intention and behavior was a specific group of individuals who intended to act but fail to realize their intentions, otherwise known as the ‘inclined abstainers’ (Godin & Conner, 2008; Orbell & Sheeran, 1998). In fact, in this study 57% of those who said they would take a test did not during the one-year period. Is this figure representative of the size of the group that falls into the gap?

How Large is the Intention-Behavior Gap?

Several studies have attempted to quantify the intention-behavior gap for physical activity. A meta-analysis of 10 studies (totaling 3,899 observations) placed the gap at 46%, with only 54% of intenders successfully performing the behavior (Rhodes & de Bruijn, 2013). Another smaller meta-analysis based on six studies and measuring intention at baseline, found 34% of participants were inclined abstainers (Godin & Conner, 2008). Both studies confirm intention as only a moderate predictor of behavior. Though the abstainers are another group ripe for interventions, programs aimed at motivating these individuals are likely quite different than ones for individuals holding a positive intention (Godin & Conner, 2008), and programs for the disinclined are beyond the scope of this paper.

Research has indicated the size of the gap in health-related behavior change can be of some significance. Because many health providers are working in situations with limited resources, having evidence-based information about the efficacy of interventions is vital. There may not be a second chance to reach a critical target audience whose health is dependent on behavioral change (Glanz et al., 2008). Given that much social prescribing utilizes volunteer and other resource-constrained providers, determining whether social prescribing has a similar gap between intention and behavior is essential for appropriate allocation of resources and program development.

Assessing the Gap within Social Prescribing

Informative data on social prescribing interventions is scant because of the paucity and quality of research available (Bickerdike et al., 2017; Husk et al., 2018). We are left wondering how many 'inclined abstainers' are in the social prescribing system and have fallen into the intention-behavior gap? To explore this question, we can look toward two broad data sets. First, we can drill down as best we can into the limited information from reviews and evaluations on social prescribing. Second, we can infer the size of the gap by looking at data from other health behavior change programs and move forward under the assumption it may be similar in the social prescribing scenario.

To date the largest systematic review of referrals to social prescribing activities, within a formal social prescribing program, included 15 studies most of which were small in scale and limited by poor design and reporting (Bickerdike et al., 2017). Only seven of these studies had actual data on individuals who followed through on socially prescribed activities. Of the 2,297 people referred to a link worker, 1,615 (70%) attended an appointment with a link worker. However, this analysis does not show if the 682 (30%) people who did not attend the link worker meeting had intended to. It also does not show how many people went on to engage in a socially prescribed activity following the link worker meeting (Bickerdike et al., 2017). A small randomized? controlled trial does shed some light on this post-referral engagement in activity. When introducing walking to middle aged adults, 27% dropped out even after expressing their intention to partake in the activity (Lamb, 2002). Another study exploring social prescribing examined patients over age 65 years with a chronic condition and regular visits to their GP. Of 68 patients who agreed to undertake a social prescribing activity (i.e., they were "inclined"), only 28 (41%) engaged in the activity (Loftus et al., 2017). This data suggests that 40 (59%) patients

with intention, but no take-up, could be classified as “intentional abstainers” in Orbell & Sheeran’s (1998) framework.

Other data enlightening the size of the intention-behavior gap are health behavior change programs outside of social prescribing. A Diabetes Prevention Program (DPP) aimed to survey the first 100,000 patients referred to the program, which hoped to change behavior through 16 hours of group education and exercise (Howarth et al., 2020). Of the 99,473 adults surveyed at the time of referral to the DPP, 55,705 (56%) expressed positive intention to participate. Of these 55,705 people, only 18,562 (33%) attended the initial assessment, and only 12,127 (22%) completed the full course (Howarth et al., 2020). A whopping 67% were lost after saying “Yes, I’m interested!”

Altogether, this limited data has potential important implications for social prescribing and the intention-behavior gap. First, it is necessary to assess program completion rates, not simply number of referrals made to activities. Second, it begs the question, is there anything that can be done in the social prescribing model that can bolster intentions and bridge the gap to engagement in prescribed activities? Though also important, the complex question why some individuals start but do not complete programs is beyond the scope of this paper.

Bridging the Gap

Looking back to October 2021, I am curious to know what happened to move me from a serial intentional abstainer of 10-minute yoga routines to becoming an inclined actor. I believe a more positive outlook and a greater sense of purpose were contributory factors. Additionally, I was enrolled in an Applied Positive Psychology program and had been given a goal as part of a course to regularly undertake any activity of my choice. This was my kick start. However, this is

all retrospective reflection and speculation, and I know I need more than hunches if I am to understand the contents of the black box sitting between intention and behavior.

The Bridge so far…

There is ample evidence of an intention-behavior gap operating across domains such as health, ethical and environmental choices (Papies, 2017), but research about strengthening intention, and harnessing it to move through the gap to drive behavior change, is scant (Hardeman et al., 2002; Maddux & Dawson, 2014).

