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Recreational use of psychedelics at music festivals: Motivation, nature of experiences and learnings

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ORIGINAL RESEARCH PAPER



ABSTRACT

The present research study investigated the phenomenon of *recreational use of psychedelics at music festivals*, analysing whether the resulting experiences could possibly be recognized as valuable in terms of preventive mental health strategies. Quantitative (online survey) and qualitative (interviews) research methods have been combined to illuminate 3 main topics: *motivation* for the setting choice; the *nature of the resulting experiences* & their *influence* on people's lives; *learnings* from psychedelic experiences at music festivals (PEMF).

Among other findings, motivation evolved around fun, enhancing the sensory exploration of the world, and deepening the connection to its diverse parts through engagement with art, nature and other beings. Factors, distinguishing music festivals from other settings, were significant for the setting choice (non-controllability of the environment, community & connection aspect, diversity & richness of the surroundings, pharmacological specifics). Remarkably, the non-controllability of the environment, otherwise avoided in the psychedelic research, contributed to the life-changing effects of PEMF. Exploration of their nature showed that, mostly rooted in poly-drug use, the enjoyable were clearly dominating over the challenging ones. The mystical PEMF appeared to be surprisingly common. Participants shared the related life-changing effects, centred around changed perception (increased empathy, awareness, acceptance; new perspectives, etc.) and changed behaviours (increased mindfulness in all life areas; making different life choices; changed approach to relationships, etc.). Except for post MDMA recovery, a positive impact of PEMF on mental health and the emotional state of the participants was reported, referring to increased levels of happiness, compassion, awe, trust and to emotional balance. This study showed the potential value of PEMF in terms of preventive mental health strategies in various forms. Acknowledging these findings as well as the existence of potential risks for triggering psychiatric conditions, de-stigmatization of recreational use could help introduce meaningful changes, including substance testing availability, prioritization of education as well as mandatory welfare and harm reduction services on-site.

KEYWORDS

recreational use, recreational use of psychedelics, psychedelics at music festivals, recreational setting, recreational psychedelic experiences, preventive mental health strategies

INTRODUCTION, RESEARCH FOCUS AND LITERATURE REVIEW

A *music festival* can be defined as an organized event, typically lasting several days, and featuring music and art performances of various kinds. *Psychedelic* is a term used since 1950s, meaning literally *mind-manifesting*. As serotonergic hallucinogens, classical psychedelics are powerful psychoactive substances, which induce a non-ordinary state of consciousness, and are known to modify one's perception, mood and affect various cognitive processes (Nichols, 2016). These modifications and effects can last from several minutes up to 24 h or

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longer, depending on the substance, dosage and the method of ingestion (Newson, Khurana, Cazorla, & van Mulukom, 2021). Due to the ability of psychedelics to promote cortical neuroplasticity, they can also be referred to as “psycho-plastogens” (Olson, 2018). Substances considered as psychedelics in the framework of this study are shown in Fig. 2.

As summarized by Kocarova, Horacek, and Carhart-Harris (2021), the current research as well as naturalistic and historical evidence show that these substances appear to be promising in the treatment of various mental health disorders (e.g., addictions; depression; obsessive compulsive, functional neurological, eating, psychosomatic, and post-traumatic stress disorders). They also state that “increased mental and neuronal plasticity, in combination with ideally *supportive environmental contexts*, can serve to promote psychological well-being” (p. 2), referring to the potential of psychedelics in the preventative mental health area. With mental illness being one of the leading causes of disability globally, it is recognized by the World Health Organization that besides purely reactive interventions, preventive strategies are needed. Current research studies in the reactive field predominantly focus on cost intensive clinical trials with strictly controlled experiences to optimize the mystical state. Looking at the prevention side and at the “supportive environmental contexts”, can *recreational use of psychedelics at music festivals* possibly be recognized as valuable in terms of pro-active mental health strategies? To answer this question, this phenomenon needs to be examined.

Ideally, a music festival offers a kind, non-judgemental atmosphere, a playground to inspire the exploration of the inner and the outer worlds and a certain level of a shared experience. At the same time, this setting is characterized by an absolute unpredictability of the events, the need for the person to remain functional whilst navigating uncharted territories of the sub-conscious, as well as many risks, connected to potential overstimulation and poly-drug use. Yet people around the world choose to explore these rich aesthetic and social environments when experimenting with psychoactive substances on a regular basis.

Three main topics are at the core of the present research study:

1. What is the *motivation* for the choice of a music festival as a setting to explore the effects of psychedelics?
2. What *kinds of experiences* does the festival setting in combination with psychedelics induce and do these *influence* people’s lives?
3. What can we *learn* from these experiences?

To understand how experiences induced by psychedelics play out in the festival setting, first it is important to understand which kinds of experiences are caused by these substances generally. The models of psychedelic action, which explore the biological mechanisms underpinning psychoactive substances, might be helpful for this. Among the most prominent ones are the REBUS (Relaxed Beliefs Under Psychedelics and Brain Entropy) and the CSTC (Cortico-Striatal-Thalamo-Cortical) models. REBUS postulates that “psychedelics work to relax the precision of

high-level priors or beliefs, thereby liberating bottom-up information flow, particularly via intrinsic sources such as the limbic system” (Carhart-Harris & Friston, 2019, p. 316). CSTC postulates that the “5-HT_{2A} receptor activation leads to alterations in the CSTC circuitry resulting in disinhibition of the thalamus, reduced sensory gating and thereby, increasing the amount of sensory information reaching the cortex” (Gattuso et al., 2022, p. 16). Therefore, an increased sensitivity to neural information flow while under the influence of classical psychedelics is integral to the experience.

The impact of art and aesthetic experiences on one’s health and well-being has been studied by a multitude of disciplines. They are known to have had a major effect on the physical, social and spiritual health of humans for centuries. As summarized by Golden et al. (2022) social relationships, group cohesion as well as bonding among Neandertal populations were rooted in storytelling and arts-based rituals; Atharvaveda medical text encouraged the reader to enjoy pleasant sensory input after eating to support the digestive system; Greek philosophers were convinced that art served as the cure for the body and mind; and Pythagoras and Plato even prescribed harmonic melodies as medicine to heal and purify one’s mind body and soul. Researchers in present times indicate that being exposed to visual arts, consciously engaging with these, as well as art-making itself, can decrease depression, grief, anxiety, stress, mood disturbances and fatigue as well as improve social connections and the feeling of self-worth (investigated among trauma, chronic illness, and cancer patients) (Golden et al., 2022). Dancing, being a form of movement-based creative expression and focusing on nonverbal physical expression is also known to be a healing tool (Stuckey & Nobel, 2010).

Furthermore, some neuroimaging studies provide evidence for a biological basis of the effects induced by music during psychedelic experiences. One of them demonstrates a stronger correlation between personally meaningful music and stronger engagement of somatosensory brain regions, and those brain regions involved in self-referential processing during the influence of lysergic acid diethylamide (LSD) as opposed to either placebo or LSD in combination with serotonin 2A antagonist (ketanserin) pre-treatment (Preller et al., 2017). Secondary analysis of the data demonstrates that music cognition, and anterior memory networks of the brain were tracking the tonal structure of the music more closely, when participants were listening to personally meaningful music under the effects of LSD. Kaelen, the founder of Wavepaths, is known for his research in the field of the relation between the music and psychedelic experiences as well as for curating playlists informed by neuroscience for the optimal outcome of the psychedelic-assisted therapy sessions (Kaelen et al., 2016). His co-research demonstrates that music increases the coupling of memory-related brain regions with the visual cortex under the effects of LSD (Kaelen et al., 2018). This finding provides direct evidence for an existing mechanism underlying vivid visualizations, caused specifically by listening to the music



during a psychedelic experience. These findings indicate that a music festival setting can potentially enhance a psychedelic experience.

