Psychedelics, Positive Psychology, and Positive Humanities

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MAPP 800: Capstone Project

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August 16, 2022

Abstract

Public and scientific interest in the effect of psychedelic drugs on wellbeing has risen significantly. Preliminary data show that psychedelic drugs, specifically classic psychedelics (DMT, psilocybin, mescaline, and LSD), may have the potential to treat mood disorders and increase wellbeing through their acute subjective effects. The acute subjective effects and enduring effects of psychedelics on wellbeing seem to relate to positive psychological frameworks (e.g., resilience factors and PERMA) considerably. Moreover, optimizing acute subjective effects indicates the importance of set (individual's internal (mental) factors) and setting (individual's external factors) in psychedelics administration as moderating factors. A new subfield in positive psychology, positive humanities, has the potential to inform set and setting studies significantly. This literature review investigates the potential for positive psychology and positive humanities in enhancing psychedelic studies, specifically the research areas of acute subjective effects and set and setting. Due to the seeming alignment between the operation of psychedelic drugs and both positive psychology and the positive humanities, there appear to be opportunities for research and scholarship at the intersection of these fields.

Keywords: psychedelics, classic psychedelics, positive psychology, positive psychology interventions, neuroplasticity, subjective effects, mood disorders, resilience factors, PERMA, set and setting, positive humanities

Acknowledgments

The period I worked on my capstone coincided with one of the most challenging periods of my life. However, I'm thankful for all the challenges because they made me realize how I'm surrounded by incredible people who supported me greatly during the process.

First, I want to thank my advisor David Yaden. I am genuinely grateful for his wonderful guidance in writing an academic paper and his emotional support during the process. He created such an incredible learning experience for me. Additionally, I want to thank him not only for being my advisor but also for his immense contribution to psychedelic research. Without his contributions, I would not even be aware of psychedelics' effects on wellbeing, let alone write a capstone about them. His wide-ranging and awe-inspiring research also guided me significantly during the process. Thank you, David; working with you was a great honor.

Next, I want to thank James Pawelski for initiating this new great field, positive humanities. It was such a great privilege to learn about it from him. Positive humanities study significantly enriched my academic perspective on wellbeing and the wellbeing effects of psychedelic drugs, which I am eager to explore more post-MAPP. Thank you, James, for your perspective and vision and for being an exceptional and caring mentor.

I also want to thank the whole MAPP instructional team. Thank you, Marty Seligman, for catalyzing the birth of positive psychology, MAPP, and recruiting a great team who walks the talk. Leona Bradnwene, your leadership is beyond words. Whenever I felt like I was about to fall, I summoned you as a fairy godmother to pull me back up in my imagination. Your positive energy, wisdom, support, creativity, and sense of humor are such a treasure to cherish in this MAPP experience.

I wish I could thank everyone in the MAPP team by name who gave feedback for my classwork generously and constructively through opening up space in their busy schedules; who shared their valuable motivational words with me and us, who supported us technically, who facilitated events for us to have some fun and shake things off in this intense MAPP year. You all are amazing, and I feel so blessed and grateful that my life intersected with yours.

I especially thank my dear children, Seniha, Ihsan, and Ibrahim, for being patient and proud of my studies and my mom and brother for their continuous support. And my husband Hasan, no word can describe my gratitude. I couldn't get through this incredible MAPP journey without you. You are the greatest and best positive intervention that ever happened to me!

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Preface

I learned about psychedelics and positive humanities nine months ago. These two newly emerging fields fit my personal interests in wellbeing like a glove. So, I immersed myself in the literature. I unleashed my curiosity.

All the information I encountered was new to me and looking at them from an interdisciplinary angle expanded my perspective on both psychedelic drugs and the possibilities of human flourishing. This immersive experience was fascinating and also overwhelming; sometimes, I lost track of what I was specifically working on and required a "reboot."

Frankly, at the beginning of my work on this paper, I was not planning to write about psychedelic research's possible connection with positive psychology and positive humanities, but, along the way, I realized how valuable it would be to recognize this connection in the mental health field.

Therefore, I decided to write a paper focusing on psychedelics and their possible connections with positive psychology and positive humanities to inspire mental health professionals and spark their curiosity on the subject, specifically positive psychologists.

Introduction

The wide-ranging class of psychoactive substances known as “psychedelics” (or “hallucinogens” or “entheogens”) (MacLean et al., 2011) are promising potential interventions related to psychotherapy, wellbeing, and thriving (Elsey, 2017; Mithoefer et al., 2016; Nichols et al., 2017). As a result, these drugs’ popularity in wellbeing-related and therapeutic discussions has increased dramatically and gained significant attention from researchers and journalists in recent years (Yaden et al., 2021).

Psychedelic drugs’ effect on wellbeing is a timely research topic since there is a need for new interventions and practices in psychotherapy and psychopharmacology, as about one in five people in the U.S. struggles with mental health illnesses (CDC, 2021). Despite efforts to address mental health, the upward trend of mental illnesses keeps climbing (Statista, 2022; Mithoefer et al., 2016). The number of people seeking help for anxiety and depression has increased dramatically (Blanchflower & Bryson, 2022). While there is a rise of 93% for anxiety, there is a rise of 62% compared to 2019 (Blanchflower & Bryson, 2022).

Mental health professionals and researchers are trying to address the issues and inefficiencies in the mental health practice to find practical solutions (Plakun, 2020), and psychedelic medicine in the mental health field is at the center of attempts to reform mental health practice (Tupper et al., 2015).

Psychedelics may have the potential to not only help people heal themselves but also enhance their mental wellbeing (Griffiths et al., 2008; Griffiths et al., 2018; Hartogsohn, 2018; Hendricks et al., 2014, 2015; Lerner & Lyvers, 2004; Neuhaus & Slavich, 2022; Nygren et al., 2005; Yaden et al., 2017). Therefore, psychedelics should also interest positive psychologists who study resiliency and flourishing factors (Yaden et al., 2015, 2017, 2021). However, this

positive psychological interest may challenge the basic notion of taking medicine not for healing (from psychopathology) but for thriving purposes (St. Arnaud, 2021; Yaden et al., 2018b, 2018a) while also raising some ethical and safety concerns (Plesa & Petranker, 2022; Yaden et al., 2021). Nevertheless, psychedelic use for wellbeing, prevention (resilience), and flourishing purposes seems promising.

Currently research studies primarily work with clinical psychologists, social workers, or mental health counselors to monitor the participants while they are under the influence of psychedelics (Carhart-Harris et al., 2018; Griffiths et al., 2006; Mertens & Preller, 2021; St. Arnaud, 2021). Healthcare professionals also work with the participants for preparation before the psychedelic sessions and integration after the session (Griffiths et al., 2006). However, preliminary studies claim that psychedelics' remarkable therapeutic effects correlate with positive psychological phenomena as possible mediators, such as a sense of self-transcendence, meaning, spiritual significance, connectedness, etc. (Gandy, 2019; Millière et al., 2018; Yaden et al., 2017). In this regard, psychedelic therapy might even be considered a positive psychology intervention in a clinical setting.

Therefore, I believe positive psychology practitioners should collaborate more with clinical psychologists in the administration and research of psychedelics to share their perspectives and empirically proven practices. In this capstone, I will review the scientific literature about psychedelics (specifically classic psychedelics), their risks and benefits, how they work, and draw connections and parallels between psychedelics and positive psychology's role in wellbeing and flourishing.

What is Positive Psychology?

Martin Seligman, then American Psychological Association's president (1998), and his colleagues founded the new field of positive psychology (Baes et al., 2022). This new field is intended to open up a broader academic space to study optimal individual and institutional functioning, the parameters of a meaningful life, and understanding the effects of positive experiences and engagements (Peterson, 2009; Seligman & Csikszentmihalyi, 2000). As traditional psychology emphasizes mental pathologies, positive psychology is interested in what is going well in people's lives (Seligman & Csikszentmihalyi, 2000).

Moreover, the logic behind the word "positive" is that the absence of mental illnesses does not necessarily mean positivity and wellbeing; it might also mean a neutral state or stagnation (Seligman & Csikszentmihalyi, 2000). Therefore, positive psychology inherently aims at helping individuals and institutions to climb the ladders of wellbeing towards flourishing by studying and showing ways to increase desirable experiences in life and to have a life worth living (Seligman & Csikszentmihalyi, 2000). The distinctive part between traditional psychology and positive psychology is that positive psychology directly operates on increasing positivity in human conditions. In contrast, traditional psychology works on eliminating mental obstacles and struggles (Seligman & Csikszentmihalyi, 2000).

However, positive psychology does not disregard negative aspects of life; instead, in a nuanced way, it advocates that life is full of seasons with some ups and downs and that human experiences are complex, not black or white (Peterson & Park, 2014). Therefore, positive psychology claims that negativity and positivity coexist but it is possible to flourish and be resilient in the face of adversity (Peterson, 2009).

At the 2011 American Psychological Association (APA) convention, Martin Seligman shared his hope about the possibility that 51% of the world population could be flourishing by 2051 (Chamberlin, 2011, p.56). His prognosis is more than a scientific prophecy but calls mental health professionals to put deliberate effort into global flourishing.