Academics have examined mechanisms and interventions to strengthen intention using techniques such as goal setting (Fishbach & Ferguson, 2007). There have been steps toward bridging the gap by parsing out other important constructs, such as volitional action, and researchers speculate that individual agency in planning, maintaining self-efficacy, and self-regulation may be important (Sniehotta et al., 2005). Further, Papies (2017) posits that the intention-behavior gap happens when situational cues trigger cognitive structures, such as habit, impulsive behaviors, hedonic goals, or stereotypic associations, which then leads our conscious good intentions astray outside of our conscious awareness. The most dominant intervention to date being advocated to help bridge the gap are implementation intentions, which promote strengthening intention realization (Gollwitzer, 2012; Sniehotta, 2009; Webb & Sheeran, 2006)

As an applied practitioner, I am left wondering how these approaches can be operationalized in a social prescribing model, within a comprehensive framework rather than simply being more disparate behavior change techniques. I believe the science and practice of positive psychology holds frameworks, constructs, and interventions that can strengthen intentions and provide the motivational fuel to transit across the black box from intention to behavior.

Building the Bridge with Positive Psychology

Building on a hunch and dipping into current research on motivation makes me wonder - is the dominant theory being used to evaluate the intention-behavior gap, the theory of planned behavior, potentially limiting our understanding of the inputs and outputs of the hypothetical black box? We know that bolstering intention doesn't necessarily have a corresponding impact on behavior (Sniehotta, 2009; Webb & Sheeran, 2006). Further, Sniehotta (2009) posits that engaging in volitional action predicts behavior change more than attempts to bolster motivation. But these explorations did not consider the range of motivation possible, from extrinsic to intrinsic. Perhaps we need to take a step back and examine motivation. Just like my somewhat externally motivated goal to do some yoga, many social prescribing interventions are driven by externally motivated needs to adopt healthier habits. As such they do not immediately or naturally capitalize on intrinsic motivators such as interest, enjoyment, or satisfaction. Moreover, these behaviors require a lot of self-regulation.

Positive psychology has much to say about these areas, and I believe it is a resource that can inform behavior change and help build a stronger bridge from intention to behavior (Baumeister et al., 2007; Brown & Ryan, 2015). This is critically important in the UK, where much time, attention, funding, and hope is being given to social prescribing.

Drawing from the literature on positive emotion and motivation, and using self-determination theory as a framework, the following proffers a positive psychology-based solution for bridging the intention-behavior gap.

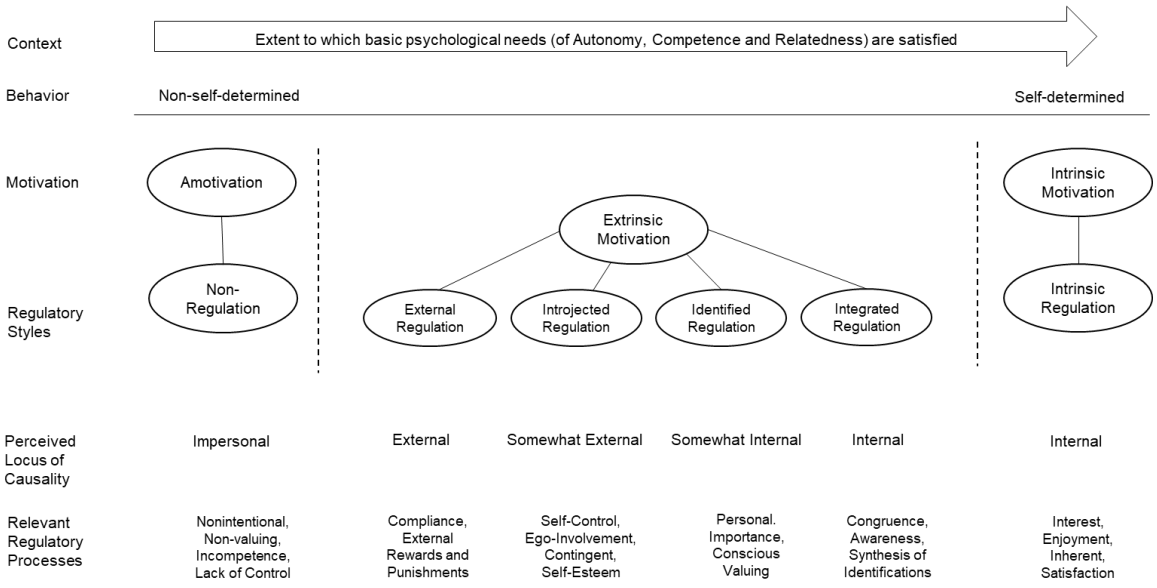
Self-determination Theory – A Positive Psychology Framework