What does an average landscape of the *psychedelic experiences at music festivals* (referring to “psychedelic substance-induced experiences in a music festival setting”, further referred to as PEMF), look like? To which extent is poly-drug use common in the recreational context? A multitude of existing “trip reports” (e.g., erowid.org) point to the mixed consumption in a party (but not explicitly in the festival) context (see also [Cousto, 2012](#)). Are PEMF rather challenging, enjoyable and/or mystical? And how do they affect people’s lives? Diverse ideas on sacredness of such environments as a setting have been explored so far. [Hutson \(2000\)](#) elaborates on the comparison of raves to a church (p. 38). In [Bannerman’s research \(2012\)](#) of exceptional human experiences at festivals the idea of festivals acting as ashrams is analyzed. Her thesis describes festivals as a “therapeutic womb”, and as energetic spaces, enabling the individuals to re-discover “Godliness” and “Paradise on Earth”. Griffiths et al. warn about the risks, pointing towards the “epidemic of hallucinogen abuse in the 1960s”. They explain that in their study of psilocybin-induced mystical experiences, despite careful screening of the volunteers and controlled conditions, the participants experienced significant fear as well as transient ideas of reference and paranoia. Therefore, “under unmonitored conditions, it is not difficult to imagine such effects escalating to panic and dangerous behavior” ([Griffiths, Richards, McCann, & Jesse, 2006](#), p. 282).

These findings give valuable ques, but, except for Bannerman’s thesis, none of them consider music festival as a setting. Therefore, the present study shall investigate:

1. the participants’ motivation through a direct inquiry of such; the query of favorite activities during the “journey”; the questions focused on art forms and their roles; and on comparison of settings;
2. the nature of experiences through inquiries on mixed consumption; on the specifics of the experience; and on the effects on the participants’ worldview(s) and behavior(s);
3. the learnings through questions on specific substance mix avoidance, on preparation prior to as well as integration post PEMF, on welfare/harm reduction services, on education, and on general advice.

METHODOLOGY DESCRIPTION

Quantitative and qualitative analyses have been combined in the present study.

The **quantitative** data has been collected over the course of 4 months (from July 1st to Nov 1st, 2022) via an anonymous online survey. Participants consented to the use of the results of the survey by carrying on with the answers. The single inclusion criterion for participation was to have had at least one PEMF. Participants were recruited online through diverse social media channels associated with the

use of psychedelics. Experience-related questions allowed multiple choice as well as individual comments, summaries of which can be found in the corresponding chapters. For the content-relevant part of the questionnaire see [supplementary material V](#).

The **qualitative** data has been collected with help of consent-based (s. [supplementary material VI](#)) in-person and online interviews with participants who filled out the survey and expressed interest in the personal follow-up. The data analysis resulted in categorization according to the encountered themes.

RESULTS OF THE SURVEY AND INTERVIEW DATA ANALYSIS

The general data on participants and substances is summarized in [Table 1](#), [Figs 1](#) and [2](#).

1. Why PEMF?

The data pointed to a rather consciously curated journey with the primary focus on having fun, loosening up and giving attention to the playful inner child. At the same time, there is a strong focus on the enhancement of the sensory exploration of the outer world, and on deepening the

Table 1. Participants – general data

| | |
|-------------------------|--|
| Number of participants | 212 (quantitative); 22 (qualitative) |
| Countries | 25. Most represented: United Kingdom (36.7%) & Germany (30.5%) |
| Occupational background | Diverse. Most common: students; different kinds of therapists, healers and nurses; social workers; engineers |
| Gender identification | 48.8% – she/her, 46.0% – he/him, 4.2% – they/them and 1.0% other |
| Age groups | 18–30 y.o. (43.1%), 31–40 y.o. (41.2%), 41–50 y.o. (11.4%), older than 50 y.o. (3.3%), under 18 y.o. (1.0%) |
| Religious beliefs | Various due to the possibility of a self-defined answer in addition to the pre-defined options. Most common: spirituality (37.2%), atheism (30.0%) & agnosticism (13.5%) |

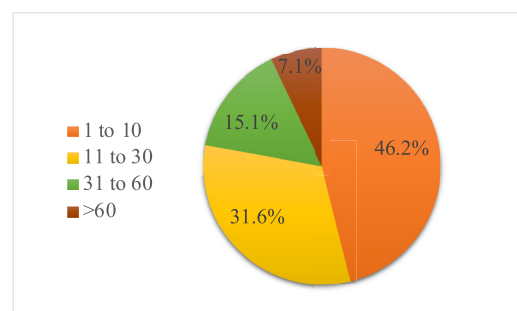


Fig. 1. Overview number of PEMF (212/212)



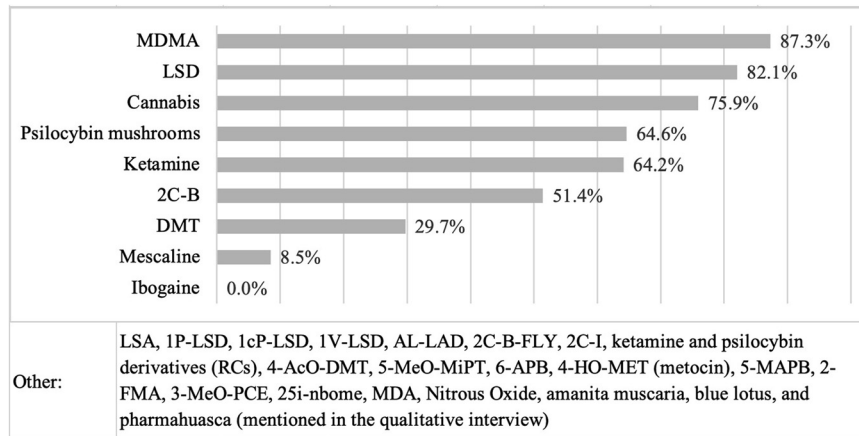


Fig. 2. Consumed substances (212/212)

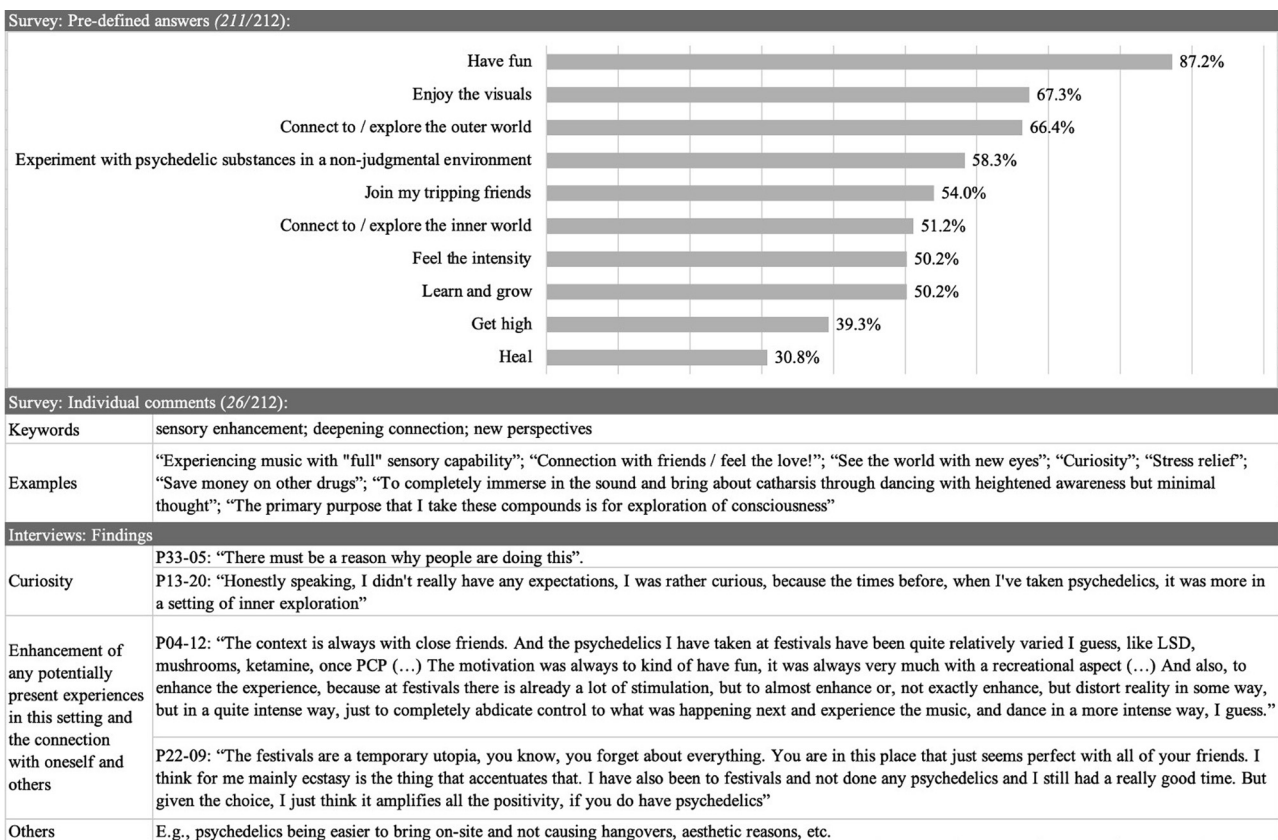
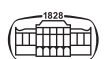