In a recent study in which researchers reviewed 829,701 psychology journal articles abstracts published in 875 journals between 1970 and 2017 to find trends in psychology research, they investigated positive emotion and positive character studies (Baes et al., 2022). The data showed a significant correlation between the emergence of positive psychology and increased positivity in psychology research (Baes et al., 2022). Even though it does not give any causal relationship (maybe both emergence of positive psychology and positivity in psychological research are caused by another factor), there is a significant statistical upward trend in wellbeing research in psychology.

At the same time, the re-emergence of psychedelic research may also increase the focus on wellbeing even in the discussions of pathology because psychedelics seemingly cultivate positivity in both healthy and mentally ill participants for their enduring health benefits (Yaden et al., 2018a; Yaden & Griffiths, 2021). Even though research on psychedelics and positive psychology is preliminary (Celano et al., 2020; Yaden & Griffiths, 2021), there is a great potential to explore rigorously. Exploring the connection between positive psychology and psychedelics' effect on wellbeing is an important future direction for research.

Positive Psychology Interventions

To describe and understand the concept of a good life, early positive psychologists contextualized three pillars of positive psychology; **positive subjective experiences** (happiness, pleasure, gratification, fulfillment), **positive individual traits** (strengths of character, talents,

interests, values), and **positive institutions** (families, schools, businesses, communities, societies) (Peterson, 2006).

Positive psychology interventions (PPI)s emerged when positive psychologists started to dive deeper into these three pillars of positive psychology. PPIs are "treatment methods or intentional activities aimed at cultivating positive feelings, positive behaviors, or positive cognition" (Sin & Lyubomirsky, 2009, p.467). They follow three levels of evidence: theoretical, experimental, and evaluative, to create PPIs (Pawelski, 2016). In theoretical evidence, positive psychologists build empirically supported theories based on previous scientific literature that can potentially give birth to a new PPI. In experimental evidence, positive psychologists practice PPI on people in a controlled setting to empirically test if a theory works. Finally, evaluative evidence tests PPI in a real-life environment to see if it is applicable and appropriate to populations (Pawelski, 2016). Ultimately, this deliberate procedure represents how the application of positive psychology is well-grounded through scientific research.

The application aspect of positive psychology is the field's most profound strength because, in the psychology world, there can be two parties who are only in favor of pure application or pure science (Seligman, 2012). Therefore, while introducing positive psychology to the psychology world, Martin Seligman (2012) intentionally introduced it as a combination of science and application. He believes (through its unity in science and application) that positive psychology can promise significant progress in flourishing (Seligman, 2012).

Anchored by this perspective, positive interventions have evolved for 20 years synchronously with theoretical, experimental, and evaluative developments in the field (Pawelski, 2020). Furthermore, due to the subjective nature of positive experiences, positive psychological research deliberately investigated the factors that make PPIs effective. Currently,

there are some helpful frameworks to guide positive psychology practitioners in their practice, such as self-determination theory, self-concordance theory, character strengths, and virtues, etc. (Goodman et al., 2018; Mata, 2020; Ryan et al., 2008; Schutte & Malouff, 2019; Seligman, 2018; Wagner et al., 2019). Moreover, there are empirically significant self-report scales to measure the effectiveness of PPIs, similar to the methodology of clinical psychology (Duckworth et al., 2004).

Interestingly, despite positive psychology's emphasis on studying the ways of boosting resiliency and flourishing, a few meta-analyses present a positive correlation between positive psychology interventions and reduction in depressive symptoms with small to moderate effect sizes (Hendriks et al., 2020; Koydemir et al., 2021; Sin & Lyubomirsky, 2009; Waters et al., 2022). The result indicates that PPIs can potentially be effective in clinical mental health treatments, yet data is preliminary. Relatively, due to their (possible) positive psychological mediators (such as meaning and mystical (self-transcendent experiences)) (Carhart-Harris et al., 2018), psychedelics may be considered the first positive pharmacological intervention (St. Arnaud, 2021).

However, despite remarkable progress in the evolution of PPIs, positive psychologists believe that there is always room for improvement in designing more effective and reachable PPIs for broader populations (Pawelski, 2020). Psychedelic research can be a new platform for positive psychology's expansion in science and application, while positive psychology can likewise expand psychedelic research and application.

What are psychedelics?

The term ‘psychedelics’ means “mind-manifesting,” according to the psychiatrist who coined the term Humphrey Osmond (1957). Psychedelics refers to various substances with mind-altering properties (Tupper et al., 2015). The ones that exist in nature as plants and fungi have been used for thousands of years mainly for religious, spiritual, and healing purposes (Olive, 2008; Yaden et al., 2017). One early study of psychedelics is Knauer and Maloney (1913)’s study of modeling mental illness with mescaline (Nichols & Walter, 2021). After LSD’s accidental discovery by Albert Hofman in 1943, studies started to explore LSD’s psychological effects and therapeutic potential and have gained significant attention from researchers (Nichols & Walter, 2021)

There are different classes of psychedelics, depending on their pharmacological profiles. This paper will focus on classic psychedelics (or serotonergic psychedelics). Some examples of classic serotonergic psychedelics are psilocybin (mushrooms), dimethyltryptamine (DMT) (ayahuasca), lysergic acid diethylamide (LSD), and mescaline (peyote) (Tupper et al., 2015). Classic psychedelics have the potential to change “perceptual, cognitive, affective, volitional, and somesthetic functions, involving visual and auditory sensory alterations, difficulty in thinking, mood fluctuations, and dissociative phenomena” (Griffiths et al., 2018, p. 269; Isbell, 1959; Rosenberg et al., 1964; Wolbach et al., 1962).

Classic psychedelics are also named serotonergic psychedelics because they are “partial agonists at 5-HT2A serotonin receptors” (Griffiths & Yaden, 2021, p.568). Being partial agonists at the 5-HT2A receptor indicates the antidepressant effect of classic psychedelics while also ensuring a very low risk for addiction and toxicity/overdosing (Gillman, 2006; Suzuki et al., 2015). However, despite their antidepressant effects and sharing some similarities, they differ

from antidepressant drugs (Selective serotonin reuptake inhibitors (SSRIs)). One distinct difference is that while SSRIs inhibit emotional responsiveness, psychedelics facilitate releasing emotions, which is called the "emotional breakthrough"(EB) effects of psychedelics (Carhart-Harris & Goodwin, 2017; Roseman et al., 2019). Furthermore, studies show that EB has a significant wellbeing effect (Roseman et al., 2019), which I will discuss in the paper's "positive psychological effects" section.

Unlike other psychopharmacological drugs, which mostly have to be taken daily, preliminary research suggests that psychedelics (in moderate and high doses) typically do not need to be taken frequently due to their long-lasting beneficial effects (Romeo et al., 2020; Yaden & Griffiths, 2021). Additionally, they show minimal addictive potential, unlike the drugs inducing compulsive drug-seeking behavior like cocaine, amphetamine, heroin, and alcohol (Griffiths et al., 2006). National Institute on Drug Abuse (2001) also points out that recreational classic psychedelic users' consumption of these substances reduces or halts gradually.

In a meta-analysis of 8 studies regarding psychedelic treatments on depressive symptoms, the data revealed a considerable reduction of depressive symptoms occurred from day 1 to 6 months after psychedelic sessions, and no serious adverse effect has appeared in any of the studies (Romeo et al., 2020).

Therefore, psychedelic drugs may be a more efficient psychopharmacological treatment method due to their long-lasting benefits. However, more studies are needed to determine the optimal interval between administrations of these drugs and to strategize the ways of involving psychotherapy to enhance the long-lasting effects even more.

Psychotherapy is considered important in mental health treatments to get more effective results (Fava et al., 2013). Regarding psychedelic therapies, supporting the drugs' effect with

psychotherapy is claimed to be even more crucial than other psychoactive drugs since mental preparation before the session, mental support during the session, and integration work after the session seem to improve desired benefits and lower the risk of adverse effects significantly (Griffiths et al., 2006; Isbell, 1959; Malitz et al., 1960; Rinkel et al., 1960). Therefore, to analyze why external support might be essential, looking into psychedelic drugs' effects can be guiding. The effects and underlying mechanisms of psychedelics can be explored under neurological & subjective, therapeutic, resiliency, flourishing, and adverse effects.

Neurological And Subjective Effects As Possible Mediators

It is still a scientific mystery how psychedelic medicine creates desirable therapeutic and flourishing effects on individuals (Aday et al., 2020). Psychedelics have several lower-level neurobiological effects that could mediate their therapeutic and flourishing effects (Olson, 2021). However, research indicates that psychedelics' favorable impacts may be mediated primarily through creating a subjective mind-altering effect on consciousness which is considered meaningful experiences (Yaden & Griffiths, 2021).