Self-Determination Theory (SDT) is strongly embedded within positive psychology and is a framework that helps operationalize positive psychology interventions (Sheldon & Ryan,

2010). SDT is a macro-theory, meaning that smaller theories sit within it, including notions about human motivation, development, and wellbeing. Moreover, SDT offers regulatory processes by which constructs such as self-regulation, psychological needs and life goals can be assessed (Deci & Ryan, 2008). By placing motivation on a continuum from amotivation to intrinsic motivation, SDT helps explain how variations in the uptake and maintenance of tasks and behaviors is dependent on the type of motivation. The theory, illustrated in Figure 5 predicts that when motivation is self-determined (or autonomous) uptake and persistence of a behavior is more likely than when motivation is externally controlled and non-self-determined (Hagger & Hamilton, 2020).

Figure 5

The Organismic Integration Theory taxonomy of regulatory styles

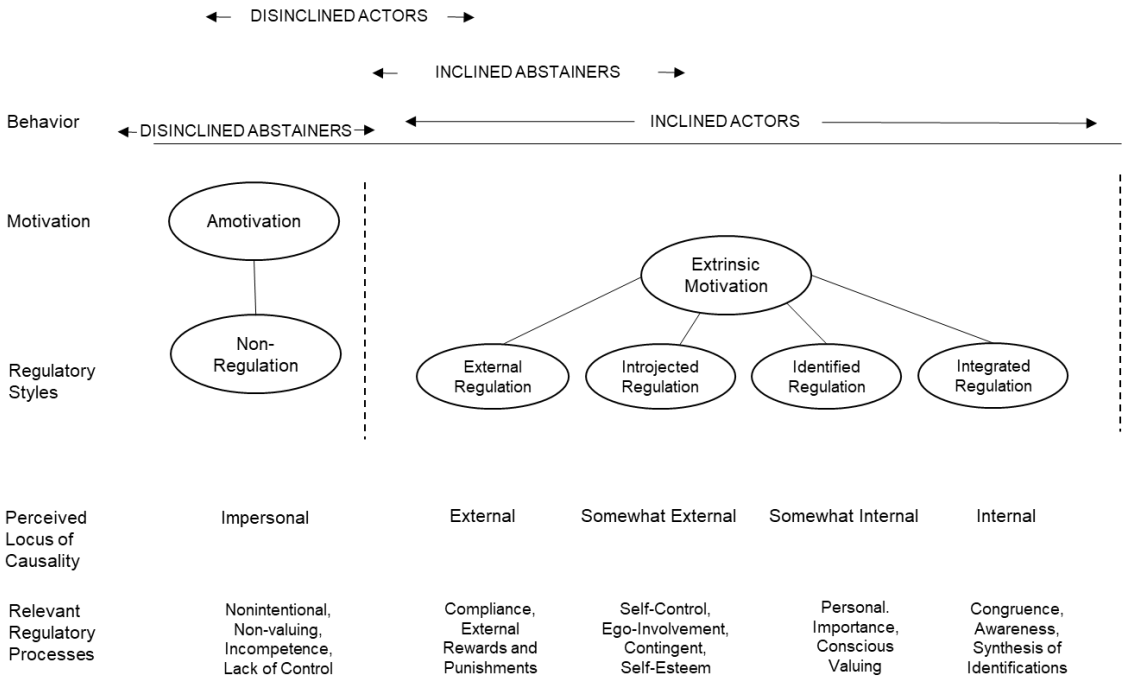


Note. Based on the work of Ryan, R.M., & Deci, E.L. (2017). Self-Determination Theory: Basic psychological needs in motivation, development, and wellness. Guildford Press. (DOI: 10.1521/978.14625/28806).

Research demonstrates that within health behavior change, of which many social prescriptions are, most individuals do not engage in the healthy behavior and lack intention, termed amotivation within SDT, and when motivation is present, it invariably is extrinsic (Hardcastle et al., 2015). Interestingly, SDT studies examining the reasons for amotivation indicate that low self-efficacy, low value beliefs and low outcome expectations contribute to lack of intention/amotivation (Hardcastle et al., 2015). As illustrated in Figure 6, we can take this one step further and conceptually place Orbell and Sheeran's (1998) intentional and unintentional actors and abstainers along SDT's motivational continuum to illustrate this.

Figure 6

A Conceptual Illustration of the Inclined and Disinclined in SDT



Note. Based on the work of Ryan, R.M., & Deci, E.L. (2017). Self-Determination Theory: Basic psychological needs in motivation, development, and wellness. Guildford Press. (DOI: 10.1521/978.14625/28806) and Orbell & Sheeran (1998). "Inclined Abstainers: A problem for predicting health-related behavior" by Orbell & Sheeran,

1998. *British Journal of Social Psychology*, 37(2), 151-165. (DOI.1111/j.2044-8309.1998.tb01162.x).