Fig. 3. Motivation overview

connection to the diverse parts of it, especially through engagement with art, nature and other beings (Figs 3 and 4). As Grey states, "art can amplify compassion and sensitivity by sharing deep feelings. [...] Art can point to the many levels of reality – the physical body, the emotions, the intellect, intuition, and spirit" (2018). An interesting finding in the context of this research is (Figs 5 and 6), that art appears not only to be an important aspect of the exploration, an inspiration, an emotional trigger, but also a sort of container, a guide, a co-therapist, providing a safe space, and aiding the internal processes during PEMF.

The special importance given to music in both research parts echoes the findings on the therapeutic potential of music by Grof. He argues that to be able "to use music as a catalyst for deep self-exploration and experiential work, it is necessary to learn a new way of listening and relating to music in a manner that is alien to our culture" (Grof, 2019, p. 362). He explains the difference between the habit of the "background music" versus attentive focused listening and mentions the theaters and concert halls as the settings somewhat closer to the holotropic breathwork, the difference being the presence of sustained and focused introspection in



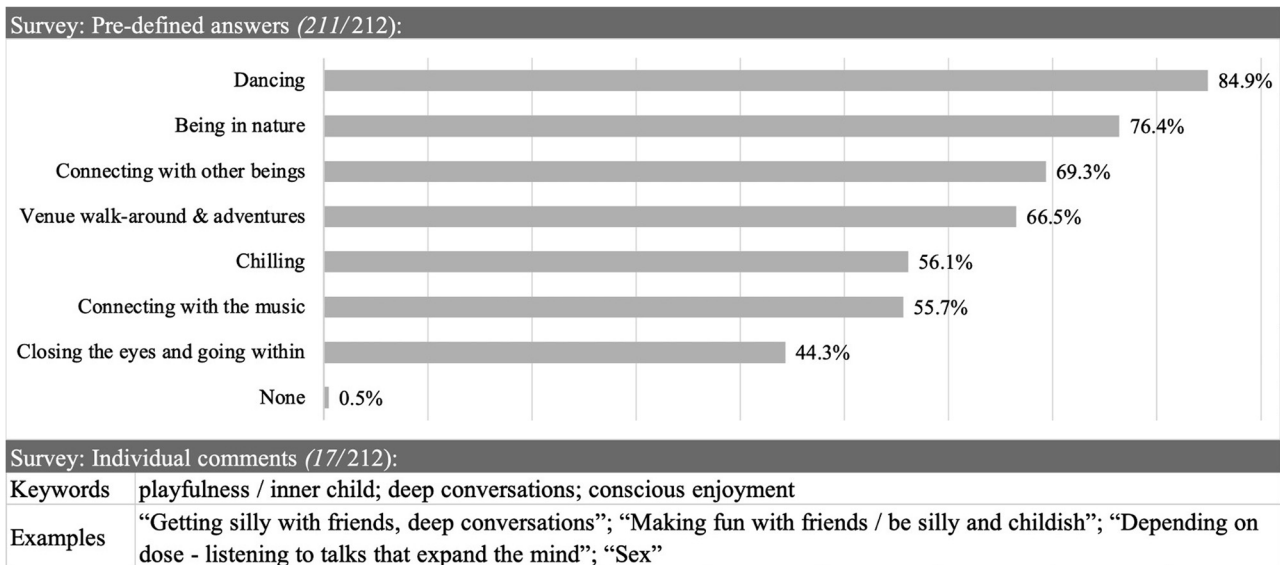


Fig. 4. Activities during the journey

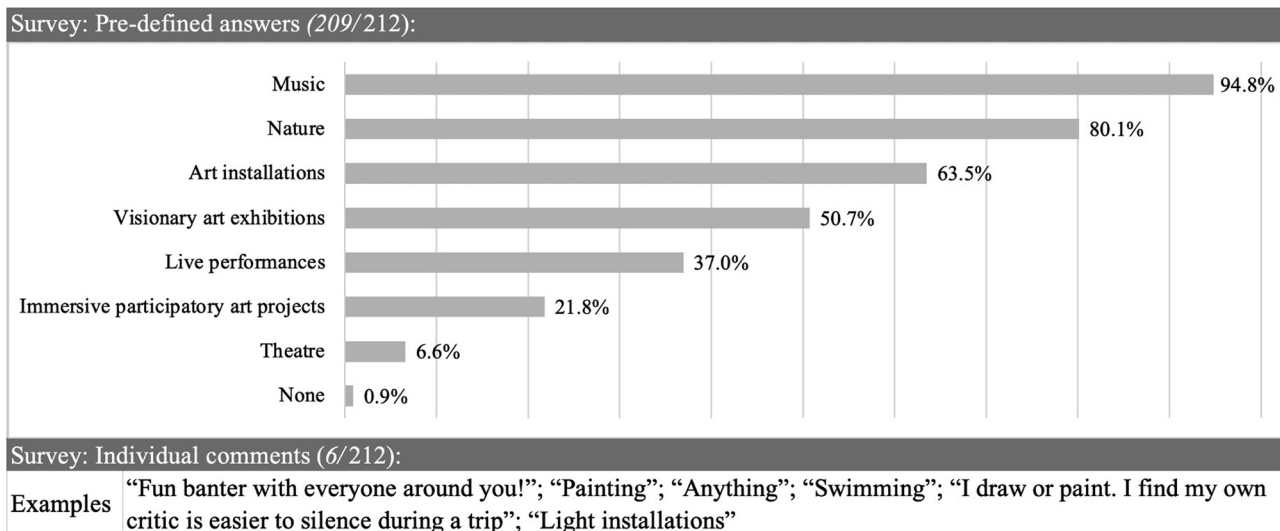


Fig. 5. Art forms

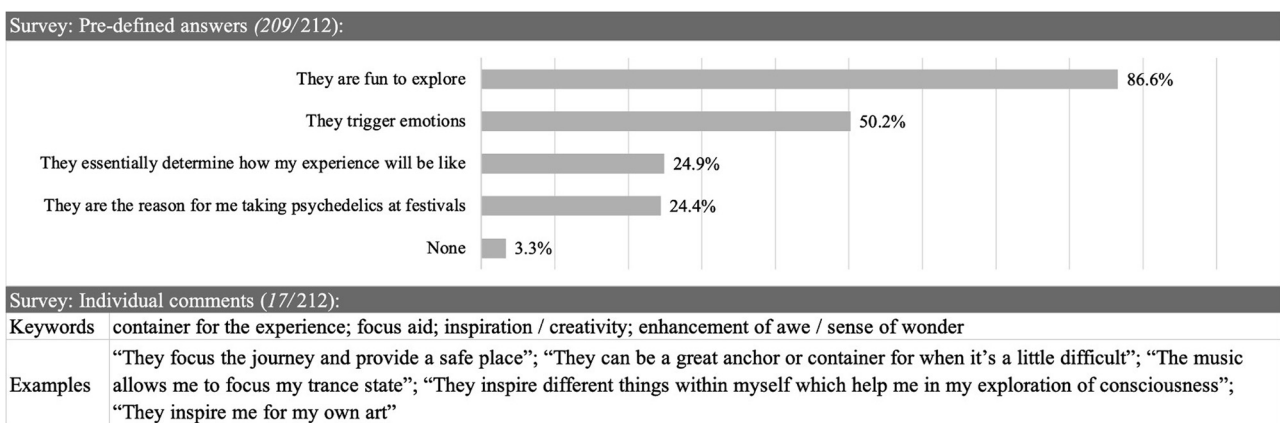


Fig. 6. Role of art forms



the latter. This study showed that music oftentimes facilitated conscious and intentional introspection at festivals. Combined with dancing, being a somatic expression of the processes of the psyche, the resulting experiences may facilitate personal growth and healing. Participant P13-20 stated in the qualitative interview: “Feeling a sense of ‘there is more to what we understand’ – it does expand in the context of music for me. Music is really something I feel which really hypnotizes me in a way that I really lose all sense of space and time. But not only space and time, everything that is surrounding me, if I close my eyes, I don’t have any feeling of that I am here on planet earth, or there are people around me or what is happening. It’s a very meditative state of mind for me. So, I would say, when it comes to spirituality, that’s how far I’ve at least come to my interpretation of spirituality. And that’s deeply connected with my psychedelic experiences, because I do find them to have been a gateway to a level, which has expanded my meditation practice significantly”.