One of the **neurological effects** of psychedelics is promoting structural and functional neuroplasticity. Benefits of neuroplasticity can vary, including boosting creativity and problem solving (Ben-Soussan et al., 2015), slowing cognitive aging (Goh & Park, 2009), enhancing openness and empathy (Aday et al., 2020), and improving mental health illnesses such as depression, post-traumatic stress disorder (PTSD), and addiction, which are possibly caused by atrophy of neurons in the prefrontal cortex (Ly et al., 2018). Atrophy of neurons may explain the fixed pathological thoughts and behaviors, attributing to mental disorders (Carhart-Harris & Friston, 2019). Psychedelics may help reduce neural rigidity through neural entropy (Carhart-Harris & Friston, 2019). The entropic brain may increase bottom-up signaling and flatten the

brain hierarchy, reducing stability and influence of embedded beliefs (top-down signaling), enabling free interstate transitions (Carhart-Harris & Friston, 2019), which can acutely allow individuals to find other explanations or other ways of living or to relax and convincingly revise some old beliefs (Carhart-Harris, 2019; Ly et al., 2018).

In a small psilocybin study with 15 healthy volunteer participants, the control group's (who received placebo) brain regions showed constrained communication. In contrast, the experiment group's (who received psilocybin) brain regions' showed a significantly greater between-communication than the placebo group's brain regions (the graphics shown in figure 1.) (Carhart-Harris, 2019; Petri et al., 2014). Researchers explain this as disintegration and desegregation since it breaks the regular chain of brain regions' communication. Furthermore, this effect has been found to correlate with the phenomenon of "ego-dissolution." "Ego-dissolution" is also closely associated with "unitive experience," which is a deep "sense of personal, interpersonal, and existential "oneness" and/or "interconnectedness," which are examined under the phenomenon called "the acute subjective effects of psychedelics" (Carhart-Harris, 2019, p. 17; Yaden & Griffiths, 2021).

Even though neurological changes seemingly have a mediating role in desired wellbeing effects of psychedelics, some critics are concerned that some neurological psychedelic research lacks specificity. Hence, even though they are influential, findings about neuroplasticity's relation to desired psychedelic effects (Carhart-Harris & Friston, 2019) might be misleading and overgeneralization (van Elk & Yaden, 2022).

Moreover, even though neurological effects seemingly have a mediating role in psychedelics' lasting wellness outcomes, it is, arguably, acute **subjective effects** that possibly have the major mediating role in achieving enduring benefits (Yaden & Griffiths, 2021).

Subjective effects in the context of psychedelic literature imply "first-person experience, which is empirically measured by self-report data" (Yaden & Griffiths, 2021, p. 568). A significant amount of historical, anecdotal, and qualitative data point out the worth of psychedelics' subjective experience on favorable wellbeing outcomes (Yaden & Griffiths, 2021).

To quantitatively measure several subjective attributes of psychedelics, researchers commonly use *Mystical Experiences Questionnaire* (MEQ) (MacLean et al., 2011). **Mystical experiences** refer to a deeper version of self-transcendent experience in which one feels boundless unity with other beings and cannot recognize their *self* as a distinct entity anymore (Hood, 2002; James, 1988; Newberg & d'Aquili, 2000; Stace, 1960).

To operationalize acute subjective effects, MEQ includes four subscales: "1, an authoritative sense of unity or connectedness accompanied by feelings of reverence; 2, positively valenced feelings such as love or peace; 3, alterations to the sense of both time and space; and 4, difficulty with putting the experience into words." (Yaden & Griffiths, 2021, p. 569). In a double-blind psilocybin study with psychedelic-naive participants (n=36), 61% of them were above the threshold of having a "complete" mystical experience during the psilocybin session in contrast to 11% of the placebo group (who were administered methylphenidate instead) (Yaden & Griffiths, 2021). Furthermore, in a two-month follow-up, the psilocybin group showed considerably "positive changes in attitudes about life and self, positive mood, positive behaviors, and positive social effects of experiences during the psilocybin than the methylphenidate group" (Yaden & Griffiths, 2021, p.569).

Other aspects of many psychedelic subjective experiences are significance and meaning. For example, in various psilocybin studies, participants reported that their psychedelic experience was one of the most meaningful events in their lives and occasionally likened the

experience to the birth of a first-born child or the death of a parent (Griffiths et al., 2006, 2016; Griffiths et al., 2018; Johnson et al., 2014; Ross et al., 2016). Due to its importance and profound meaning, subjective experiences may play a role as a turning point for individuals to revise their long-held beliefs and form new (and potentially more positive) narratives to explain their self, life, and essence of existence to themselves (Yaden & Griffiths, 2021).

The importance and meaning of the acute subjective effects of psychedelics can be illustrated with one non-randomized pilot study about tobacco addiction with psilocybin. The study sheds light on how every individual has their own subjective experience with psilocybin, which contributed to an 80% abstinence rate after a 6-month follow-up and 67% at the one-year mark (Johnson et al., 2014). In the study, participants received Cognitive Behavioral Therapy(CBT) before and between three psilocybin sessions in a 15-week smoking cessation program. CBT is centered around addressing maladaptive cognitions (Hoffman et al., 2012). Therefore, it aims to work with individuals' dysfunctional general beliefs or schemas about the world, the self, and the future to improve their mental health and resiliency (Hofmann et al., 2012; Meyer et al., 2015). CBT is used in smoking cessation therapies and is often combined with drug treatments. CBT combined with psilocybin statistically shows a much larger effect size than other CBT-drug combined treatments (Johnson et al., 2014).

In the study, even though psilocybin experience contributed to smoking abstinence for most participants, their experience during the psilocybin sessions was unique to each of them. For example, one participant reported that she likened her smoking self to a choking and coughing gargoyle, which powerfully disgusted her about smoking. Another one said that she imagined herself cleaning her attic and basement and tossing junk to open up space in her house, and smoking was one of the pieces of junk she wanted to get rid of. One last example is a

participant who felt a connectedness with the universe. After feeling such vastness, he says that smoking seems too small compared to the immensity he experienced (Pollan, 2018; Johnson et al., 2014).

Subjective psychedelics experiences often seem to contain content related to whatever individuals need to heal, improve, or flourish (although this is by no means always the case). As another option, psychedelic experiences may magnify the participant's preexisting ideas that they were already aware of but could not practice. Thus, even some participants' revelations during a psilocybin session might sound "obvious" (for example; "you should stop smoking. It is not good for you, just like pieces of junk in your attic."), but such insights are often accompanied by deep feelings of meaning (Yaden & Griffiths, 2021). Additionally, even though mystical experiences and insights may coincide occasionally, data reveals that they mediate positive therapeutic outcomes independently (Davis et al., 2020; Garcia-Romeu et al., 2019; Yaden & Griffiths, 2021).

Despite how the acute subjective effects of psychedelics seem important to their therapeutic benefits, some researchers argue that they are not essential for psychedelics' enduring therapeutic effects (Olson, 2021). However, in order to provide evidence for this argument, there must be the isolation of subjective effects in the studies. This could involve, for example, sedating one condition of participants in a psychedelic study anesthetically so that they would not have any memory of taking the psychedelic. In such a study, researchers could tell whether the acute subjective effects are necessary (Yaden & Griffiths, 2021).

Nevertheless, even though there has to be more research to conclude any causal relationship between subjective experiences and desired therapeutic outcomes, the data about the important role of the acute subjective effects of psychedelics seems promising (Yaden &

Griffiths, 2021). Moreover, to close the information gap between neurological effects and acute subjective effects, multidisciplinary studies (clinical psychology, pharmacology, positive psychology, neurology, etc.) are also vital to discover the relationship between mystical and meaningful experiences' effect on neurological structure, which may inspire the designs of new kinds of positive psychology interventions.

Furthermore, testing positive psychological frameworks like PERMA (Seligman, 2018), optimism (Krok, 2015), primal world beliefs (Clifton et al., 2019), or character strengths (Schutte & Malouff, 2019) can help add other dimensions to psychedelic subjective effects studies, their mediating roles in therapeutic effects and also initiate new PPI designs.

Therapeutic Effects

Classic psychedelics' therapeutic effects attract psychologists' attention due to their apparent potential to treat mental health disorders, including treatment-resistant depression (Carhart-Harris & Goodwin, 2017; Galvao-Coelho et al., 2021). The following section reviews a few classic psychedelics studies related to mood disorders.

Mood disorders

A disturbance in emotions defines mood disorders or affective disorders (Sekhon & Gupta, 2022). Severely negative emotions are classified as depression (Sekhon & Gupta, 2022). Major depression is one of the preeminent causes of disability (Galvao-Coelho et al., 2021), and preliminary studies show classic (serotonergic) psychedelics' potential to reduce depressive mood disorders significantly even after one administration (Carhart-Harris & Goodwin, 2017). Additionally, their low toxicity rate, side effects and require only a few administrations make them a good alternative to other available pharmacotherapy options (Carhart-Harris & Goodwin, 2017; Galvao-Coelho et al., 2021).

