

Using the Five Pathways to Nature to make a Spiritual Connection
in Early Recovery from SUD: A Pilot Study

Introduction

Substance use disorder (SUD) affects approximately 100 million people worldwide (Orford et al., 2012), with approximately 27 million in the US (Substance Abuse and Mental Health Services Administration, 2016a). Worldwide, mortality rates are 33.0 (alcohol) and 6.9 (drugs) deaths per 100 000, and rising (Peacock et al., 2017). As a single cause for addiction is yet to be identified, a single successful treatment modality is also unknown. Various approaches are used including medication, counselling, and mutual-help groups. While the efficacy of current treatment methods for SUD remains inconclusive, the cost is considerable.

Twelve step programmes (TSPs) have positive outcomes for the maintenance of abstinence from alcohol and other drugs (Dutra et al., 2008; Fiorentine, 2009; Witbrodt et al., 2012) presenting an effective, cost-efficient resource (Gamble & O’Lawrence, 2016). TSP’s exist in over 180 countries (GSO, 2020), are cost-free, accessible, and available online (Dossett, 2013). Treatment facilities often recommend TSPs for after-care, and 12-Step Facilitation (TSF) is used as a stand-alone treatment modality (Connor et al., 2016; Galanter, 2018; Kelly et al., 2017; Miller & Moyers, 2015). Project MATCH, the largest randomised trial for addiction treatment ever conducted found TSF abstinence results to be as favorable as those for other well-tested approaches (PMRG, 1998). Regular attendance and active involvement in TSPs are factors associated with successful recovery outcomes (Blonigan et al., 2011; Tonigan et al., 2013).

Involvement in a Twelve Step programme (TSP) includes activities such as attending meetings, reading recovery-based literature, performing acts of service, and working with a sponsor.

Twelve step sponsors serve as mentors for newcomers and assist in working through the 12 Steps. The TSP itself is a sequential plan of action. As stated in the original 12 Step text (the “Big Book,” Alcoholics Anonymous) the steps are “a group of principles, spiritual in nature, which is practiced as a way of life, and can expel the obsession to drink and enable the sufferer to become happily and usefully whole” (Alcoholics Anonymous, 1955, p. 15).

The initial phase of the programme promotes the integration of restructured cognitions (Krentzman et al., 2011). The goal is to move away from cognitive distortions that perpetuate addiction, such as self-governance and isolation, to the ability to ask for help, become teachable and restore a positive sense of self (Kaskutas, 2009). Accepting powerlessness (Step 1) indicates the need for a ‘higher power’ (Steps 2-3). Identifying how past behaviour affected others (Steps 4-9) leads to a determination to renounce self-centeredness (Step 10) and seek a deeper, more spiritual, meaning in life (Step 11) and a shift from focus on self to a focus on altruism and active service (Step 12). A National Institute on Drug Abuse (NIDA) treatment outcome study concluded that a strong sense of spirituality was correlated with reduced relapse rates (Schoenthaler et al., 2015), suggesting the efficacy of TSP’s lies in the creation of a spiritual connection (Dermatis & Galanter, 2016).

Social connectedness and a sense of belonging are critical to mental health (MH) (Cruwys et al., 2014). SUD is associated with high levels of social isolation (Chou et al., 2011) and social isolation has a causal role in the development of SUD’s (Dingle et al., 2015; Johnson et al., 2018). Spiritual health is associated with psychosocial healing and well-being (Jaberi et al., 2017) and is defined as that which provides meaning and purpose (Puchalski, 2003). Spirituality is an essential component of TSPs where members seek an HP, or “a god of our own understanding” (Alcoholics Anonymous, 1976, p. 59). The goal of a TSP is the formation of a spiritual connection, or reconnection, as “deep down in each of us is a fundamental idea of God” (Alcoholics Anonymous, 1976, p.55).