Using the variables of PBT and the framework of SDT Sheeran & Webb (2006) suggest that enhancing intrinsic intention towards a positive the attitude (e.g., "It's a really good stretch and I feel more flexible.") will better predict behavior than social norms (e.g., "My friend will be pleased I follow her recommendation."). Another study looking at the intention-behavior relationship showed that when intentions are controlled and not autonomous (i.e., extrinsic), they are less likely to be translated into behavior (Chatzisarantis et al., 1997).

If we conceive that motivation is one of the mysterious contents of the black box between intention and behavior, then adding inputs that move inclined abstainers like me along the extrinsic-to-intrinsic motivation continuum presumably could result in greater uptake of the desired behavior.

The Role of Mindfulness

Such is the popularity of mindfulness, it almost does not need a definition, but one is offered by Brown & Ryan (2015) who recognized the important role mindfulness has in self-determination. These authors posit mindfulness is a state of consciousness in which one highly attends to and accepts the internal and external experiences of the present moment (Brown & Ryan, 2015). Within SDT mindfulness is seen as a resource that supports autonomy and self-regulation by increasing awareness, two important attributes for our motivation that result in more persistence and greater wellbeing (Brown & Ryan, 2015). Numerous studies have linked mindfulness to intention and motivation and the role it can play in behavioral change (Chatzisarantis & Hagger, 2007; Donald et al., 2019; Ryan & Deci, 2017). Mindful individuals are more likely to carry out their intentions than less mindful individuals, as greater awareness

and attention to internal and external influences facilitate turning intentions into action (Chatzisarantis & Hagger, 2007). Additionally, the qualities of self-control that mindfulness fosters are also seen as helping maintain focus and quelling counter-intentional thoughts that may prevent action (Orbell, 2003). Altogether, these results suggest that mindfulness can contribute to bridging the intention-behavior gap.

There is considerable research on the effectiveness of mindfulness as a PPI in the fields of mental health and stress management (Baime & Bowles, 2019; Dutton, 2008). Practicing mindfulness uses techniques such as breathing methods, body scanning, and guided imagery to relax the body and mind, reduce stress and increase awareness. Notwithstanding the problems of getting people to change their behavior, mindfulness has the potential to be offered very simply as a social prescription using self-directed mindfulness and meditation apps such as Heasdspace or Insight Timer which offer daily practices.

Mindfulness and positive psychology are natural bedfellows. Flourishing is the goal of positive psychology and mindfulness contributes to this by increasing our personal psychological wellbeing and, in the Buddhist tradition, offering a pathway toward flourishing (Shapiro & Weisbaum, 2020). The list of benefits that mindfulness offers is considerable, including helping to nurture positive emotions (Garland et al., 2015), another important consideration in positive psychology and SDT's continuum of motivation.

The Importance of Positive Emotions

Positive emotion is a cornerstone of wellbeing theory and is one of the five elements in Seligman's PERMA framework for flourishing (Seligman, 2011). Traditional behavior change theories have concentrated on the relationship between cognition and motivation, with less attention given to the role of emotion in motivation (Aspinwall, 1998; Isen, 2004; Isen & Reeve,

2005). However, within SDT, feelings of interest and excitement are important to the development of intrinsic motivation, and in particular the positive feelings related to enjoyable activities (Deci & Ryan, 1985). Other emotions can also serve to motivate such as avoiding aversive emotions like worry or stress (Deci & Ryan, 1985). But these types of positive and negative emotion are very context dependent, and I am most interested in how positive emotions contribute to our overall sense of wellbeing which in turn improves our motivation and bridges the intention-behavior gap.

The rise of positive psychology highlighted longer-standing research on the topic of emotions and their benefits to our wellbeing (Fredrickson, 2001). Positive emotions do not simply reflect feeling happy. There are many positive emotions including hope, interest, joy, love, compassion, pride, amusement, and gratitude (Fredrickson, 2009). Research has shown that positive emotions contribute to longevity, improved immune function, reduced pain, and improved well-being (Cohn & Fredrickson, 2011). Although positive emotions may be short-lived, the benefits of positive emotions help build personal, physical, intellectual, and social resources which outlast their fleeting nature (Fredrickson, 2001). Further research shows that positive emotions expand our attention, improve our thought processes and relationships, enable us to consider a greater range of actions, and improve our resilience (Cohn & Fredrickson, 2011).

How can Positive Emotions help Bridge the Gap?

My earlier experience and hunch that a more positive outlook can contribute to bridging the intention-behavior gap is supported by a study demonstrating significant associations between the uptake of an exercise program and positive wellbeing (Watters et al., 2001). A 12-month rigorous randomized controlled trial set out to examine the effect of a physical exercise intervention on positive and negative psychological wellbeing for people with Crohn's disease.