An up-to-date meta-analysis review of 12 studies on mood disorders and psychedelics indicates that classic psychedelic-assisted therapy surpassed placebo with a large-effect size for various mental health disorders, including unipolar depression and anxiety (Galvao-Coelho et al., 2021). 7 of these studies were conducted on healthy individuals (Dolder et al., 2016; Griffiths et al., 2006; Hasler et al., 2004; Kometer et al., 2012; Kraehenmann, 2017; Schmid et al., 2015; Wittman et al., 2007) while the remaining (Gasser et al., 2014; Griffiths et al., 2016; Grob et al., 2011; Palhano-Fontes et al., 2019; Ross et al., 2016) was on people who are diagnosed with anxiety, depression, life-threatening illness, and treatment-resistant depression. The classic psychedelics included in the studies were LSD, ayahuasca, and psilocybin. The majority of them administered the drugs only once (Dolder et al., 2016; Griffiths et al., 2006, 2016; Grob et al., 2011; Kometer et al., 2012; Kraehenmann, 2017; Palhano-Fontes et al., 2019; Ross et al., 2016; Schmid et al., 2015) and two of the studies (LSD and psilocybin) (Gasser et al., 2014; Wittman et al., 2007) administered twice and only one (Hasler et al., 2004) study administered psilocybin to the healthy participants for 4 times (Galvao-Coelho et al., 2021).

There are some concerns over the reliability of studies due to not having objective and universal scales to measure mental health disorders (clinicians diagnose the patients and mostly rely on self-report metrics) and participants' profiles not being represented the general population (Carhart-Harris & Goodwin, 2017; Plesa & Petranker, 2022; Smith & Appelbaum, 2022; Williams & Labate, 2020).

Resiliency Effects

From a positive psychological perspective, helping people after becoming mentally ill should not be the only practice in the mental health field (Reivich & Shatte, 2003). This is why prevention and resiliency studies have immense importance (Seligman et al., 2005), which should be investigated in psychedelic research.

As the definitions of it may vary, **resilience** is "the ability to persist in the face of the challenges and to bounce back from adversity" (Reivich et al., 2011, p. 25). Again, as the definition of resilience varies, the factors (conceptualized as protective factors) enhancing resilience also vary based on individuals' developmental stages or other socio-cultural factors (Reivich et al., 2011; Reivich & Shatte, 2003). Regardless, resilience factors' common trait is that they all seem to positively shape cognition and thinking styles (Masten et al., 2011; Reivich et al., 2011; Reivich & Shatte, 2003).

Intriguingly, psychedelic medicine can affect cognition and thinking styles in a similar positive manner through cultivating some resilience factors such as **self-awareness, self-transcendence, and mental agility** (Carhart-Harris & Goodwin, 2017; Letheby & Gerrans, 2017; Neuhaus & Slavich, 2022; Nygren et al., 2005; Reivich & Shatte, 2003; Rodan et al., 2021; Yaden et al., 2017). Even though there is not enough data to legitimize psychedelic use for resilience purposes, research studies show that even a single administration of a psychedelic medicine can have a long-term antidepressant effect (including resistant depression), prevent suicidal ideation and psychological distress (Carhart-Harris & Goodwin, 2017; Hendricks et al., 2015; Muttoni et al., 2019). The reason behind these outcomes is explained by the psychedelics' potential effect on positively changing cognition (Carhart-Harris & Goodwin, 2017). In the next

section, I will go over how psychedelics change cognition, beliefs, and thinking styles through cultivating self-awareness, self-transcendence, and, as a result, mental agility.

Self-awareness & Self-transcendence

Self-awareness might be the starting point for building resiliency (Reivich & Shatte, 2003). Self-awareness includes one's ability to analyze their own emotions, belief systems, deeply held beliefs (icebergs), thinking traps, etc. (Reivich & Shatte, 2003). In a cross-sectional study, impaired self-awareness (one's perception about their self would not match outside observers' assessment) was significantly correlated with lack of life satisfaction and higher depression (Goverover & Chiaravalloti, 2014). Relatively, having a broader sense of self-awareness, which includes a wide array of thoughts, actions, and percepts than a typical self, correlates with greater resiliency in the face of adversity due to enabling creativity to find a variety of solutions and boosting a sense of efficacy (Fredrickson, 2013).

Even though self-awareness sounds like an internal process to acknowledge one's own existence, it would be incomplete to understand one's self without observing its relationship to external factors (Reivich & Shatte, 2003). Recent studies studying the sense of self indicate that as much as the borders between self and the rest of the universe are blurred and fluid, individuals can feel more sense of connectedness and meaning in their lives, which in turn, in most cases, increases wellbeing, resiliency, and psychological growth (Yaden et al., 2017). At first glance, the blurred lines between self and the universe might seem like a loss of self, yet it functions as an expanded sense of self due to the harmonious feeling of connectedness (Fredrickson, 2013; Nygren et al., 2005; Yaden et al., 2017). This broader sense of awareness would bring individuals a sense of coherence (Nygren et al., 2005).

Three dimensions construct a **sense of coherence**; comprehensibility (one's perception of an event as cognitively meaningful and predictable), manageability (one's perception of their resources as sufficient to meet internal and external demands of a situation), and meaningfulness (one's perception on life as emotionally meaningful and seeing that adversity is a challenge, not a hindrance) (Nygren et al., 2005). Even though it is still unclear how a boundless sense of self differentiates from a pathological sense of self-loss like in schizophrenia or some other psychotic states, numerous studies predict a great potential in **self-transcendent experiences** to promote wellbeing and resiliency (Yaden et al., 2017). For example, in a correlational study , the participants' sense of coherence, self-transcendence, resilience, and purpose in life scores showed a significant positive correlation (Nygren et al., 2005). This finding also correlates with the mental wellbeing effect of psychedelic experiences.

Current studies point out that psychedelics' mental health benefits mostly likely come from acquiring a more profound sense of self that feels organically connected to the universe (Härter, 2021; Yaden et al., 2017). During the psychedelic experience, participants report that they feel like every experience and emotion is under the wholeness umbrella (Neuhaus & Slavich, 2022). They conclude that everything is interconnected, meaningful, and inherently beautiful; there is no one static self but a variety of dynamic selves within the self (Neuhaus & Slavich, 2022). While this fluid perception of self can indicate resiliency and wellbeing, it also correlates with another resilience factor, mental agility.

Mental Agility

The core reason adversity threatens wellbeing is that it shakes one's fundamental explanations about life, their self, and the sense of meaning like an earthquake (Tedeschi & Calhoun, 2004). **Mental agility** is the cognitive flexibility that may create a variety of responses

to life's adverse events (Reivich & Shatte, 2003). It is just like how buildings with a flexible foundation are much more likely to stay stable during an earthquake by adjusting their foundation according to the ground's movement. In contrast, buildings with rigid foundations are more likely to collapse. Research shows that cognitive flexibility can be one of the most determinant factors in resilience; being able to assess the situation accurately in its own context, not constrained by fixed explanations about the self and the world, and seeing the meaning behind it in an enabling way to move forward (Reivich & Shatte, 2003). There are various practices and frameworks to improve mental agility, and psychedelic experiences are seemingly one of them (Neuhaus & Slavich, 2022).

Psychedelic experiences can "reboot" the mind to enable individuals to let go of their fixed beliefs and thinking styles about themselves and situations (Rodan et al., 2021). Moreover, it broadens the perspective by cultivating a sense of coherence to analyze life events more accurately and flexibly (Lerner & Lyvers, 2004). Researchers believe that sense of wholeness and unity contributes to patients' wellbeing outcomes due to its creation of mental fluidity, boundlessness, and flexibility (when one feels connected to wholeness, adversity becomes more meaningful and does not seem all terrible after all) (Hendricks et al., 2015). One study on patients with life-threatening cancer found that one high-dose psychedelic session significantly reduced the participants' chronic adjustment disorder with anxiety and depression, even giving the same significant results in a 6-month follow-up (Hendricks et al., 2015).

Flourishing Effects

PERMA

To empirically study and organize what makes life worth living, **PERMA** is a foundational framework of positive psychology. PERMA stands for **p**ositive emotions, **e**ngagement, **r**elationships, **m**eaning, and **a**chievement (Seligman, 2018). The study suggests that high levels of PERMA indicate greater wellbeing, resiliency, and flourishing (Goodman et al., 2018; Seligman, 2018). Additionally, five elements of PERMA scores of individuals correlate positively, suggesting that an increase in one component may create a rippling effect in other elements of PERMA (Goodman et al., 2018). PERMA can be a prominent framework to conceptualize psychedelics' potential for prevention and flourishing. In the following sections, I will explore the links between positive emotions, relationships, and meaning of PERMA and psychedelics' effect on people. I believe engagement and achievement can be discussed more effectively with a different topic, micro dosing of psychedelics, instead of ingesting moderate and high doses of psychedelics which creates hallucinogenic effects.