TSPs are self-described as spiritual rather than religious allowing for a flexible view of a HP. However, terms such as ‘spirituality’ can present significant challenges for those with an aversion to religious dogma and negative associations with the word “god.” Atheists and agnostics are reported to have significantly lower levels of 12-Step involvement (Tonigan et al., 2013), therefore, alternatives to traditional deities are required. Spirituality is a nebulous entity, open to various interpretations. The spiritual theme of the TSP relates to a conclusion that personal will-power alone is insufficient, therefore a ‘higher power’ is necessary. While there is no requirement for any specific form of deity, religion or specific spiritual power of any kind, there is a requirement to identify a power greater than oneself (Green, Fulilove & Fulilove, 1980). Each member is invited to self-define his or her own version of a higher power, and therefore can choose not to

self-define as religious or spiritual at all (Kelly, 2017). One such alternative to a traditional HP is nature, it being seen as a primary building block for spirituality through the attribution of agency to natural events (Rossano & Vandewalle, 2016) and through the relationship humanity has with its wider natural family.

In Native American cultures, nature is regarded as a HP and is used in spiritual practices. However, this represents one lens through which to view nature. Positive therapeutic effects of spirituality can be evoked and implemented through nature without any attachment to formalised tradition or established convention (Naor & Mayseless, 2020). This may stem from Humanity's propensity to form social relationships which is a result of our evolutionary history where cooperation with others was essential for survival (Caccioppo & Patrick, 2008) that would also include connections with the rest of nature (Capaldi, Dopko & Zelenski, 2014). This ability to connect with non-human life offers an opportunity to form a relationship with a HP through nature. Nature connectedness (NC) is a subjective psychological construct (Nisbet & Zelenski, 2013), describing an individual's relationship with the wider natural world (Mayer et al., 2009) that counters the growing human exemptionist paradigm of separation (Catton & Dunlap, 1978). NC is significant as a cultural identity within indigenous cultures (Russell et al., 2013), where belief systems see the earth and self as one (Macy, 2007).

Significant associations between NC and spirituality (Kamitsis & Francis, 2013) have been found and are part of a meaningful life (Howell et al., 2013) through spiritual inspiration (Naor & Mayseless, 2019) that facilitates a spiritual connection (Beery, 2013). NC is consistently linked to a wide range of wellbeing outcomes (Capaldi et al., 2014; Pritchard et al., 2019). Interventions to bring about a sustained increase in NC have been developed through noticing the good things in nature (Richardson & Sheffield, 2017) with interventions also producing clinically significant increases in clinical quality of life (McEwan et al., 2019). Being able to reconnect people with nature is therefore important. The five pathways to nature connectedness (FPTNC) that include sensory contact, emotion, meaning, compassion and beauty offer an evidenced framework to reconnect people with nature (Author, 2017).

It is proposed that the FPTNC will help individuals to use nature as a source of connection to a power greater than themselves, providing an alternative to traditional deities for TSP. To our knowledge, no research has been conducted regarding the use of nature as a HP as part of a

TSP, as facilitated by the FPTNC. Therefore, a positive relationship with nature, where nature takes the form of a HP, could serve as an alternative focus for individuals engaging in a TSP and potentially facilitate positive outcomes for those without a traditional deity to invoke. The purpose of this pilot study is to gain insight into alternative approaches to connect with an HP for individuals in early recovery from SUD using nature, as facilitated through the FPTNC. The following hypotheses were used:

H1: There will be a significant increase in nature connectedness in the pathway condition from pre to post compared to the 12 Step control

H2: There will be an increase in wellbeing, quality of life and spirituality in both the pathway condition and 12 Step control groups from pre to post

Research question: Do the FPTNC provide individuals in early recovery from SUD with the opportunity to form a spiritual connection with a higher power?

Methods

Design

The pilot study took the form of a mixed methods explanatory sequential design in two phases:

Phase 1: Quantitative data collection using a quasi-experimental design to investigate changes in outcomes measures from pre to post through four weekly on-hour sessions

Phase 2: Qualitative exploration using semi-structured interviews following the four weekly sessions

A mixed methods design enabled the triangulation of methods, where the strengths of one approach compensates for any weakness in another, providing the opportunity to understand the participants' experience of the event of interest. Specific meaning that participants attach to an experience are not available to researchers but can be acquired through a process of interpretation (Smith et al., 2009).