The factors, distinguishing music festivals from other settings for psychedelic experiences (Table 2), appeared to be the reason for the choice of this setting. Interestingly, explicitly the (1) non-controllability of the environment was seen as the stimulus to embark on a psychedelic journey. Safer settings were compared to the “theory” whereas festivals represented the “practice”. At the same time, PEMF were not recommended for the first psychedelic experiences in life. In terms of the (2) community and connection aspect, it was pointed out that unlike any other setting, music festivals provided the possibility of unique strengthening of the bonds with the loved ones as well as strangers, offering a form of a group ceremony. The aspect of (3) diversity and richness of the surroundings spoke for itself, as the festivals are oftentimes created as temporary utopias, rich and safe spaces inviting for exploration. In terms of the (4) pharmacological differences, festivals appeared to not only offer the playground for exploration of poly-drug use, but, due to a non-judgemental atmosphere combined with high substance accessibility, to enable first psychedelic experiences.

2. What is the nature of PEMF & how do they influence people’s lives?

More than 95% of the PEMF appeared to be rooted in mixed consumption. Some participants mentioned believing in alchemical processes and elaborated on the potential of poly-drug use, comparing it to an art form (the art of self-curating one’s festival experience).

Perceived enjoyable PEMF were predominant with 99.5% of the participants having indicated to have had these (209 of 212 answers). More than 50% of them indicated experiencing 14 out of 15 qualities attributed to enjoyable PEMF (see Fig. 12). The perceived occurrence of mystical PEMF was diverse and unevenly distributed among the participants with 18.2% having indicated to have never experienced these and 6.4% having stated that most of their experiences were mystical (203 of 212 answers). More than a half of those, who perceived their experiences as mystical, indicated experiencing 5 out of 6 qualities attributed to these

(see Fig. 13). Perceived challenging PEMF were the least common ones with more than the half of participants stating that less than 10% were perceived by them as such. Only 1 out of 18 qualities attributed to challenging PEMF (anxiety) showed an over 50% response rate (see Fig. 11). Interestingly, the absence of anxiety, induced by psychedelics, was mentioned among enjoyable PEMF (e.g., [supplementary material II](#), P69-19). Other important categories of the challenging PEMF were paranoia (experienced by 46% of the participants) and psychosis (experienced by the friends of the participants, e.g., see [supplementary material I](#) P04-12, P22-09). None of the participants has indicated re-living birth trauma, which appears to be a common reported experience during the non-ordinary states of consciousness, induced by holotropic breathwork (see *Basic Perinatal Matrices* by Grof, 2019). Among the reasons for the PEMF to have become challenging, an intentional or unintentional ingestion of a higher dosage of psychedelics was the most common one, sometimes in combination with external factors, followed by sub-optimal set, unfortunate substance combinations, caring for friends in challenging situations as well as unexpected external events (e.g., poor timing – peaking on the way to the venue or after the festival end, being surrounded by energies perceived as unpleasant). The fact that the PEMF, which became challenging due to their degree of intensity, were found to be valuable by the participants, aligns with the findings from research into Near-Death Experiences (NDEs) in terms of the depth of the experience. As summarized by Khanna and Greyson (2014, p. 1613), individuals, which go deeper into (in this case near-death) experience, report being more connected to their “spiritual self” and to the world around them. This sense of connection often impacts their entire worldview, driven by the longing to find or restore harmony, and peace. This also echoes the finding of Griffiths et al. (2006) that those volunteers, who have experienced notable dysphoria under the influence of psilocybin, still rated the overall experience as one of their most personally meaningful and spiritually significant (p. 279).

To summarize the life-changing effects of PEMF: these were reported by 89% of the participants and evolved mainly around changed perception (e.g., increased empathy, awareness, and acceptance towards oneself and the others; healing trauma and processing emotions; new perspectives) and changed behaviors (e.g., increased mindfulness in all life areas, including implementation of spiritual practices; making different life choices; change in approach to relationships; re-evaluation of consumer behavior; better waste management). These findings partially echo the “life-change inventory” sometimes employed in the NDE research (e.g., Groth-Marnat and Summers, 1998; van Lommel, van Wees, Meyers, & Elfferich, 2001). Also, special bonds, resulting from PEMF were mentioned. This echoes findings of Newson et al., having investigated non-ordinary states of consciousness during group rituals and finding “that personal transformation following awe-inspiring raves was associated with bonding to other ravers and prosocial behaviour toward this group” (2021, p. 1).

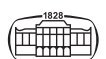


Table 2. Distinguishing factors of settings (interviews)

| | |
|--|---|
| 1. Control-lability versus non-controllability of the environment | <p>Controllable = safer, but perceived as less fun/enriching:</p> <p>P18-01: "At home I think there is a lot more control in it, so if you are trying something new, there is that safe space. If you are going to have a bad time, you are just at home in bed, you know. So, there is kind of like a lot of security there, in terms of physical safety. (...) I don't believe that you can have this truly beautiful experience as you can out in the middle of nowhere with people you don't know who are also on the same journey, because it's that connection to other people, experiencing the same thing, that is just lacking in the "home"-context. So, it's still nice to take something at home, but it's more kind of like looking through a photo album, more like experiencing a memory, whereas at a music festival you are experiencing it now. (...) I enjoy the music festivals so much, because you've got everything: you've got the people, you've got nature, you've got the art and the music, you've got the lights, you've got the stars – you can experience absolutely everything all at once. And it doesn't feel overwhelming, it just feels like a full and complete experience. And especially because it is not just as simple as listening to sounds, the sounds take on concepts within your mind, they affect your body, you can feel it and if you feel an emotion, your chest might feel heavy and that kind of thing. So, it's a very complex interweaved web of experience. And I find that just incredibly beautiful."</p> <p>P33-05: "With acid, which is now my favorite, is very much like playing the game. So, at home it's like the theory and at a festival it's like you are putting it into practice. I am given these scenarios to practice what I am working on at the moment and to show me something that I progressed in, or I get a chance to practice what I want to practice. And if it doesn't go right, I'll get given another chance anyway. Or I'll get shown a mirror or an example and playing the game with other players is really fun! And feeling so secure in yourself because you are so connected to God, so you know why you are so secure. Because you are God, and everybody else is too. So, when things are happening, I get that space more often than not to choose my response. And it's a very powerful place for me to be in".</p> |
| 2. Community and connection aspect | <p>Overarching theme: festivals not recommended as a setting for the first psychedelic journey (importance of learning to navigate psychedelic realms in safe spaces with limited stimuli beforehand).</p> <p>P69-19: "Personally, I would always advice anybody, if they were taking psychedelics for the first time to do it at home (...) If you are taking psychedelics at the festival for the first time, it can be really amazing, there is lot of cool things to go and do and it can be really helpful to be around friends, the music that you enjoy. It can be a very fun positive experience. But equally you might get overwhelmed by crowds, by being around lots of strangers, by being in a place where you might just have your tent as a sort of your safe space, and you might not have the comfort that you have at home. There is always going to be noise and unfamiliar sounds, which you wouldn't have at home".</p> <p>A one-of-a-kind bonding with friends and strangers:</p> <p>E.g., the feeling that "this is what people are here for" and the notion of being "all in it together".</p> <p>P39-14: "The way that a lot of people consume psychedelics in ceremony still isn't with people that we have relationships with outside of that setting. And I think that, you know, there is certainly many ways to do things, there is not only one legitimate way, but this is something to keep in mind, is that many medicines were consumed as part of community, but with people who you really have community with [which in the case at festivals is then with friends]. Because even if in a ceremony you are absorbing certain practices, maybe you are never going to see the people who are there again. And so, you did some work, individual work, but I think that there is value to a community aspect too. I was raised in a very individualistic society, so I am used to doing things on my own or not expecting support from the community or giving support to others necessarily, it's celebrated not to do these things".</p> |
| 3. Diversity and richness of the surroundings | <p>Interaction with the outer world in new ways/altering the perception of all the senses, explicitly stimulated by the event:</p> <p>P54-11: "For me, partying with substances became like my personal shamanic rituals or like healing spaces. Or even without substances, I think the act of dancing can be a very healing experience. I am going to open air festivals since 29 years, since I was 13. I feel very comfortable in those spaces, they give me a sense of home, I know how to make myself comfortable there. Even though maybe for many it would not be recommendable the way I am doing it, but for me I think it's the music, the incredible sound systems – they do something, they do something transformative, it's not only the substance. (...) It's the music, being in nature, happiness, with a lot of happy people, also you have a big theater space, so many people can play certain roles, so for me it became like conscious transformative places. (...) also, the light and the decorations. Also, the simplicity – you are there with a tent. It's something nomadic. I don't know, it could be that there is something original that is getting in touch, maybe some ancient knowledge. Because I think also it's a bit like rituals of old</p> <p style="text-align: right;"><i>(continued)</i></p> |