Positive Emotions

Research suggests that a balance between individuals' positive and negative emotions can be an indicator of their flourishing and wellbeing (Fredrickson, 2001). The study of emotions has not reached maturity; defining and classifying emotions requires sophisticated work, including neuroimaging, self-reporting, observation of facial expression, and body posture (Dubois & Adolphs, 2015). Yet, a wide range of evidence proclaims that a higher ratio of positive emotions like -interest, pride, love, joy, serenity, hope, gratitude, amusement, inspiration, and awe- expands attention span and behavioral repertoires (Fredrickson & Branigan, 2005) and boost intuition (Bolte et al., 2003) and creative problem solving (Isen et al., 1987).

There is also "a subset of positive emotions" called "self-transcendent positive emotions" (Yaden et al., 2017, p. 4), such as elevation, compassion, admiration, gratitude, love, and awe. Self-transcendent positive emotions may be evoked through watching a movie (Westermann et al., 1996) or the practice of "loving-kindness" meditation (Fredrickson et al., 2008), which can predict prosocial behavior and increased wellbeing (Yaden et al., 2017). Self-transcendent positive emotions can also be elicited by psychedelic peak experiences and are generally framed as mystical experiences due to their high intensity and ineffability (Yaden et al., 2017).

The Relevance of Psychedelics to Positive Emotions

In contemporary psychedelic studies, researchers measure psychedelic sessions' self-transcendent positive affect outcomes with the Mystical Experience Questionnaire (MEQ) and negative affect outcomes with the Challenging Experience Questionnaire (CEQ) (Roseman et al., 2019). Yet, due to the sophisticated nature of psychedelic drugs, during the sessions, it is hard to conclude their short and long-term effects by only measuring positive emotions through mystical experiences (Roseman et al., 2019). Another indicator of the flourishing benefits is called Emotional Breakthrough (EB). EB is more about the sense of emotional liberation and might overlap with the notion of catharsis a little (Breuer & Freud, 1895). Unlike CEQ, which indicates undesirable wellbeing outcomes, EB is correlated with desirable wellbeing effects (Roseman et al., 2019; Yaden & Griffiths, 2021).

A psilocybin trial for treatment-resistant depression study in which participants (n=379) completed online surveys before and after planned psychedelic experiences indicates a significant positive correlation (with moderate effect size) between EB and mystical experiences and wellbeing effects (Roseman et al., 2019). Some participants reported that they felt "emotional purging," "letting out all the deep sadness," "feeling loss, grief, love, and sadness

altogether, and letting go all the grief, kind of a process of unblocking the emotions hold them back," "regaining the ability to grieve and cry, crying cathartically, which was a very welcoming sweet experience" (Roseman et al., 2019). Even though catharsis theory, letting all negative emotions out (for example; venting anger like punching bags or ruminating about that person) does not predict wellbeing outcomes (Bushman, 2002), in EB, the researchers believe that it is a little different from catharsis due to the different neurological state of mind and the act is more like to let go all the heavy negative feelings that being held by the participants (instead of acting on it) (Roseman et al., 2019).

These findings also correlate with the effects of LSD after a single session on mentally healthy individuals (Elsey, 2017). In an early LSD trial (with 6 months to 2-year follow-up with 113 participants), preliminary results show that total improvements in "more frequent and persistent feeling of happiness" is 74%, "more ability to love in general" is 78%, and among other wellbeing benefits (Savage et al., 1964).

Even though the research is preliminary to claim a direct correlation between positive emotions and psychedelic use, both the early LSD trial and the psilocybin trial suggest that the rates of favored outcomes are significantly high and positively correlated with positive emotions (Elsey, 2017; Roseman et al., 2019; Savage et al., 1964; Yaden et al., 2017). Moreover, EB and mystical experiences are promising frameworks to possibly, inform and enrich the studies of PERMA's **P** by adding more complexity to emotional experiences.

(Positive) Relationships

PERMA's **R** investigates the impact of positive relationships on wellbeing. Relationships may vary between romantic partners, a child, and their caregiver, and inter-group relationships

(Seligman, 2018). Positive social connections may positively correlate with wellbeing, prosocial behavior, and empathy (Lyubomirsky, 2022).

The Relevance of Psychedelics to Positive Relationships

Psychedelic studies also demonstrate its long-lasting positive effect on interpersonal and spiritual connections (Savage et al., 1964). For example, in one double-blind and placebo-controlled LSD study, participants reported that their empathy and trust in others increased significantly only after one LSD session (Holze et al., 2021). In another early study of a combination of LSD and mescaline (including before and after therapy) on healthy individuals, relationships with their romantic partners and friends improved (Savage et al., 1964). Psychedelic sessions also predict prosocial behavior (Holze et al., 2021). Moreover, to support the finding biologically, recent studies show that during psychedelic sessions, oxytocin levels increase significantly in the body (Holze et al., 2021). Elevated oxytocin levels seem to explain a sense of boundedness, unity, and safety during psychedelic sessions, which may possibly help people to get through the hard psychedelic sessions and find meaning beyond them (Holbrook et al., 2015; Holze et al., 2021; Mithoefer et al., 2011).

Contemporary studies also investigate psychedelics' effects on relationship-enhancing effects. Researchers believe that some underlying mechanisms can be a reduction in fear and negativity, an increase in the sense of social connection, social positivity, openness to others, ability to be vulnerable, trust, empathy, and love (Lyubomirsky, 2022).

These findings indicate psychedelics' potential in improving R in PERMA, a fundamental building block in flourishing and wellbeing. Also, psychedelics' favorable effects on romantic and social relationships can be even more valuable due to other pharmaceuticals', specifically anti-depressants, seemingly negative effects on interpersonal relationships due to their negative

effect on sexual drive, emotional receptivity, or emotional expression (Earp & Savulescu, 2018; Fisher & Thomson, 2007; Meyer, 2007).

Meaning

Meaning can be defined as one's making sense of their internal and external experiences (and their connections with past, present, and future) coherently, which encourages them to follow long-term goals that bring a sense of purpose and life satisfaction (Rashid & Seligman, 2018; Steger, 2012). A sense of meaning promotes self-efficacy (a belief in one's own capacity to change things in the world and their life), a sense of coherence (a better understanding of life experiences and one's own existence), altruistic behavior (committing something larger than oneself) and interpersonal connections, which increase life satisfaction, wellbeing, and resiliency (Baumeister & Vohs, 2002; Frankl, 1963; Lerner & Lyvers, 2004; Nygren et al., 2005; Steger, 2011).

Lack of sense of meaning results from mostly individualism (one's separation from other entities) and the decline of the larger, benevolent institution (God, nation, family), which threatens individual and institutional wellbeing and flourishing (Seligman & Rashid, 2006). In improving the sense of meaning, mystical experiences appear highly relevant (Frankl, 1963; Yaden et al., 2017).

The Relevance of Psychedelics to Meaning

One of the most noticeable effects of psychedelics is their meaning-boosting effect (Yaden et al., 2017; Yaden & Griffiths, 2021). In a double-blind with an active-control psilocybin study, about two-thirds of the participants indicated that their psilocybin session is among the top five most meaningful moments of their entire lives, and positive changes in participants' rate of sense of meaning persisted in the two-month follow-up (Griffiths et al.,

2006). These results also corresponded to greater positive attitudes about life and self, positive mood, positive behaviors, and positive social effects (Yaden & Griffiths, 2021).

One of the most striking examples of psychedelics' meaning-enhancing effects is the creation of the program to treat alcohol abuse disorder, Alcoholics Anonymous (AA) (Yaden et al., 2021). AA is one of the most mainstream and effective treatment options for alcohol abuse disorder, and its founder Bill Wilson, who was a former alcoholic, was administered a hallucinogenic drug in an experimental treatment in 1934 (Yaden et al., 2021). After experiencing a great peaceful, spiritual, and self-transcendent experience, he stopped consuming alcohol and remained alcohol-free until his life's end. This experience influenced him to found AA, in which the central agenda is to help individuals who suffer from alcohol abuse disorder to experience spiritual awakening to treat their addiction (Yaden et al., 2021). A current survey study points out that 83% of survey respondents (n=343) who took a high dose of psilocybin (36%) or LSD (38%) were no longer considered people with alcohol use disorder (Garcia-Romeu et al., 2019).

Other self-reported survey findings indicate that psychedelic drugs cultivate pro-environmentalist and pro-social behavior after experiencing psychedelic-occasioned mystical states (Paterniti et al., 2022).

Even though there are a variety of practices to cultivate positive emotions, positive relationships, and a sense of meaning, psychedelics are also promising tools. Therefore, psychedelics' effects should be studied more in the context of positive psychology (not only in the context of mental pathology treatments) to create practical approaches and psychedelic-occasioned PPIs.

Adverse Effects

Regarding enduring adverse effects, even though the chances seem statistically low (Carbonaro et al., 2016; Kopra et al., 2022; Strassman, 1984), researchers still approach psychedelics with caution and urge the authorities to loosen the legal restrictions on psychedelic research to study them more comprehensively with larger sample sizes (Smith & Appelbaum, 2021). Primarily, there have to be more psychopharmacological studies to map adverse drug interactions (Byock, 2018; Dyck & Elcock, 2020; Strassman, 1984).