Of a total of 107 participants, 54 were put in an exercise group and, following an induction meeting, were given a home-based exercise program, and asked to exercise at least two times a week. The remaining 53 in the control group were asked to do nothing extra (i.e., go about life as usual). Using the Satisfaction with Life Scale (Diener et al., 1985) as one of the baseline measures researchers found that there were no differences between the exercise group and the control group scores in either positive or negative wellbeing on completion. However, in observing a wide variation in activity based on the diaries of the exercise group, a further analysis of the data supported the hypothesis that higher positive wellbeing at baseline predicted exercise uptake over the next 12 months (Watters et al., 2001). Although researchers did not explore the underlying reasons why this result occurred, it is important to note this study measured subjective wellbeing rather than positive emotions per se, subjective wellbeing has two components, emotion (positive and negative) and cognition which is referred to as life satisfaction. When assessed these components are correlated and several subjective wellbeing measures include both components and there is a degree of convergence between life satisfaction and emotional wellbeing (Pavot & Diener, 1993).

In another randomized controlled trial to determine if induced positive emotion helped promote and maintain physical activity, 242 patients were recruited after heart surgery to partake in an exercise program (Peterson et al., 2012). Participants were placed in a control group (just engage in physical exercise) and a positive emotion group (engage in physical exercise and induced positive emotion). Both groups were given a workbook, pedometer and a behavioral contract and received bimonthly telephone calls. The additional components for the positive emotion group were a handbook on positive emotion and self-affirmations, their bimonthly telephone calls reminded them to think about things that made them feel good (e.g., take a

moment each day to enjoy positive thoughts), and they received small gifts during the study. At the end of the 12-month period the positive emotion group had nearly doubled their calorie expenditure per week compared to the control group (Peterson et al., 2012). Though speculations can be made about the potential important role of positive emotions in this study, it is important to note that positive emotion was surprisingly not measured at baseline, during, or at the end of the study.

The Benefits of Positive Emotions to our Motivation

Unfortunately, there are very few well controlled studies that demonstrate positive emotion as a direct predictor of behavior adoption. Rather, there is a growing number of studies that demonstrate the influence of positive emotion on processes that contribute to behavior adoption such as self-regulation (Aspinwall, 1998), enhanced cognitive flexibility (Ashby et al., 1999; Goschke & Bolte, 2014) and motivation (Isen & Reeve, 2005). For instance, Isen and Reeve (2005) investigated how positive emotion influences intrinsic and extrinsic motivation. In two separate experiments each with 60 students, participants were randomly divided into a positive emotion group (induced by a bag of sweets) or neutral emotion group. In the first experiment participants were asked to undertake both an interesting task (a fun puzzle) and a work task (identify strings of letters in correct alphabetical order) with a small financial reward if the work task was completed. In the first experiment, researchers predicted that neutral emotion participants would not find the interesting task as interesting as the positive emotion participants and would pursue the task associated with the extrinsic reward. In the second experiment, researchers used the same tasks plus the option to read a magazine and no incentive for the work task. Researchers predicted that positive emotion participants would undertake both intrinsically and extrinsically motivated tests. Both predictions were correct, and results indicated that the

participants with induced positive emotion had greater levels of enjoyment from the fun task than neutral emotion participants, and, importantly, the induced positive emotion participants also spent more time completing the work task than the neutral emotion participants, indicating that positive emotion promotes intrinsic motivation, the ability to plan, self-control, and to stay on task (Isen & Reeve, 2005).

Within the field of neuroscience, positive emotion has been shown to increase dopamine levels in the brain, with subsequent increases in cognitive flexibility, set switching (the ability to move between tasks), and proactive curiosity (Ashby et al., 1999). These skills are directly associated with intention and improved action control (Ashby et al., 1999), a self-regulatory process which emerges after an intention has been formed (Sniehotta et al., 2006). The importance of self-regulation in the early stages of behavior change is well evidenced and is posited as a promising construct that may help narrow the intention-behavior gap (Sniehotta et al., 2006).

As one would expect, within positive psychology there are evidence backed PPIs that help build positive emotions and include self-help interventions, group training and individual therapy (Bolier et al., 2013; Sin & Lyubomirsky, 2009). The strongest intervention to date for inducing positive emotions is the loving-kindness meditation however it can be complicated and resource intensive (Cohn & Fredrickson, 2011). Gratitude also has been shown to heighten positive emotion so a simple gratitude exercise such as counting blessings (writing about positive events that have happened each day) may be more appropriate in a social prescribing setting (Emmons & McCullough, 2003).

Although there is a paucity of research specifically measuring positive emotions and their effect on uptake of a behavior, promising research suggests that positive emotion can contribute

to the regulatory processes involved in moving along the continuum of extrinsic motivation towards intrinsic motivation.