Table 2. Continued

| | |
|--------------------------------|---|
| 4. Pharmacological differences | <p>tribes, right? With the drum music and the nature. They all come together collectively and maybe get high just by dancing or maybe using substances to get high together”.</p> <p>Likelihood of mixed consumption at a festival setting, unlike any other setting.</p> <p>Positive association:</p> <p>P06-08: “You can get that wonderful perfect balance of like a little bit trippy, a little bit energized, and MDMA making it really nice to be around the people, and making you feel connected and want to be in community. It’s almost an art form to curate your own festival drugs into the perfect balance.” This likelihood mentioned to be responsible for the perceived lower occurrence of mystical PEMF (in combination with intentionality):</p> <p>P22-09: “Festivals are escapism. For psychedelics like mushrooms and LSD, I mean I love doing them at festivals, but I don’t think that festivals is the best place to be doing them. I think it maybe shows them a little lack of respect, because, at festivals, you know, I tend to just do little bits of everything and pretty much all of my friends do as well. I think with mushrooms and LSD the correct way to do is just to do that and have a nice intimate setting with few friends, where you can share your experience. And yeah, that kind of mystical spiritual thing as well I think is a bit harder to get, when you are at a festival, because it is more recreational”.</p> <p>5 of 22 participants had their first experience with psychedelics in a festival or rave setting (in a non-judgmental atmosphere with high substance accessibility).</p> |
|--------------------------------|---|

The self-assessed impact on the mental health and the emotional state of the participants showed an overall positive impact, emphasizing the increased levels of happiness, compassion, awe, trust and restoring emotional balance. The difficulty in disentangling the mental health effects of psychedelics from the festival environment itself was brought up. Except for post MDMA recovery, no negative impact was mentioned.

A detailed overview of these findings is shown in the following figures and tables.

Participants were asked to indicate whether they normally *mixed substances*. 95.3% stated they did. Substances consumed *additionally* to the ones mentioned in Fig. 2 during the PEMF are shown in Fig. 7.

Participants were asked to estimate to which extent (as a % of all of their PEMF) their experiences were remembered as *challenging*, *enjoyable* and/or *mystical* (to create clarity on each category, the examples of their qualities were assessed in the subsequent questions). The results are shown in Figs 8–10.

Detailed results for *challenging* PEMF are summarized in Fig. 11. Specific examples of the descriptive answers can be found in [supplementary material I](#).

Detailed results for *enjoyable* PEMF are summarized in Fig. 12. Concrete examples of the descriptive answers can be found in [supplementary material II](#).

Detailed results for *mystical* PEMF are summarized in Fig. 13. Answer options on perceived *mystical* PEMF are based on the Mystical Experience Questionnaire (Griffiths et al., 2006, p. 272). Specific examples of the descriptive answers can be found in [supplementary material III](#).

89% of all participants have indicated that the psychedelics-induced experiences contributed to a *change in their worldview and/or behaviours* (210/212), with the details summarized in Fig. 14. Specific examples of the descriptive answers can be found in [supplementary material IV](#).

In the qualitative interviews, participants were asked whether their PEMF have had an impact on their mental health and emotional state. The answers are summarized in Table 3.

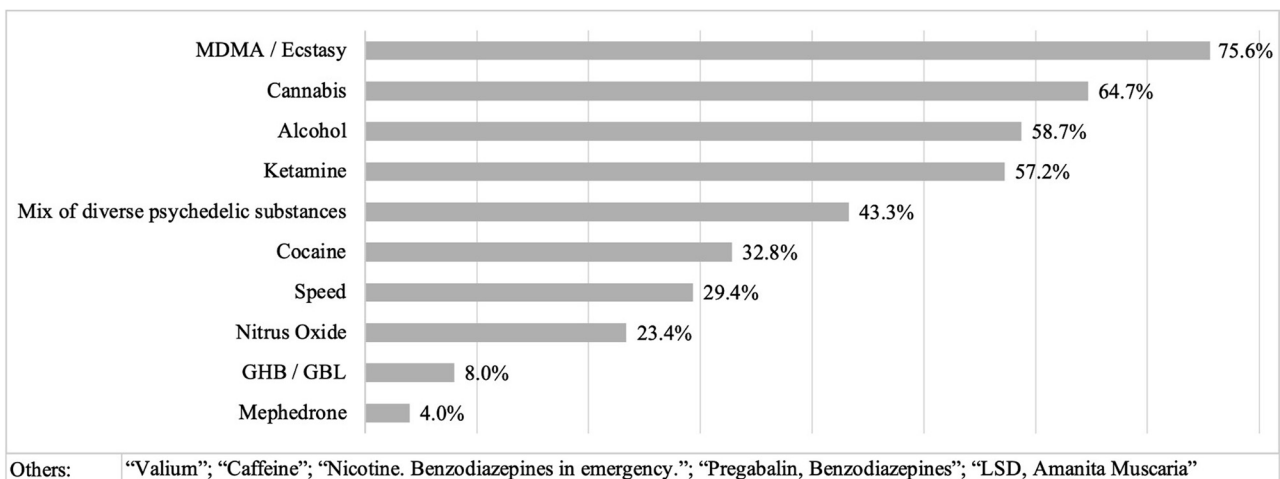


Fig. 7. Overview mixed consumption (201/212)



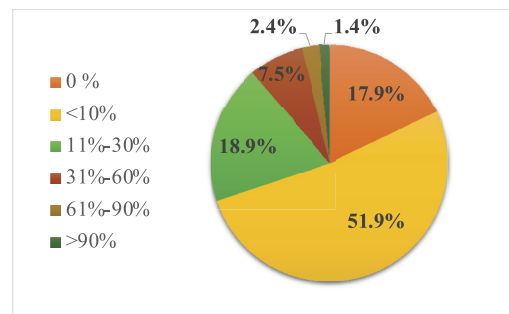


Fig. 8. % Distribution of perceived challenging PEMF (212/212)

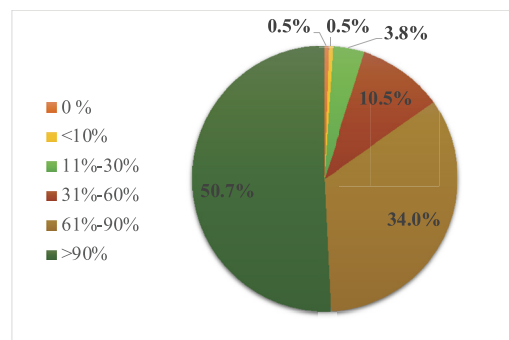


Fig. 9. % Distribution of perceived enjoyable PEMF (209/212)