In some cases, patients may go through psychologically challenging psychedelic experiences (which are most likely to resolve after the drug's effect wears off) and physical adverse effects such as higher blood pressure and heart rate are likely (Griffiths et al., 2006; Johnson et al., 2008; Yaden et al., 2021). Yet, these undesired effects are usually managed successfully in clinical settings due to diligent precautions and preparations. Hence negative outcomes are reduced in clinical settings compared to uncontrolled settings (Johnson et al., 2008; Yaden et al., 2021). Additionally, specific to ayahuasca, participants are very likely to experience intense vomiting and diarrhea, but these unpleasant effects are mostly perceived as indicators of "healing" by the participants (Schmid et al., 2010). Therefore, these seemingly adverse effects tend to have a subjective significance within the context. Similar to ayahuasca's adverse effects, a significant number of psilocybin participants who had gone through a challenging experience reported that it was highly meaningful to them and their healing journey (Gashi et al., 2021; Griffiths et al., 2006). However, there is not enough research to see if these acute physical adverse effects (such as severe vomiting and diarrhea) have the potential to damage physical health.

Regarding indirect adverse effects, psychedelics' administration should be ethically discussed and regulated as it may increase individuals' vulnerability to being emotionally, psychologically, or sexually abused (Brennan et al., 2021; Peluso et al., 2020; Yaden et al., 2015; Yaden et al., 2021).

There is a variety of reasons for these indirect adverse effects, including iatrogenic ones such as lack of methodological knowledge, lack of training, lack of diversity and inclusion in studies, or even psychological competency to be a sitter in a psychedelic session (Byock, 2018; Dyck & Elcock, 2020; Peluso et al., 2020; Williams & Labate, 2020; Yaden et al., 2021; Yaden et al., 2021).

As for their abuse potential by therapists, psychedelics can make people more open to influence and may reduce their ability to give consent with good judgment (Peluso et al., 2020; Smith & Appelbaum, 2022; Villeneuve & Prescott, 2022). Therefore, it might open doors for mentally unstable or predatory therapists to sexually or psychologically abuse the people they are supposed to monitor professionally. Considering how sexual abuse cases tend to be underreported (Allen, 2007), researchers should study these abuse factors with extreme caution and create a code of ethics (Smith & Appelbaum, 2022) so that authorities establish preventative measures (Peluso et al., 2020).

One of the most concerning factors in adverse effects is that there is not enough media coverage about possible harms that can happen with psychedelic use in unregulated settings. For example, in a population study (based on survey data from 2010), researchers estimated the number of psychedelics (LSD, peyote, and psilocybin) users at least once a lifetime at 30 million in the U.S. (Krebs & Johansen, 2013) and the number increased considerably since 2018 (Aday et al., 2020a) due to the increased public interest in which the profound therapeutic and

wellbeing effects occasionally mentioned with overclaims (Amsterdam et al., 2011; Plesa & Petranker, 2022; Yaden et al., 2021).

Researchers urge journalists and psychedelic advocates to caution because there is still a lot to discover and determine both psychologically, pharmacologically, physically, and phenomenologically to understand the mechanisms and possible long-term effects (Mertens & Preller, 2021; Ona et al., 2022; van Elk & Yaden, 2022; Yaden et al., 2021), so that eligibility criteria to use psychedelics, the protocols of psychedelic sessions and code of ethics are established sufficiently (Brennan et al., 2021; Smith & Appelbaum, 2022).

Possible Moderators

Psychedelics' acute subjective effects can be moderated by pharmacological factors such as dose and other drug interactions; and biological factors such as individuals' mental and physical health (Aday et al., 2020b; Hartogsohn, 2016; Strassman, 1984; van Elk & Yaden, 2022). Nevertheless, most researchers hypothesize that psychedelics' profound subjective effects are moderated by set and setting significantly, so set and setting studies should be incorporated effectively in psychedelics' underlying mechanism studies (Carhart-Harris et al., 2018; Hartogsohn, 2016).

Set & Setting

In psychedelic administration, s*et* refers to one's internal (mental) state, including current mood, expectation from experience, intention (for the psychedelic experience), life story, values, and psychological history (Hartogsohn, 2016). *Setting* refers to the external (physical, social, and cultural) environment (Hartogsohn, 2016), such as the ambiance of the place in which the psychedelic drug is administered, visual art pieces, music, lighting, smell, the sitter's mood and their support, a piece of writing, or materials to be used (for expression) during the session.

The set and setting theory emerged and was widely accepted very early in modern psychedelic research near the end of the 1950s (Hartogsohn, 2016). Based on the hypothesis, acute subjective experience is the primary medium of enduring healing and flourishing effects, and psychedelics happened to be the "occasion" of this experience (Barrett & Griffiths, 2018; Griffiths et al., 2006; Yaden & Griffiths, 2021).

In set and setting studies, expectation effects, preparatory work (self-examination, reading suitable books, practicing meditation), session supervisors (sitter/monitor) and participant's interaction and pre and post-integration work with the supervisor, time of the day during the session (day vs. night), environmental, aesthetic factors (music, lighting, and design of the room) are studied (Hartogsohn, 2016). Contemporary researchers acknowledge the significance of set and setting and their crucial role in adverse effect reduction. As a result, they design their psychedelic administration laboratories in a neutral welcoming setting (like a generic living room and playing specific classical music for all participants) and combine the drug administration with psychotherapy sessions to set the intention pre-psychedelic session and do integration work post-psychedelic session (Griffiths et al., 2006; Hartogsohn, 2016; Johnson et al., 2008). However, the set and setting theory acknowledges individual differences and creates a space in which set and setting match harmoniously, requiring customizing settings to be inclusive of all demographics (Hartogsohn, 2016). Unfortunately, creating different settings for each participant seems unlikely in controlled clinical trials since the researchers have to isolate other variables to test drug effects accurately. As a result, there is no rigorous scientific exploration of set and setting-specific studies in which psychedelics are considered as the occasion (except for a few preliminary studies (Gashi et al., 2021; Gashi et al., 2021; Strickland et al., 2020).

Many have argued that FDA regulations should be less strict on psychedelic research. Then, after this scientific and bureaucratic consensus, more multidisciplinary studies could investigate psychedelics' effects in diverse sets and settings and their relationship with different positive psychological frameworks. If/when this happens, I predict a great overflow of positive psychological psychedelics studies investigating "positive subjective experiences" (Seligman & Csikszentmihalyi, 2000; Tay & Pawelski, 2022) in the context of psychedelics and "psychedelic subjective experiences" (Yaden & Griffiths, 2021) in the context of positive psychology. Additionally, positive humanities, a new subfield in positive psychology, may fill a significant gap in the (psychedelics) set and setting studies in conceptualizing the design of effective psychedelic interventions. Therefore, in the paper's next (last) section, I will analyze positive humanities and their possible relationship with psychedelic subjective experiences.

Positive Humanities

Positive humanities (PH) looks into how arts and humanities engagement enhances human flourishing and wellbeing in a methodological way (Pawelski, 2022). PH engagements can facilitate reflecting on the sophisticated nature of human existence, which enhances psychological richness (Westgate & Oishi, 2022). Psychological richness is not necessarily related to happiness. Instead, it is derived from complex experiences that change people's view of the world and their place in it (Westgate & Oishi, 2022). Essentially, (similar to a resilience factor, *mental agility*) psychological richness transforms people's cognition to realize there are multiple dimensions in emotions, experiences, the self, and the external world.

For example, visiting art museums and seeing a variety of images or reading a literary work may enable (or remind) people to reflect on a variety of experiences of the living and being, variety of selves, and variety of perspectives on life (Dirkx, 2000; Westgate & Oishi,

2022). As a result, art engagements have the potential to invite people to contemplate the essence of their unique selves and their connection with the world (King & Trimble, 2013; Wilkinson & King, 2022). Furthermore, this whole sense of interconnectedness can help people to be mentally agile, hence resilient, in the face of adversity because every internal and external experience may have a significance, purpose, and coherence, indicating positivity and negativity are parts of a greater whole (Nygren et al., 2005; Wilkinson & King, 2022).

Positive Humanities & Psychedelic Experiences

There are various possible valuable intersections of PH and psychedelic experiences. Similar to psychedelic studies on subjective effects, PH empirically studies complex and difficult to quantify subjective experiences during arts and humanities engagements (Almena, 2018; Schmid et al., 2010; Tay & Pawelski, 2022; Yaden & Griffiths, 2021). Basically, set and setting research investigates the effects of arts and humanities engagements (such as music, the room's decor, and literary works). Moreover, PH engagements may also have the potential to alter the state of consciousness in immersive experiences (Ong, 1977; Patoine, 2019; Smith, 1994). Additionally, both fields are interested in similar frameworks such as self-reflection, a sense of wholeness and oneness, psychological richness, and integration (Dennis, 2018; Fauvel et al., 2021; Mills & Bushell, 2022; Rogers, 2021; St. Arnaud & Sharpe, 2022; Vaage, 2009).