Participants

A total of twelve participants took part in the study with a mean age of 32.2 years old ($SD = 8.73$). The majority identified as white, and one identified as Native American. 25% were female. 50% of the participants were employed, and 25% engaged in voluntary service. Participants reported abstinence from alcohol and other drugs for an average of 120 days.

The participant group for this study consisted of 12 volunteers from the aftercare programme (ACP) of an inpatient drug and alcohol treatment centre in the United Kingdom. Prior to the study, two ACP facilitators distributed information about the proposed study to all clients in the ACP and explained that participation was entirely voluntary. Detailed information about the research project was presented to ensure the clients could make an informed decision before choosing to engage. The information included: the purpose and nature of the study; times, duration and dates of the sessions; the voluntary nature of participation; the ability to withdraw at any time and confidentiality considerations. Twelve individuals volunteered. Six were randomly assigned to the nature group and six to the control group. At the end of the study, each of the 12 participants engaged in semi-structured interviews conducted by the first researcher.

The pilot study was in two phases: phase one involved four weekly one-hour sessions with pre and post testing to collect quantitative data and phase two involved one-on-one interviews with the first researcher following the four weekly sessions. The participants were informed of the measures to ensure confidentiality. All aspects of the study received clearance from the University of Derby Ethics Committee. Throughout the study, all participants remained active in the standard aftercare programme as provided by the treatment centre and underwent the same process of recruitment and informed consent. Basic demographics including name,

email address, phone number, nationality, gender, employment status and length of time in recovery were collected on paper via participant self-report and stored under lock and key.

Measures

Each participant performed each of the six measures twice in the form of pre and post testing. Pre-testing took place prior to Week 1 of the study, and post testing was conducted between one and two weeks after the conclusion of the four-week study, depending on the availability of the participants. The first author administered the quantitative measures to all of the participants and the second author performed all analyses of the quantitative measures.

Measure 1. Nature connectedness was measured using the short-form Nature Relatedness Scale (Nisbet & Zelenski, 2013). The measure is rated on a five-point Likert scale (1 disagree strongly, 5 agree strongly) and includes six items, an example being “I take notice of wildlife wherever I am”. The measure has strong reliability ($\alpha = .86$) and validity when compared with other NC measures.

Measure 2. Recovering Quality of Life was measured using the ReQol 10 (Keetharuth et al., 2018). This short-form version of the measure contains ten items, an example being “I felt unable to cope” and is rated on a zero (most or all of the time) to four (none of the time) Likert scale. The measure is suitable for a range of cultural backgrounds, is short, simple and captures users’ perspectives while being psychometrically validated. The short version of the measure has been found to have strong validity and reliability in both clinical and general populations ($\alpha = .87-.92$).

Measure 3. The Five Ways to Wellbeing Index (WHO, 1998) is a five-item measure of wellbeing that has good construct validity (Topp et al., 2015) and is suitable for use with individuals aged 9 and over. Items are rated on a six-point Likert scale ranging from zero (at no time) to five (all of the time) of agreement within the past two weeks. Example items include “I felt calm and relaxed.” The measure has shown strong validity and reliability ($\alpha = .91$) in clinically relevant populations (Dadfar et al., 2018).

Measure 4. As no ‘gold standard’ measure of spirituality exists (Monod et al., 2011), two measures were selected for this construct to help capture spirituality as effectively as possible while also keeping the total number of items used as low as possible to avoid participant fatigue. The first, the Daily Spiritual Experiences Scale (Underwood, 1999) was selected to capture everyday spiritual experiences while transcending any particular religious belief system. It includes 16-item measure that uses a six-point Likert scale ranging from 1 (never or almost never) to 6 (many times a day) with the measure found to be reliable ($\alpha = .89$) and valid, an example item being “I feel God’s presence.”

Measure 5. A second measure of spirituality was used to capture intrinsic spirituality in addition to the experiential Daily Spiritual Experiences Scale. The six-item version of the Spirituality Self-Rating Scale (Galanter et al., 2007) was used with items rated from 1 (strongly agree) to 5 (strongly disagree), an example item being “My whole approach to life is based on my spirituality”. The measure has been found to be valid and have strong reliability ($\alpha = .82-.88$) with clinically relevant populations (Monod et al., 2011).