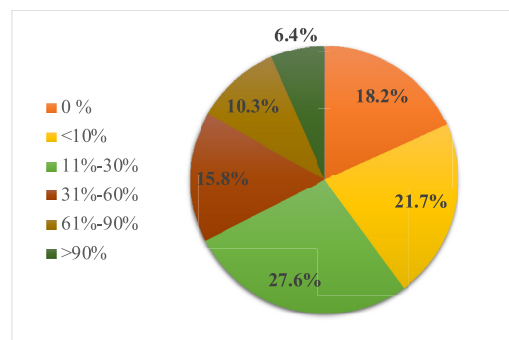


Fig. 10. % Distribution of perceived mystical PEMF (203/212)

3. What do we learn from PEMF & what is essential for harm reduction?

Participants were asked which substances they would *never mix again*. The most frequently named specific combinations (in decreasing order) included: “alcohol with other substances”; “ketamine and alcohol”; “ketamine with other substances”; “alcohol and MDMA”; “LSD & cannabis”; “cannabis with other substances”. Mixed consumption can be considered a setting peculiarity at music festivals. And since there are multiple potentially unfortunate combinations, it would be helpful for harm reduction purposes to make the “Tripsit Chart” (Tripsit, 2016) available to festival guests prior to the event.

Findings on preparation for PEMF (Fig. 15) evolved mainly around practical measures with emphasis on physical strategic preparation as well as intentionality.

In terms of integration post experiences diverse ways were reported (Fig. 16), with “expression through talking to friends and writing a diary” being the most common one (over 70%). In the interviews the integration process post PEMF was mentioned to be taken “less seriously” in comparison to other settings, but the participants felt inspired to change that in the future.

Over 38% of participants were not aware of the existence of welfare and harm reduction services. This can be explained by the fact that especially on an international scale these services are rather underrepresented. Over 77% of the participants have never used these services, mainly because they did not need to, but also for various other reasons, like feelings of intimidation and fear of legal persecution. The findings showed 1. the need for such services in place (perceived \emptyset 9.4 importance out of 10); 2. the need to

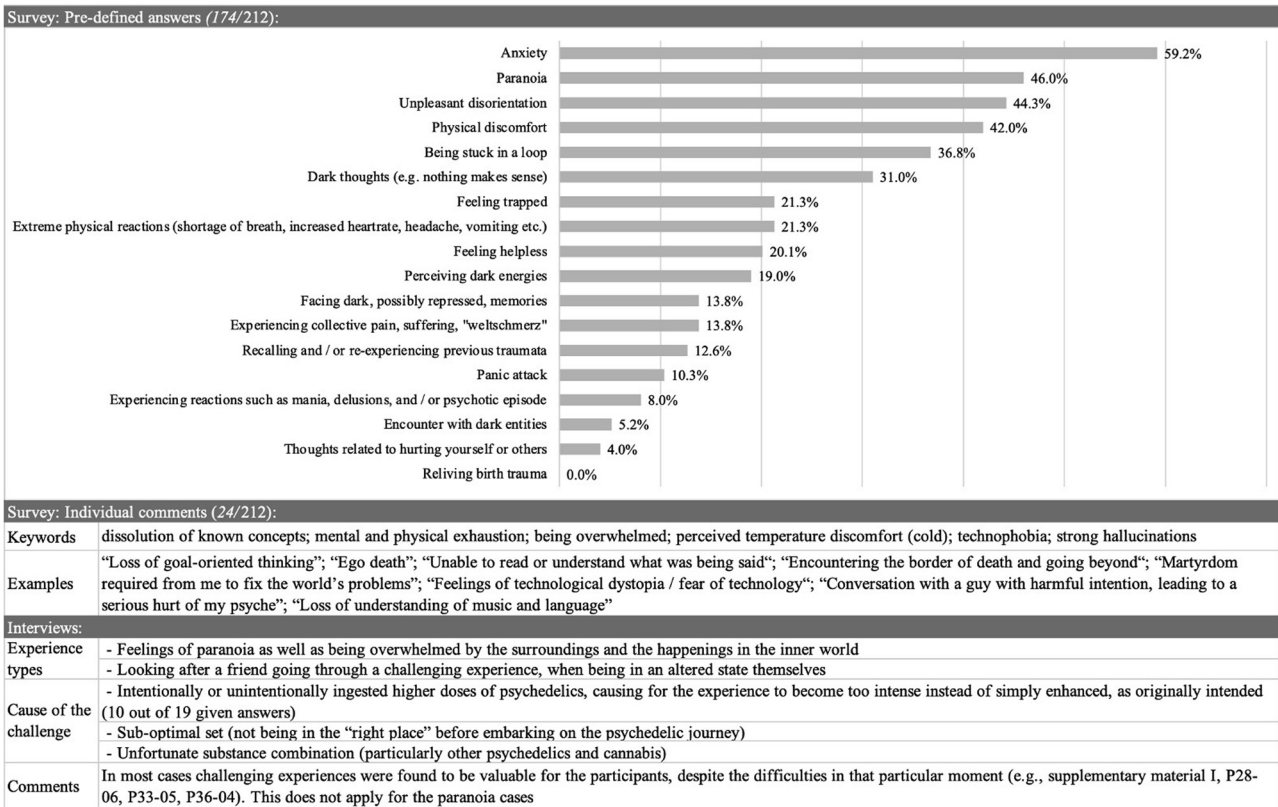


Fig. 11. Detailed overview of challenging PEMF

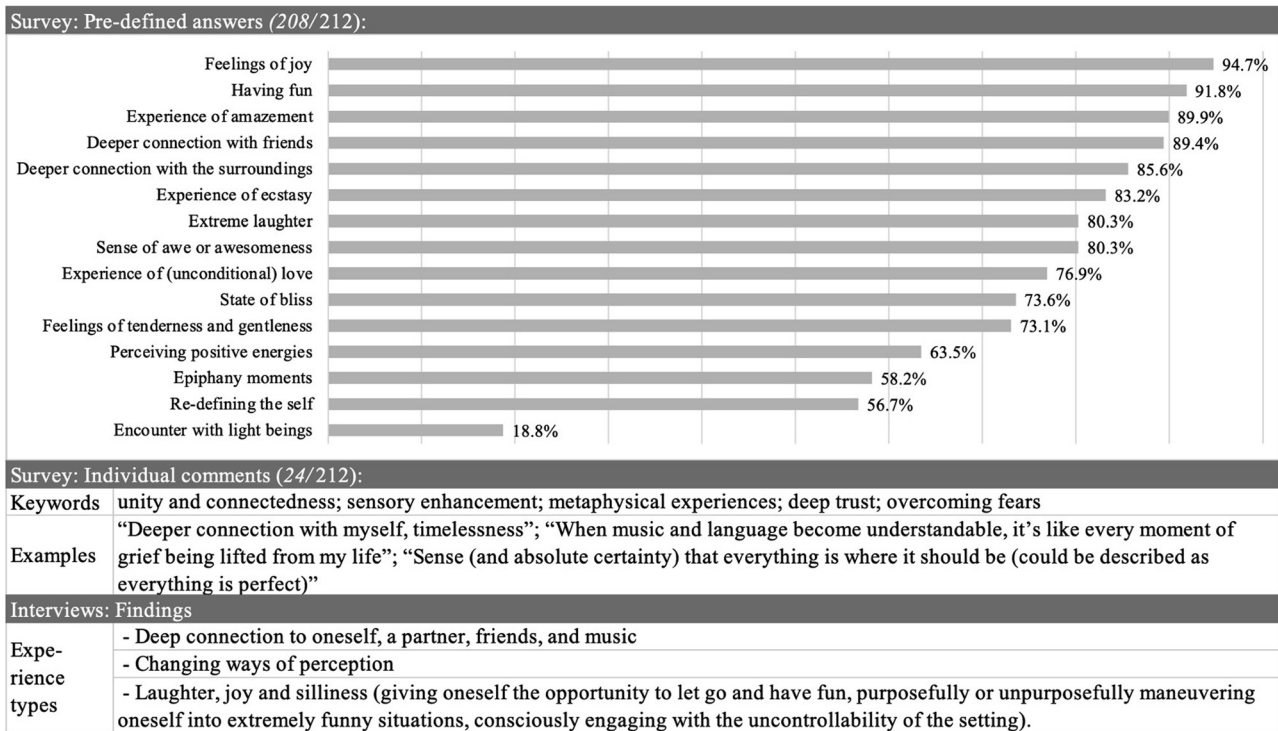
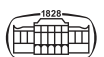