Furthermore, PH engagements may support psychedelics' subjective effects by providing helpful tools for individuals to reflect on and make sense of their psychedelic experiences. Even though it has not been researched comprehensively, recent findings about the effects of set and setting (Carhart-Harris et al., 2018; Hartogsohn, 2022; Noorani, 2021; Winkelman, 2021) can be interpreted as PH research's potential in enriching psychedelics' application methods. PH research may investigate the similarities between immersive positive art engagements' subjective

effects and psychedelics' subjective effects regarding flourishing and wellbeing benefits (Stange & Taylor, 2008).

In what follows, I will analyze a few art forms' (literature, visual art, and music) potential effects on wellbeing and flourishing and their potential impact on psychedelic experiences through set and setting theory.

Literary Engagements

Literary engagements can be one way of cultivating individuals' wellbeing and flourishing (Fletcher, 2021). However, reading is a broad definition to describe engagements with literary pieces. Moreover, reading is a complex activity that can be practiced differently, creating various effects on individuals (Metzner, 2011).

To analyze psychological models of engaging with narrative fiction, researchers and cognitive literary theorists look into the relations between textual features and different psychological processes; reader engagement and immersion or narrative transportation, the influence of structural or formal elements of texts, and the significance of reader characteristics (Kidd, 2021). Cognitive literary theorists have different explanations for analyzing these phenomena in understanding their effect on human wellbeing and flourishing; their theories intersect with two models of literary engagements; reflective and non-reflective reading (Kidd, 2021).

Reflective Reading can be epitomized by defamiliarization, iterative interpretation, the experience of aesthetics, narrative emotions, and critical thinking (Kidd, 2021). Reflective reading creates a sense of wonder and helps the reader to see life from a different angle. Hence through defamiliarizing, the reader would "dissolve, diffuse, and dissipate (their thoughts and feelings), to re-create (them)" (Miall & Kuiken, 1994).

Moreover, reading stories can boost critical thinking and iterative interpretation by reading about different characters, situations, and responses to the conditions than what is already familiar to the reader's perspective (Fletcher, 2021; Kidd, 2021).

Non-reflective reading, however, is different than reflective reading. Instead of defamiliarizing and/or critically thinking, reflective reading is about immersion, a sense of the high level of narrative transportation (Kidd, 2021). Narrative transportation can be conceptualized by combining the reader's cognitive, emotional, and imaginary involvement in a given story (Fitzgerald & Green, 2021). The readers do not counterargue (defamiliarize and critically think) with the story, not to disrupt the transportation and enjoyment. Transportation in narrative worlds also claims that the reader is "transported" in a way that their immersion in the story's space, time, characters, and experiences change and transform the reader (Fitzgerald & Green, 2021). Therefore, when people are transported, these experiences can be utilized to enhance wellbeing and flourishing significantly.

For example, in one randomized controlled trial (with small sample size, n=82), more transportation in a story about tobacco's risks was positively correlated with quitting smoking at a two-week follow-up (Williams et al., 2011). Even though there should be more research to test this hypothesis, narrative transportation may loosen one's boundaries of self, which can facilitate trying out different identities or new (positive) behaviors (Green, 2005).

Ultimately, reflective and non-reflective reading can benefit individuals depending on their internal needs and the text they are reading. Sometimes, people can combine both styles in their literary engagements and use them interchangeably (Kidd, 2021). Although it is still hard to scientifically explain why and how to use these two modalities effectively, human cognitive

mechanisms in literary engagements may influence positive intervention designs, specifically on the occasion of psychedelics (Fitzgerald & Green, 2021).

Literary Engagements & Psychedelic Experiences

Literary engagement tends to gradually build up one's perception of life in the long run, unlike psychedelic experiences, which are dramatic and drastic changes in a short period (Fletcher, 2021; Gashi et al., 2021). However, researchers claim that psychedelic users' subjective experiences are influenced by their narrative engagement background (Gashi et al., 2021). In a qualitative study, the participants (n=50) were asked about their cultural background (such as political or religious affiliations, taste in music, literature, food, etc.) and their psychedelic experiences. Researchers found that a significant number of participants utilize their narrative background to make sense of their ineffable psychedelic experiences.

This preliminary research exhibits that people do not create their stories about themselves and their experiences from scratch; instead, they use pre-existing themes and tropes to shape their stories coherently and meaningfully (Gashi et al., 2021; Gashi et al., 2021). Moreover, after the experiences, the way the participants narrate their stories is claimed to be a determinant factor of behavior and cognitive changes (Gashi et al., 2021). Moreover, in the case of a bad psychedelic experience, one's finding meaning and something "good" about it can be (arguably) the most important narrative work for wellness and flourishing benefits (Dyck & Elcock, 2020).

Moreover, similar to narrative engagements' effects, psychedelic subjective experiences can create narrative "inflection points" in a person's life, which may transform one's entrenched thoughts, feelings, and attitudes into healthier ones (Yaden & Griffiths, 2021). To enhance, support, and utilize the "narrative inflection" effect better, researchers may utilize literary work engagement's effects in different modalities that are described previously.

Ultimately, even though literary engagement research is still preliminary, it may invoke new questions about better understanding both PH and psychedelic subjective experiences. Considering how psychedelic spiritual practices are built on oral and written narrative traditions, there is much to uncover empirically (Gashi et al., 2021).

In terms of psychedelic application design, pre-immersion in a literary form (chosen by the participant with the supervision of a therapist or a positive psychology practitioner) before ingesting a psychedelic medicine would be another interesting topic to study. Moreover, creating (writing) a narrative work (with reflective and non-reflective (like a stream of consciousness writing)) instead of reading (related to the intention of psychedelic session) can be another interesting PPI to test with psychedelic experiences' in healing, resiliency, and flourishing.

Visual Art Engagements

The immersive engagement in visual art pieces may help individuals introspect and reflect on their self and life experiences (Dirkx, 2000; Vessel et al., 2012). They can see how multidimensional their existence and experiences are. A significant correlation has been found between individuals' awareness of this multidimensionality, including their various identities and strong and weak attributes, and one's positive self-image (Ryff & Keyes, 1995).

For example, walking around in an art gallery (with the proper intentionality) and immersing oneself in the art pieces may evoke one's "conflictual" sense of having different selves when reflecting on different images. Different images might represent various times or experiences or identities such as younger self, desired future self, parent self, activist self, professional self, romantic self, friend self, masculine self, feminine self, and the list can go on. The immersive engagement in visual art pieces may help individuals to reflect and interpret what they mean and their relationship with each other (Dirkx, 2000; Vessel et al., 2012).

From an empirical perspective, art-based experiences can be analyzed **with six dimensions**; autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Darewych, 2022). The six dimensions in art engagements and the way they mediate PH engagements' wellness and flourishing effects can also help design the set and set protocols for psychedelic sessions based on participant's intentions and which area in their life they would like to work on (Johnson et al., 2008; Hartogsohn, 2017).

In one pilot study on orphans in Ukraine, the participants (n=258) were given *Nesting Dolls* (also known as Matryoshka dolls originally from Russia) to reflect on their multidimensional selves better (Darewych, 2013). *Nesting Doll* has decoratively crafted five wooden dolls. Each doll is inside another, so at first glance, it looks like one big doll, but when it unfolds, there are other dolls in each doll, 5 in total. Researchers thought the Nesting Doll could represent the notion of self and its different aspects. Hence, mental health practitioners gave the participants Nesting Doll and wanted them to identify each doll with another part of themselves. Once they defined each doll, the clinicians gave the participants decorative paper, colored markers, scissors, glue, and a multi-size nesting doll template. Then, they were asked to design their own nesting doll, rating the different parts of self from the most dominant to the least. This art-based PPI demonstrated how the orphan participants could reflect on their future selves, set goals, and find meaning in life (Darewych, 2013).

Visual Art Engagements & Psychedelic Experiences

The Nesting Doll experiment can influence how to design a pre-peak psychedelic experience (right after ingesting the medicine and before its peak moment), or for the after-peak experience, or maybe pre-session preparation and after-session integration work.

Additionally, some researchers suggest that virtual reality headsets might help psychedelic users immerse themselves in a particular place, which might boost the effectiveness of the medicines (Sekula et al., 2022). Moreover, additional set and setting protocols might be added in the future of the practice, such as participants' bringing their own visuals (such as art pieces, flowers, spiritual items, meaningful objects, or personally valued photographs), which they think might help in their psychedelic sessions (Fadiman, 2011).

Besides the suggested or studied strategies in utilizing visual arts to increase self-reflection, researchers have already designed their clinical research settings in a more cozy natural way rather than a laboratory setting with fluorescent lights (Hartogsohn, 2016). However, this design is as neutral as possible and remains the same for all participants, which is not ideal for effectively studying the implications of the set and setting on profound subjective experiences.

Music Engagements

Music is among the most influential art forms. The psychological benefits of music vary, including treatment for mental illnesses or increasing cognitive performance. It has been utilized in therapies and interventions that help individuals' flourishing and wellbeing for centuries (Gouk, 2016). Music can be a great medium to invoke a sense of unity and interconnection with the entities in the universe in multiple and unique ways, like bodies of water (Coopersmith, 2019; Westgate & Oishi, 2022). Music is a universal language that enables individuals to aesthetically communicate with the divine, the inner self, the past, the present, the future, traditions, communities, nature, cosmic space, different life forms, and the imaginary worlds (Coopersmith, 2019).