The first author administered the measures to all of the participants and the second author performed all analyses of the measures.

Data Collection and Analysis

Phase 1 Quantitative data collection

Each group engaged in four weekly one-hour sessions. Group One (the nature group) met on Tuesday evenings at 5:30pm and Group Two (control) met on Thursdays. For this study, a consideration of nature as a form of higher power was chosen as a potential alternative to the Abrahamic overtones presented in the narrative of 12 Step literature. Individual interpretation of nature varies. For the purpose of this study, the authors were informed by the elements provided in the FPTNC. These included examples of sensory contact, emotion, meaning, compassion and beauty. No measures were taken to verify the non-existence of any possible bias between the god or nature as a divine source. Sessions were held in a private dining room owned by the treatment centre. The introductory session for both groups began with a description of what to expect in the coming weeks. The first researcher distributed and read aloud the Consent Form (Appendix 1), pausing to invite and respond to any questions. Participants signed the consent form using a unique identifier to preserve confidentiality. Hard copies of scales (Appendix 2) were distributed, and each item was read aloud, allowing time for the participants to choose and record their responses. Each session for both groups followed the format of an open 12 step meeting that began with opening words followed by confidentiality/anonymity statements along with the statement of purpose. A 20-minute presentation (Group 1) or reading (Group 2) was provided with participants invited to share in relation to the presentation/reading before the session closed with refreshments provided (example sessions are provided below). After six weeks, the participants completed the same measures once more.

Group 1 Example session. The members of group one were invited to consider the beauty of birds: their colour, form and flight patterns. Paintings and photographs were displayed, and bird feathers were available for touch. A tape-recording of birdsong played quietly in the background. These sensory experiences were used as springboards for discussion about any emotions associated with birds, and participants were invited to share any meaning that the images and sounds evoked. Endangered and extinct bird species were named to introduce the notion of compassion.

Group 2 Example session. Participants in the control group followed an open 12 step meeting format with a reading from Narcotics Anonymous (NA) text following the statement of purpose for the meetings. The readings focused on such themes as ‘higher power,’ ‘spiritual connection,’ and ‘spiritual awakening.’ Participants discussed their personal response to the readings.

Ethics

Ethical approval for the study was provided by (omitted for blind review) with the research complying with the guidelines of the British Psychological Society and the American Psychological Society.

Results

Quantitative Data

Due to the small sample size and the potential for a Type I or II error (Field, 2017), non-parametric inferential statistical tests were conducted on the data. A Wilcoxon Signed Ranks tests was used to investigate differences at pre and post for the two groups analysed using SPSS version 26.

Wellbeing scores of the pathway group ($Mdn = 14.00$) after the programme were significantly higher than before ($Mdn = 17.50$), $T = 0$, $p = .01$ (one-tailed), $r = .65$. Wellbeing scores of the control group ($Mdn = 17.00$) before the programme were not significantly higher than at post ($Mdn = 19.00$), $T = 1$, ns , which did not support hypothesis H^2 that wellbeing scores would increase in both conditions.

ReQol 10 scores of the pathway group ($Mdn = 28.50$) after the programme were significantly higher than before ($Mdn = 33.50$), $T = 0$, $p = .01$ (one-tailed), $r = .64$. ReQol 10 scores of the control group ($Mdn = 35.00$) before the programme were not significantly higher than at post ($Mdn = 34.00$), $T = 2$, ns , which partially supports hypothesis H^2 that ReQol 10 scores would increase in both conditions.

Nature connectedness scores of the pathway group ($Mdn = 3.17$) after the programme were significantly higher than before ($Mdn = 3.83$), $T = 0$, $p = .02$ (one tailed), $r = .59$. Nature

connectedness scores of the control group ($Mdn = 4.17$) before the programme were not significantly higher than at post ($Mdn = 3.83$), $T = 2$, ns , supporting hypothesis H¹ that nature connectedness would significantly increase in the pathway condition when compared to the control.

Self-rated spirituality scores of the pathway group ($Mdn = 1.70$) after the programme were significantly higher than before ($Mdn = 4.00$), $T = 0$, $p = .01$ (one-tailed), $r = .64$. Self-rated spirituality scores of the control group ($Mdn = 4.60$) before the programme were not significantly higher than at post ($Mdn = 4.60$), $T = 2$, ns , which partially supports hypothesis H² that self-rated spirituality scores would increase in both conditions.