Fig. 12. Detailed overview of enjoyable PEMF



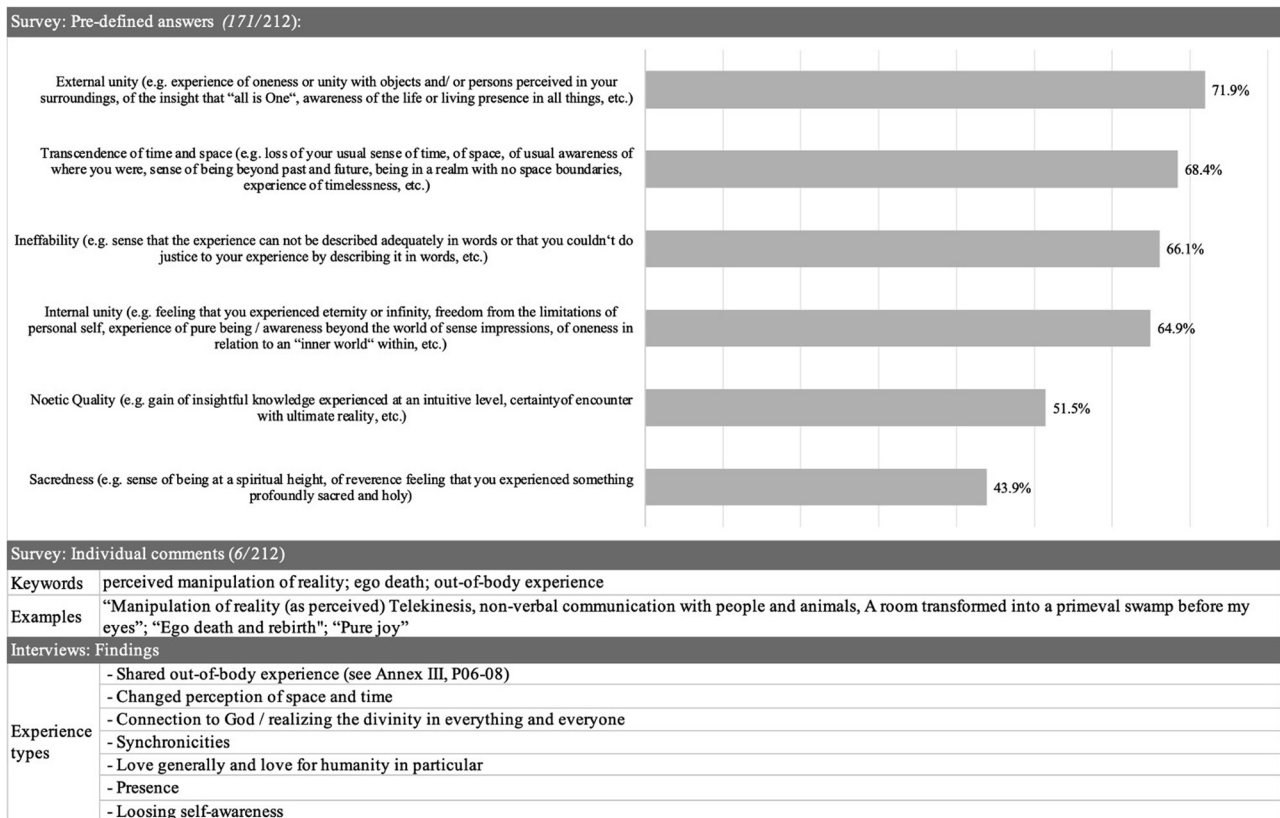


Fig. 13. Detailed overview of mystical PEMF

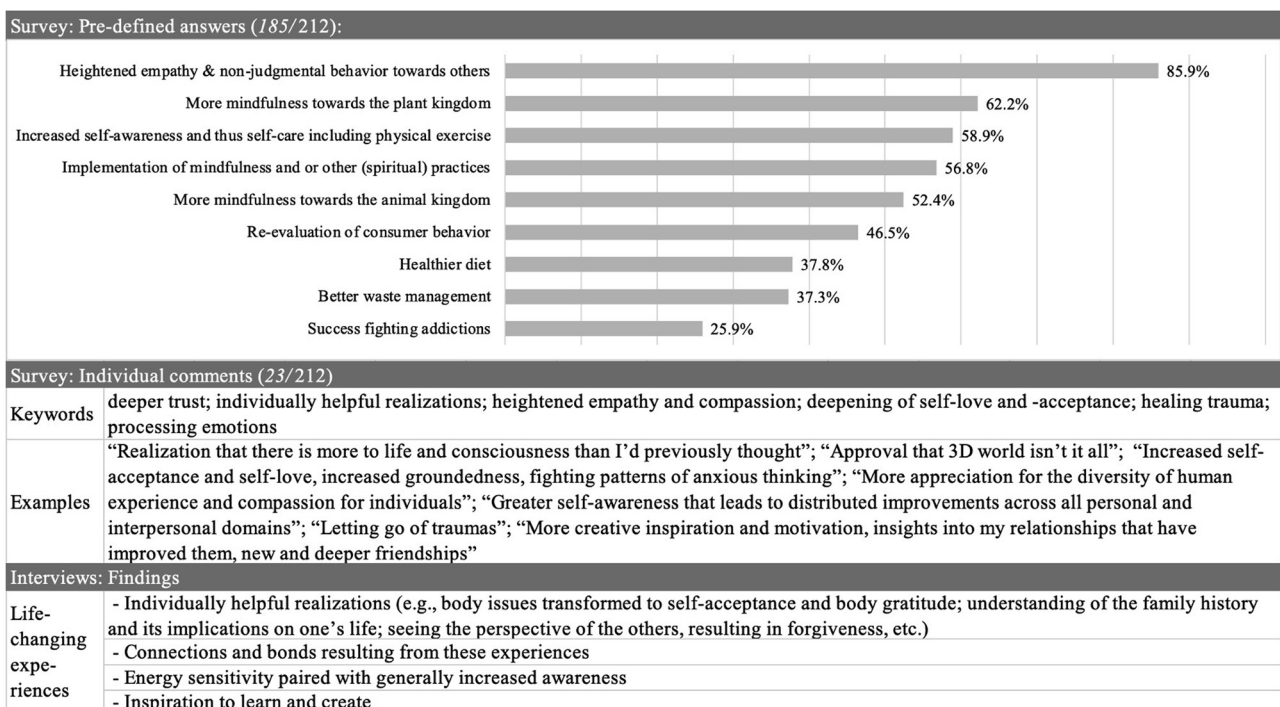


Fig. 14. Detailed overview worldview/behavior changes



Table 3. Effect of PEMF on mental health & emotional state

| | |
|----------|---|
| Positive | <p>Contribution to increased happiness levels, compassion, awe, trust in life, and emotional balance (vast majority)</p> <p>Decrease of the fear of death was mentioned (P24-17)</p> <p>Experiences serving as “a healing bump every few weeks across the summer” (P06-08).</p> <p>P18-01: “I came away from it with all of that healing, all of that love, I just kind of remembered my space in the world and it was good to be alive, honestly, and good to keep going. I came back just able to do everything, I was more motivated, I was happier, I was able to socialize more, I was able to communicate more.”</p> <p>P14-02: “I think the bottom line is that I wouldn’t be the person that I am today without those experiences. It’s been a huge character-building, life-changing, life-affirming creative journey”</p> <p>Disentangling difficulties mentioned:</p> <p>P55-21: “I think the way that I’ve been using psychedelics in this particular festival context has been very beneficial to my mental health. I can feel, you know, the weeks after those experiences a certain sort of like ripple effect in my relationships, where I am moving towards being a bit more the kind of person on a social and emotional level that I value being. And like almost that it has an effect on my character, my social character and it makes me more open and less self-conscious and more loose. But I haven’t really been, you know, doing a clean experiment to compare how I would be doing if I continued to go to this festival and have it sober. If I’d be also experiencing this. Honestly, I can’t disentangle the effect of the people. It’s an incredible community. I am basically just allowing it to sit more under my skin by taking psychedelics, so I am exposing myself to a stronger influence, I am basically inviting with more neuroplasticity during a psychedelic experience, inviting that environment of shaping me more. (...) From what I know about how behavioural change through psychedelics is mediated through temporarily heightened neuroplasticity, I would imagine that (...) the effects of that environment on me over time would be weaker, if I would not be taking psychedelics there.”</p> |
| Negative | <p>Serotonin-depleting consumption was mentioned as the one “amplifying fun at the cost of the following days” (P22-09)</p> |