One of the areas in which music has effectively created individuals' sense of connectedness in wholeness is spirituality (Pargament et al., 2022). In the traditional spiritual rituals, the practical knowledge of the effective use of the beat, harmony, rhythm, and high and low pitch is still preserved in many, if not all, faith traditions (King & Trimble, 2013; Pargament et al., 2022). Research indicates that engaging in such ceremonies can improve wellbeing and flourishing due to an increasing sense of connection with wholeness (Pargament et al., 2022).

A neuroimaging study found that listening to preferred music lights up the brain's autobiographical memory, attention, theory of mind, prospection, and creativity regions (Tay et al., 2018; Wilkins et al., 2014). This brain network connectivity pattern was not determined by lyrics/no lyrics or various music genres but by individuals' subjective preferences (Wilkins et al., 2014). The study claims that listening to preferable music can have a healing and wellbeing enhancing effect, yet further research is needed.

In another neuroscientific study, the isochronous pulse of the music was found to be the primary factor in autonomous nervous system responses, and musical preference had little effect on them (Krabs et al., 2015). Additionally, a meta-analysis review of 30 articles on auditory beat stimulation's cognitive and therapeutic effects found that certain beat stimulation can have a reductive effect on anxiety levels (Chaieb et al., 2015). Yet some results also varied depending on age (very slightly) (Oster, 1973), gender differences (Grose & Mamo, 2012), and women's menstrual cycles (Haggard & Gaston, 1978). It is essential to note that these research findings are preliminary; further research is needed to look into how music's different elements affect which parts of the brain to have a more comprehensive and holistic perspective about music's influence on cognition and mood to design effective PPIs.

Regarding music's acute subjective effects, one study, with a large sample size (n=1500), exhibits that listening to unfamiliar, instrumental sad music may invoke different strong emotional responses, including sadness, enjoyment, and being moved (Eerola et al., 2016). Moreover, the degree of enjoyment and being moved positively correlates with empathy levels.

Moreover, another research also found that sad music can be a source of consolidation in times of adversity (Saarikallio, 2011). Yet, another research found that listening to self-selected sad music can increase depressive mood (Garrido & Schubert, 2015), especially with listeners who already have higher levels of depressive mood and negative social comparisons (ter Bogt et al., 2021). Ultimately, incorporating sad music can either result in an emotionally rich or deteriorating experience due to subjective responses.

All the research findings mentioned above are promising in profiling listeners and analyzing their music preferences' possible or negative effects, indicating that music may be incorporated in PPIs and psychedelic sessions more effectively. Moreover, music-related interventions combined with psychedelics may also enhance music's effectiveness in wellbeing and flourishing effects (Kaelen et al., 2015).

Music Engagements & Psychedelic Experiences

From the beginning, music has been part of modern psychedelic studies in psychedelic drug sessions (Barrett et al., 2017; Bonny & Pahnke, 1972; Cohen & Eisner, 1958). Recent research findings on the influence of set and setting in psychedelic sessions indicate that psychedelics can enhance music's effect by increasing positive emotions, such as a sense of transcendence (Kaelen et al., 2015). Moreover, in a neuro-imagining study with LSD (n=20), music listening has been found to elevate entropy in the brain and increase openness (Lebedev et

al., 2016); potentially necessary factors for achieving ego-dissolution experience (Carhart-Harris et al., 2014).

Although researchers believe that particular music choices may complement different stages of psychedelic sessions in regards to yielding continuity, framing the experience, narrowing attention, increasing concentration, and freeing emotions (Bonny & Pahnke, 1972), there is no well-grounded empirical data to suggest what kind of music (both content and structure-wise) to utilize, yet (Barrett et al., 2017).

However, in an effort to fill this research gap in music's effects on psychedelic sessions, researchers conducted a preliminary study in which they asked expert psilocybin guides (who sit with more than 50 individuals in psilocybin therapy sessions) anonymously (n=10) to reflect on what kind of music would be preferable in these settings to support psilocybin induced mystical experiences and specifically recommend pre-peak and peak music (Barrett et al., 2017). Due to the small sample size and anonymity, the research cannot be considered representative. Still, some findings might be influential as a starting point to initiate other studies. For example, based on participants' anonymous responses, music that is "regular, predictable, formulaic phrase structure and orchestration, a feeling of continuous movement and forward motion that slowly builds over time, and lower perceptual brightness" was found to be supportive of peak psychedelic experiences compared to pre-peak music (Barrett et al., 2017, p.11).

I believe that PH studies on music may have the potential to inform psychedelic studies regarding music's supportive effect on mystical experiences. Moreover, positive psychological studies on music can benefit from psychedelic drugs to enhance the immersion effect as well if legalizations and FDA regulations make positive psychological psychedelic research possible. Lastly, qualitative research can be conducted within spiritual groups that have been using a

certain type of music to induce transcendental sensations in their rituals for generations, which could be inspiring and increase the cultural representation in studies.

Positive Humanities in Shaping the Set and Setting

Some exemplary PH engagements and their effects mentioned in this paper can be sufficient to give a glimpse of the parallels and complementary elements between PH and psychedelic drugs' wellbeing effects.

It should also be noted that all art forms are more or less interconnected to each other. This is why it is a scientific dilemma to study them separately. For example, narrative engagements supported with music or visual art elements may (hypothetically) have a much more profound effect than without the music. Yet, to grasp the effects of each art form, it is significant to isolate other variables for accuracy, which creates a challenge in designing empirically supported PPIs that incorporates multiple PH forms efficiently. This challenge may reflect on set and setting studies as well.

For this reason, I believe a reliable questionnaire may assess psychedelic users' profiles and intentions (which can be framed by referencing PERMA elements) and customize psychedelic sessions accordingly. It can be an algorithm similar to the ones of social media or movie and music streaming platforms like Netflix or Spotify. Such an algorithm may suggest set and setting preferences for a psychedelic session based on participants' needs to have a profound subjective experience. The data to make this algorithm work may be gathered from the psychedelic guides' and psychedelic participants' self-reports (a similar technique to the recent study on music's effect on psychedelic experiences on set and set designs, participants' profiles, and the success rate of the sessions (Barrett et al., 2017)) alongside the scientific (theoretical) knowledge on flourishing effects of PH engagements and set and setting theory in the context of

psychedelics. Utilizing current technologies in customizing PPIs and PPIs in the context of psychedelic drugs can dramatically affect wellbeing and flourishing.

Another line of potentially important research may be examining individuals' dominant choices in their PH engagements and whether these choices are reflected in their psychedelic subjective experiences. Additionally, researchers might study if psychedelic subjective experiences change people's choices in PH engagements after their psychedelic experiences. Exploring these possible interchangeable relationships and creating questionnaires based on the findings could guide pre-psychedelic preparations and post-psychedelic integration work, which may ripple and sustain psychedelics' wellbeing and flourishing effects in the long run.

Conclusion

In his initiative "Flourish 51", Martin Seligman addresses the importance of implementing new technologies in flourishing research and practices (Chamberlin, 2011, p. 51), and psychedelics could be a promising new pharmacological technology due to the resurgence of recent research (Yaden et al., 2018b). However, as influential as the data about psychedelics seem, caution is crucial because a variety of research is still needed to better quantify adverse effects in both the short and long term. For this reason, psychedelic research should be kept in well-regulated clinical settings where multidisciplinary collaboration among different wellness professionals and researchers is possible.

Therefore, in this paper, I examined why more positive psychology practitioners and researchers might be needed in psychedelic research, both in psychedelics' theoretical and application studies. I looked into psychedelics' effects and underlying mechanisms and their therapeutical and positive psychological effects (resilience and flourishing effects). Lastly, I

reviewed the literature on set and setting and how positive humanities engagement and psychedelic set and setting may relate to and complement each other.

After reviewing all the literature, I conclude that individuals' unique psychedelic journeys through cultivating profound subjective (and significantly meaningful) experiences should be professionally supported and monitored with interdisciplinary collaborative work. One example of such collaboration can be from modern medicine in helping pregnant women deliver their babies. To ensure a mentally and physically healthy birth experience, nurses, midwives, and gynecologists (in some cases, doulas) work collectively to step in when their expertise is needed. Even though they are not in the same delivery room all the time and if at all, there is (seemingly) a good organizational mechanism in which they can cooperate proficiently. A similar method can also be applied to psychedelic administration (by ensuring appropriate training and certifications). For example, while a psychiatrist monitors pharmacological safety and benefits, clinical psychologists can step in if there is a need for psychotherapy and mental health illness assessment, and positive psychology practitioners might be the psychedelic guides of healthy individuals before, during, and after psychedelic sessions. This interdisciplinary approach may optimize the administration of psychedelic drugs and revolutionize mental health care practice by incorporating positive psychological theories and practices.

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