Approaches From the Science of Motivation

Recently there has been a resurgence in motivational research and in particular the recognition of the need for a more unified and cross-disciplinary approach to the study of motivation (Braver et al., 2014; Higgins, 2012; Kruglanski et al., 2015). This multidisciplinary, multimethod approach, called Motivation Science is now seen as an emerging field concerned with the different types of motivation and how they produce behavior (Kruglanski et al., 2015; Murayama, 2018).

In an introductory article providing an overview of the field, twenty-three academics representing the MOMCAI group (Mechanisms of Motivation, Cognition, and Aging Interactions) considered some of the latest research in motivation (Braver et al., 2014). This group explored advances in the neural mechanisms and neurocognitive processing affecting motivation, such as the motivational effects of dopamine on our neurocognitive processes (Braver et al., 2014; Kruglanski et al., 2015). Their article concluded with recommendations for strengthening motivation through mindsets, mental contrasting, implementation intentions, and building self-control. Once again, these constructs have a place within the science of positive psychology, further providing us with intervention ideas that could be inputs for the black box and bridging the gap from intention to behavior.

Mindsets

The foundations of mindset theory lie in motivational research (Dweck & Leggett, 1988) and became popularized by Dweck's (2006) best-selling book. There are two main types of mindsets: a growth mindset where people acknowledge that their skills, strengths, and abilities

can be refined through effort and determination; and a fixed mindset where skills, strengths, and abilities are seen as unchangeable. Individuals with a fixed mindset consequently avoid new experiences, preferring tasks that they are confident they can master (Dweck, 2006).

A study of 978 school pupils from third through to eighth grade suggests that a fixed mindset contributes to a loss of intrinsic motivation. At the beginning of the academic year pupils were assessed using several measures including the Intrinsic Motivation Scale (Lepper et al., 2005), measures of mindset (Dweck, 2012) and academic achievement. At the end of the school year, they were surveyed again and those with fixed mindsets were shown to have lost intrinsic motivation and those with growth mindsets had maintained or gained intrinsic motivation (Haimovitz et al., 2011).

Although neuroscience research into mindsets and motivation is still in its early days, there are several findings that help inform us about the effects of mindset on intrinsic motivation (Ng, 2018). Primarily, people with a growth mindset are receptive to corrective feedback and this is correlated with a greater awareness of and attention to mistakes. In addition, people with a growth mindset maybe able to manage their emotions to negative feedback and their performance improves after making a mistake (Ng, 2018). Hence, growth mindset has the potential to encourage intrinsically motivated behaviors particularly in the learning environment and in promoting lifelong learning which could contribute to stronger inherent, self-driven motivation (Haimovitz et al., 2011; Ng, 2018).

Dweck (2006) says that just being aware of the concept of mindsets is useful, but she also offers a simple four step process: Step one: embrace your fixed mindset and recognize we have a mixture of fixed and growth mindsets. Step two: be aware of your fixed-mindset triggers. Step

three: give your fixed mindset a persona. Step four: be aware of when you are operating in a fixed mindset and then challenge it.

Mental contrasting

Mental contrasting is the process of focusing on a future goal or desire and visualizing the obstacles that may get in the way of intention planning and thus achieving the goal (Oettingen, 2014). It is a self-regulation strategy that is necessary for strong goal commitment (Cross & Sheffield, 2019) and involves comparing and contrasting a positive future with reality to help guide decisions and encourage motivation (Oettingen, 2014). Recent evidence suggests that mental contrasting has an energizing effect as measured by changes in systolic blood pressure and helps overcome obstacles that stand in the way of the goal pursuit (Cross & Sheffield, 2019; Sheeran et al., 2013).

In a rather unlikely setting of an angling club in the north of England, 467 overweight, middle-aged men of low socio-economic status were invited to participate in a randomized controlled trial to test whether mental contrasting promotes take-up and maintenance of physical activity (Sheeran et al., 2013). All 467 members received a survey about physical exercise, 104 replied and were assigned to a control and experimental group. All participants received three telephone calls at baseline, one month and seven months to discuss their physical activity. The experimental group undertook a mental contrasting induction exercise at the beginning of the study (Sheeran et al., 2013). Rates of physical activity were then examined at one month and seven months post-intervention. Physical activity was found to be greater among the mental contrasting participants than the control group at both follow-up periods. In fact, by the seven month follow up rates were significantly different between the groups with the mental contrasting participants 38% more active than the control group. The authors concluded that

mental contrasting helped participants translate their beliefs about the importance of physical activity into action and suggested that mental contrasting can contribute to closing the intention-behavior gap (Sheeran et al., 2013).