Daily spiritual rating scores of the pathway group ($Mdn = 46.50$) after the programme were significantly higher than before ($Mdn = 64.50$), $T = 0$, $p = .01$ (one-tailed), $r = .64$. Daily spiritual rating scores of the control group ($Mdn = 60.00$) before the programme were not significantly higher than at post ($Mdn = 61.00$), $T = 1$, ns , which partially supports hypothesis H² that daily spirituality scores would increase in both conditions.

Qualitative Data

Data analysis was carried out in line with IPA requirements as suggested by Smith & Osborne (2008). IPA is especially valuable for examining topics that are complex and ambiguous (Smith & Osborn, 2008). Seeking a connection to an HP through nature is an example of such a phenomenon. The first author read each transcript several times to enable familiarisation with the data and provided a written commentary to note areas of interest. Emergent themes were categorised based on similarity of meaning and major themes were identified that emerged from at least 50% of the transcripts (Smith et al., 2009). Direct quotes provide support for each theme.

Semi-structured interviews were held with participants from the pathway group who are identified through numbers to maintain confidentiality. Three major themes emerged: Higher power, barriers and segues; Connecting with nature / nature as a HP; Negative experience at 12 step meetings.

Theme 1. Higher power: barriers and segues

Powerlessness is a foundational concept for a TSP, as a lack of personal power signals the need for a power greater than oneself. Current reactions were mixed toward this approach, but comments from some participants indicated an awareness of the spiritual nature of the TSP and recognised the invitation to develop a relationship with an HP. Participant 1 noted an initial understanding:

Participant 1: *“You can’t trust yourself, so it’s about stepping away from yourself and having trust in something that is not yourself.”*

The experience of making a connection with a higher power varied from those individuals who were developing a relationship to those who reported the deepening an already existing relationship. For example, Participant 2 explained the concept of a higher power related to a deceased grandfather with whom there had been a close relationship, and to whom the participant had turned in his ‘rock bottom.’

Certain barriers were identified. An aversion to religion created a barrier that prevented engagement in step work, meaning that while some participants engaged in the fellowship of TSPs, they were not actively working the 12 steps. Preexisting associations of an HP with religion took on a negative connotation which led to some initial apprehension about using nature as an HP.

“At first, I wasn’t sure. I thought an HP was something religious with a new age twist. I’m not religious and don’t have an HP. I thought HP was just another word for god and that, in my mind, was a punishing god. I’ve been punished enough.” Participant 3

“I couldn’t see myself connecting with an HP because when I tried in the past, nothing happened. When I looked at Step Two, I decided the steps weren’t for me, so I just went to the meetings to meet other alcoholics.” Participant 4

Several participants reported a shift or development in their spiritual connection to an HP following the exposure to the FPTNC, enabling an understanding of what an HP could be and its significance in a TSP:

“I believe in a higher power. Using the five pathways to nature has upped it a notch and my feelings have deepened.” Participant 1

“It has added an extra dimension for me. This experience has reaffirmed by belief that this HP is true, whether it be God or Karma or whatever, nature. I feel that now.” Participant 3

“I had fear, now I have faith. It is important not to feel alone all the time. There is something else out there and you can get guidance, direction and support from it. I feel my HP pushing me along now.” Participant 4

Theme 2. Connecting with a higher power through nature

The aim of this study was to examine whether a specific introduction to nature using the five pathways to nature connectedness increased a connection to nature and/or a connection to a higher power. Connecting was initially described as ‘reaching out to’ (Participant 2) or ‘a sense of belonging’ (Participant 3). The predominant theme that emerged from the nature group was that of increased connection to nature, which in turn led to a connection to a higher power. As revealed through the interviews, the feeling of connecting with nature was palpable:

“I realise now, we are all connected through nature and trees and the oxygen they give out. Makes me feel part of the world and part of a group of people who are seeking the same things. I notice nature more now, and I learned to connect with nature quite well. I go outside and appreciate the outdoors, and I use it to connect with my HP.” Participant 2

“I feel more connected to nature and the vibration of nature, and the stillness. Getting into nature that way gets me away from the energy that is negative because the energy in nature is green and peaceful. It came to me that I needed an HP and if I can connect with nature, just sitting quietly in nature, I find I can connect with my HP. The HP is in the wildlife. Nature can help you forget what is troubling you.” Participant 3

Several participants reported that they felt able to connect to a higher power through nature and using the five pathways had worked for them as a pathway to a higher power through nature.