Mental contrasting is a behavioral change technique aided by a simple planning tool using the acronym of WOOP - Wish, Outcome, Obstacle and Plan (Oettingen, 2014). As an example of WOOP in action, my wish in April 2020 was to follow my friend's 10-minute yoga workout. My best outcome was to feel less stiff and more energized. The obstacle I faced was lack of self-control because I found other non-active pursuits more immediately enjoyable. My plan could have been if I don't feel like yoga at this moment, then I can remind myself how much better I feel afterwards. Like other interventions, mental contrasting through WOOP instructions has the potential to be applicable in a social prescribing setting.

As in the study with our northern anglers, mental contrasting can be undertaken as a standalone activity with participants informed via an information sheet or even using the WOOP app. Alternatively mental contrasting can be used as a preliminary process for implementation intentions as both processes are complementary.

Implementation Intentions

Implementation intentions address the contradictory views that intention predicts behavior (Armitage & Conner, 2001) and yet the intention-behavior gap exists (Sheeran & Webb, 2016). To balance this contradiction an additional stage in establishing intention was suggested by Gollwitzer (1999) of an *if-then* plan, or implementation intentions, which would help with goal achievement (i.e., behavior enactment) (Gollwitzer & Sheeran, 2007). Whereas a goal intention specifies what the outcome is, implementation intentions are conscious, self-

instructions which specify when, where, and how a person will strive for a particular goal (Gollwitzer, 1999).

There is considerable support for the effectiveness of *if-then* plans. A meta-analysis of 94 studies showed a medium to large improvement in rates of goal achievement and subsequent behavioral performance when implementation intentions were established compared to just setting goal intentions (Gollwitzer & Sheeran, 2007). In a random controlled study, 103 students were asked to take a Vitamin C pill every day for three weeks. All participants intended to take the pills, but the experimental group were told to decide and write down where and when they would take the pill. It was also suggested that it might help taking it just before or after a regular behavior such as brushing your teeth (Sheeran & Orbell, 1999). At the end of the three weeks the number of pills missed by the control group was significantly higher than the experimental group indicating that implementation intentions increase the likelihood of action among people who intend to undertake the behavior (Sheeran & Orbell, 1999). Forming such plans has also been shown to help with self-control (Webb & Sheeran, 2006) and increase rates of achievement (Oettingen & Gollwitzer, 2007).

Although mental contrasting and implementation intentions are effective self-regulatory strategies when used independently of one another, studies have also shown they are particularly effective when combined. A study of 66 second year high school students sought to determine the effectiveness of mental contrasting combined with implementation intentions (MCII) for goal striving (Duckworth et al., 2011). As part of the preparation for an important exam, students were given practice tests to help them prepare. Prior to taking the practice tests, students were blindly assigned to either the control group, who were asked to write about an influential person or event in their life, or the MCII group who undertook a mental contrasting exercise followed

by *if-then* plans. The MCII group were asked about the importance of completing all 10 practice tests and the positive outcomes associated with doing this. Students in the MCII group completed 60% more practice questions than students in the control group pointing to the benefits of MCII as a self-regulation tool in helping to pursue goals (Duckworth et al., 2011).

Research not only points to the benefits of both mental contrasting and implementation intentions in helping translate an intention into action (Braver et al., 2014) but also specifically reducing the intention-behavior gap (Sheeran & Webb, 2016).

Building Self-control

Self-control is changing the way we think, feel, or behave to achieve long term-goals by overriding or inhibiting competing urges, behaviors, and desires (Muraven & Baumeister, 2000). In sum, it concerns effortful regulation of the self by the self (Duckworth, 2011). However, just as a muscle becomes tired after exertion so does our self-control as it draws from a common resource which becomes depleted (known as ego depletion) thus making subsequent acts of control more difficult (Baumeister et al., 2007). Reductions in the strength of our self-control may also influence the perception of being able to attain a certain goal by reducing our feeling of self-efficacy (Muraven & Baumeister, 2000).

Early studies suggest that practicing small acts of self-control helps build our resources (Muraven, 2010). For instance, in a study of 92 people looking at how self-control can be improved, the experimental group were given two small tasks requiring self-control, cutting back on sweets and squeezing a hand grip twice a day. At the end of a two-week period the experimental group demonstrated greater self-control than the control group who had not been given tasks to exercise their self-control (Muraven, 2010).

Research has also shown that self-affirmation interventions can help build self-control by reducing ego depletion (Schmeichel & Vohs, 2009). A randomized controlled study of 63 students demonstrated the effects of self-affirmations on ego-depletion The experimental group were given a writing exercise with restrictions on word use which replicated self-control, followed by a self-affirmation exercise. The control group were given the same writing experiment but with no restrictions and no-affirmation exercise. Both groups then undertook a further exercise in self-control linked to pain tolerance (placing their hand in cold water). Results demonstrated that self-affirmations improved self-control, as the experimental group demonstrated greater pain tolerance than the participants whose self-control had not been depleted with the first exercise (Schmeichel & Vohs, 2009)

Self-affirmations are positive phrases and statements used to challenge negative thoughts and affirm one's self-worth (Steele, 2008). This may offer a more effective intervention within the social prescribing model than trying to introduce an intervention that requires initiating small acts of self-control. Creating self-generated content is the most useful approach for self-affirmation and particularly when a person expresses their core values in an affirmation (Schmeichel & Vohs, 2009). Self-affirmations can be self-guided or created as a simple group activity (Cohen & Sherman, 2014) making them useful in social prescribing settings.