"Nature is kind of like a conduit for me. I can be in the woods and I can sense that there is a power in the trees and in the stillness and I feel connected. I appreciate the outdoors, like seeing squirrels, seeing the beauty of nature helps, because I see my HP as nature and everything. Everything at its core is how it should be." Participant 4

"It came to me that I needed a higher power and if I can connect with nature, just sitting quietly in nature, I find I can connect with my HP. The HP is in the wildlife. Nature helps me to connect to a higher power. Nature can help you forget what is troubling you." Participant 3:

"A higher power is an essential part of the 12 steps. The connection to nature was very helpful for me to find my HP for when I do my step work." Participant 1

Theme 3. Negative experience at TSPs

Participants at the centre are encouraged, not forced, to attend 12 step meetings. Reports of being humiliated by other 12 step group members was identified as a significant deterrent. Three participants reported negative experiences at both Narcotics Anonymous and Alcoholics Anonymous which made them reluctant to return and stated they had attended no further 12 step meetings since their initial visit:

I have been made fun of in 12 step meetings. People have laughed at me and made fun. It was very hurtful, and I never went back. When I've been to meetings, it's

like, you've got to the 12 steps or else you are going to fail. It's fear by recovery or recovery by fear." Participant 5

"The only 12 Step meeting I went to, they were slagging off my treatment centre and that was offensive to me. Slagging off my treatment centre is not for me." Participant 6

Discussion

Significant differences in wellbeing, clinical quality of life, and spirituality between pre and post for the nature group was found, partially supporting H² that there would be an improvement in these outcomes after engaging with nature as a HP in the TSP. In contrast, no significant differences were found in the same measures between pre and post when a traditional deity was selected as a HP in the control group which partially refuted H² were an increase was still expected in these outcomes. A significant increase in NC from pre to post when nature was used as a HP in comparison to the control where no significant increase was found supported H¹. Nature as a HP within the TSP improved levels of NC that was achieved by drawing upon the FPTNC. This finding provided further support for the effectiveness of FPTNC to reconnect people with nature in a meaningful way (Author et al., 2017) while also showing the effectiveness of the pathways within a therapeutic setting, being the first study to evidence this. Participants described using the FPTNC within the qualitative data mentioning beauty, the senses and meaning, further supporting it was this framework that helped reconnect them with the natural world to which they belong. Further, the increase in NC may also account for the increased wellbeing found in the nature as a HP condition which supports previous work identifying the positive relationship between NC and improved wellbeing (Capaldi et al., 2014; Pritchard et al., 2019). This may also be the result of reconnecting with nature through the FPTNC (Author et al., 2017) and finding renewed meaning in life (Puchalski, 2003) evidenced by the significant increase in NC found in the nature group. Participant accounts from the qualitative data support this, with participants describing their experience of removing negative energy, finding peace and stillness which then helped them connect with their HP (nature) to engage with TSP. Of note, is the five-point increase in the ReQoL 10 measure, indicating a clinical level of improvement in quality of life

(Keetharuth et al., 2018) that further supports research demonstrating clinical levels of improvement through nature connection (McEwan et al., 2019). The qualitative data also supported this, with participants finding peace and their attention diverted away from their troubles which may explain the increase in this outcome although further work exploring this in greater depth would be useful.