Sniehotta (2005) posits that altogether, planning, self-efficacy and action control contribute towards bridging the intention-behavior gap. Planning can be aided by mental contrasting and implementation intentions. Self-efficacy can be aided by adopting a growth mindset. Action control is seen as having three components - self-monitoring, awareness of standards, and effort. Effort is aided by self-control (Sniehotta et al., 2005).

Limitations

The limitations of this literature review primarily involve the deficiencies in the research on the intention-behavior gap, which is predominantly guided by the role of intention, the lack of cross-disciplinary studies linking the importance of positive psychology and behavior change, and the dearth of information available on social prescribing. Much of the research on behavior change is based around the TPB and resolving the theory's discrepancies to try and make it fit by modifying intention (Gollwitzer, 1999). Although a predominant theory in behavioral change, it may not be the most appropriate for the social prescribing model. In situations where health behavior change is advised, there is usually no motivation, or it is extrinsically driven (Cross & Sheffield, 2019). Thus, a model addressing motivation needs to be considered as an important aspect of changing health behaviors. By using SDT as a framework, interventions that can help individuals move along the continuum from extrinsic to intrinsic motivation should be considered and researched.

Although positive psychology offers a broad umbrella for the scientific study of what helps us flourish, there is still a paucity of cross-discipline studies linking positive psychology and behavior change. In addition, much of the work considers cognition and motivation with limited studies on the importance of emotion (Isen & Reeve, 2005). Indeed, one of the major challenges seen by the recent consortium MOMCAI to develop motivation–cognitive research is that its sub fields tend to work in isolation (Braver et al., 2014). Consequently, this review has been a windy road tying together various strands of theory and research to gather a potential group of interventions that may bridge the gap from intention to behavior.

Despite the limitations noted, this review provides an important start to helping the UK realize its investment in social prescribing by discerning potential means to engage individuals in engaging in their socially prescribed activities and becoming healthier and well.

Conclusion: Constructing the Bridge

If, based on the above-reviewed research, one roughly assumes a 46% intention-behavior gap, the UK Government's objective of a minimum of 900,000 referrals to social prescribing by 2023/24 (NHS, 2019) will have potentially 414,000 intentional abstainers in the system. This number could be even greater if we include referrals from GPs to link workers and link worker to activity uptake. Given the large numbers of social prescribing referrals and the political energy around social prescribing, efforts to bridge the gap from intention to behavior and help the projected vast number of intentional abstainers engage in healthy behavior change is vital.

From this literature review there are at least six positive psychology approaches that may contribute to bridging the intention-behavior gap. They are (a) practicing mindfulness; (b) increasing positive emotions; (c) increased self-awareness of mindsets; (d) planning using mental contrasting; (e) establishing implementation intentions; (e) building self-control. The interventions briefly mentioned have demonstrated their efficacy in nurturing specific cognitions and emotions and research suggests that these approaches contribute to bridging the intention-behavior gap. Though it is beyond the scope of this paper to recommend which individual activity, or combination of activities, would work best in social prescribing settings, these interventions are ripe for utilization in research-based workshops intended to help individuals move from great intention to actually engaging in a prescribed activity. In keeping with the

foundations that positive psychology was built on, the application of specific interventions calls for scientific studies to be undertaken to assess the efficacy of what began for me as a hunch.

My primary question involved discerning which interventions could be implemented in a social prescribing setting. Social prescribing contexts are not conducive to resource-intensive one-to-one personal coaching, but rather benefit from low-cost, outsourced group instruction. We know that in the UK today, some people may never get more than an 11.9-minute appointment with their GP, and perhaps a leaflet about social prescriptions rather than a prescription for anti-depressants. Adherence with social prescriptions could be aided by the science and practice of positive psychology, as positive psychology offers tangible, flexible interventions and ideas that could be delivered in several settings across various local contexts.

It was not until I finally turned my intention into action and started the 10-minute yoga workout that I began to try and answer – why didn't I do this 18 months ago? I had no idea that the intention-behavior gap existed or how little research there is on how it can be bridged. Within social prescribing I believe this is a significant and unidentified problem and one that needs to be addressed. An objective I had when I started my own journey in positive pscyhology 12 months ago was to establish a charity to offer educational workshops in positive psychology through the social prescribing network. This paper confirms in my own mind the need for such a resource and gives me a step forward in my endeavors. Something that I definitely intend to do.

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