The quantitative data also indicated significant increases in both intrinsic and experiential spirituality in the nature group, supporting NC's role in finding meaning in life (Howell et al., 2013; Author et al., 2017) that in turn facilitates spiritual inspiration (Naor & Mayseless, 2019), spirituality (Kamitsis & Francis, 2013; Saraglou et al., 2008), or a spiritual connection (Beery, 2013) with the rest of nature. This finding partially supports the second hypothesis that NC through the pathways would improve spirituality and while links have been made between NC and spirituality previously, this is the first study to show evidence of the link between the FPTNC and this outcome. The qualitative findings further support the spiritual connection participants felt through engaging their senses, the presence of a HP in the trees (meaning), the beauty of animals, and ability to find peace and tranquility which exemplify the FPTNC (Author et al., 2017). Nature, and a reconnected relationship with it, can therefore be used as an alternative to traditional deities, potentially mitigating lower level involvement by atheists and agnostics in TSPs (Tonigan et al., 2013).

The lack of any significant increase in wellbeing, clinical quality of life and spirituality in traditional deity TSP was unexpected, given the link between it and spirituality (Alcoholics Anonymous, 1976; Dermatis & Galanter, 2016) and this outcome's link to wellbeing (Jaberi et al., 2017; Puchalski, 2003). This could be due to baseline differences within the sample, making the potential for increases small. There is also the possibility that an aversion to religion created a barrier that prevented engagement in step work, meaning that while the participants engaged in the fellowship of TSP's, they were not actively working the 12 Steps. This finding is in line with the findings of Tonigan et al., (2017) that gains in spiritual practices significantly mediates TSP-related benefit.

The qualitative data identified segues and barriers for individuals in early recovery who attend TSPs. As Passmore and Holder (2017) suggest, NC through the FPTNC led to a greater

sense of social connectedness. The ability to form a connection with non-human life was reported as an effective way to form a relationship with an HP, or to enrich a preexisting connection. For example, noticing nature in a busy town can influence a feeling of connection to life which was not previously experienced. The identified barriers have implications for treatment providers. Participants described established members of TSPs as ‘unwelcoming’, ‘rude’ and ‘dismissive.’ Other participants felt stigmatised due to their status as clients in a treatment programme, and as a result, did not attend further TSP’s. This finding is consistent with previous studies about the variability in adherence to the core tenets of a TSP in different groups, and criticism that the attitudes and beliefs of some members are inconsistent with the official position of a TSP (Mendola & Gibson, 2016).

Limitations

While the results of the pilot study are promising, the small sample size within the study and larger baseline scores in the traditional TSP condition mean further work is required before the effectiveness of FPTNC to engage a HP can be definitively evidenced. This is especially pertinent as further inferential statistical testing would assist with this which was not possible due to the possibility of a type I or II error due to a lack of power/overestimation (Field, 2017). Further, the lead author conducting the sessions may lead to the possibility of unconscious and unintended experimenter bias influencing the results. An experimental study using random allocation of participants with a larger sample is needed with the possibility of a Randomized Control Trial (RCT) being most suitable in order to address these and other limitations. While an RCT would have been preferable, this is the first paper (to our knowledge) to assess the use of the FPTNC to form a connection with nature as an HP as part of a TSP, necessitating an initial pilot investigation.

Future Directions

Further work is required before the effectiveness of FPTNC to engage an HP can be definitively evidenced. An experimental study using random allocation of participants with a larger sample is needed with the possibility of a Randomized Control Trial (RCT) being most suitable

in order to address these and other limitations. Further work would be useful to contrast mere exposure or contact with nature and nature connection through the pathways on the outcomes within a TSP. Our results regarding the barriers that emerged suggest a need for proactive investigation on behalf of the treatment providers to find TSP groups where their service users will be made to feel welcome.

Conclusion

The TSP is an evidenced approach for the recovery from addiction. Central to the programme is the need for an HP. However, for some, the invoking of traditional deities can be a deterrent. The initial evidence from this pilot study supports the use of nature as an HP within a TSP as an alternative to a traditional deity through the FPTNC, being the first research study to show this. Improved wellbeing, quality of life, NC and a deeper spiritual connection was evidenced in the nature group when compared to the control group which supported H¹ and partially supported H². The idea of a power greater than oneself is an intrinsic universal experience that was not new for the participants, rather a deeper reconnection was formed as a result of drawing upon nature as a HP through the FPTNC. While promising, further work is needed to build upon this initial pilot study to ascertain the effectiveness of nature as a potential HP from larger clinical studies.

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