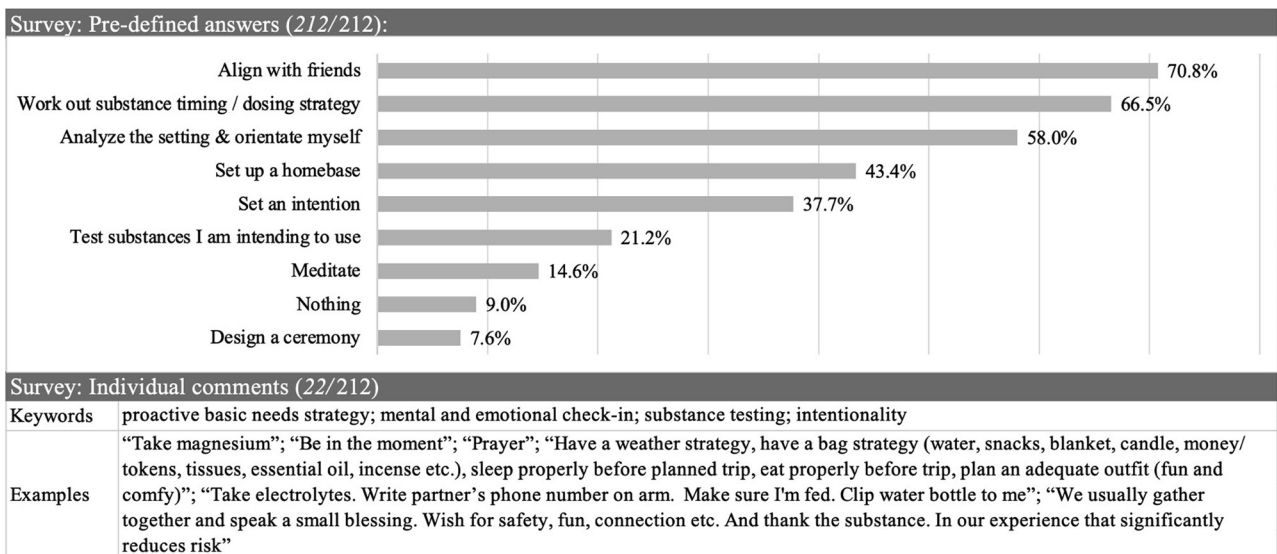


Fig. 15. Detailed overview preparation

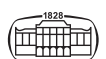
inform festival guests in greater detail on the availability and location of such services, their (non-judgmental) ways of operation as well as the absence of legal consequences for service users; and 3. the need for a high-quality service with an inviting atmosphere. Further details are summarized in Table 4.

The main learning on education was that online platforms such as TikTok and Instagram, having the widest reach, might carry the highest potential for exposure of yet unexperienced festival-goers to valuable harm reduction information. Also, the inclusion of this information in

festival apps and in the workshop program on-site is worth looking into by the event organizers.

The actual advice given by the participants to their fellow festival-goers echoed the learnings from the findings above. It was summarized based on categories “set”, “setting”, “substance” and “others” (see Fig. 17).

The data gathered throughout this section revealed the specific measures taken by festival-goers to ensure a positive and/or healing experience, which can be seen as a testimony for responsible use of psychedelics by adults consciously approaching their PEMF.



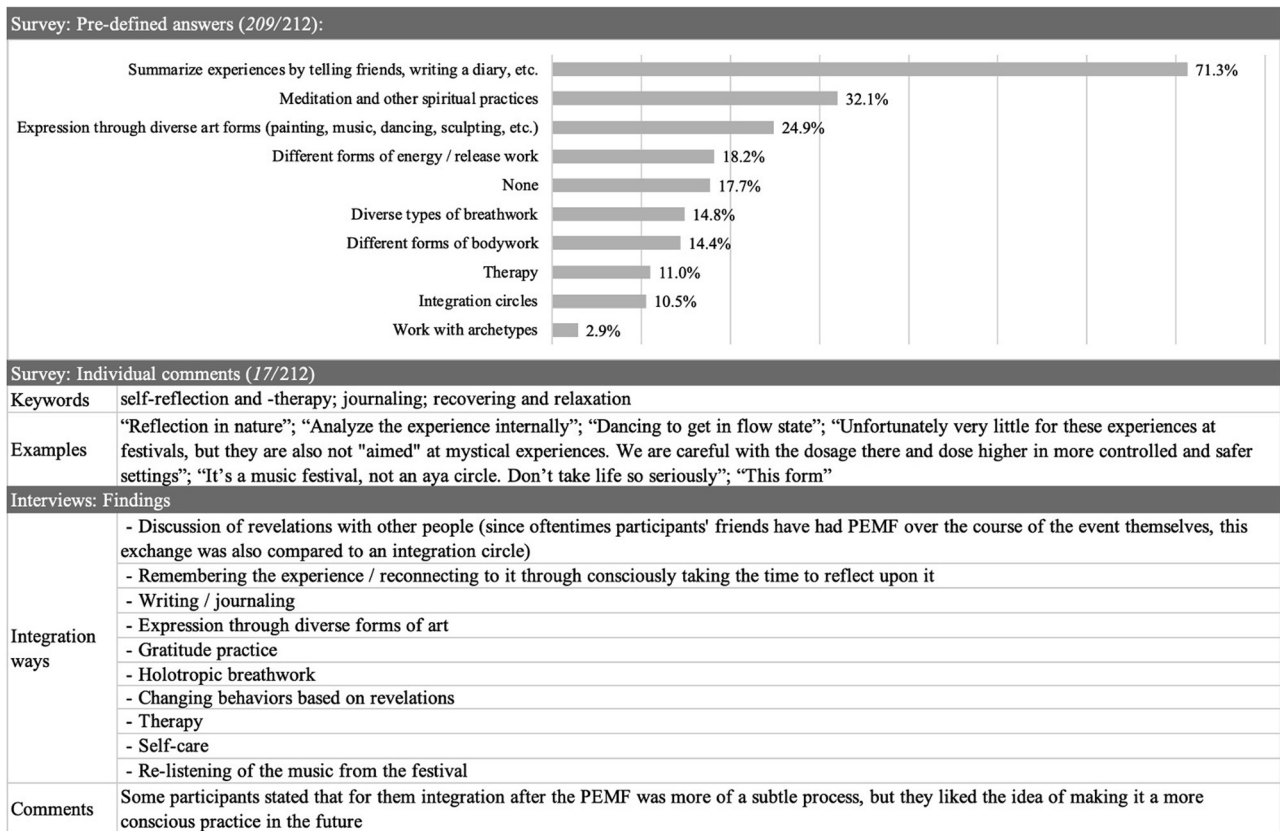


Fig. 16. Detailed overview integration

Table 4. Findings on welfare and harm reduction services (survey & interviews)

| | | |
|------------|---|--|
| Survey | Familiarity with welfare/harm reduction | 61.4% (210/212) |
| | Service users of welfare and harm reduction organizations at festivals (such as PsyCare UK, ZENDO, Kosmicare, Eclipse, Sonar, etc.) | 22.4% (210/212) |
| | Those, who have used the services, have found them to be helpful | 70.4% (71/212) |
| | Importance of the availability of safe spaces | Average value result of 9.4 on the scale between 0 (not important at all) and 10 (very important) (212/212) |
| Interviews | Reasons for not having used the services | No need due to the ability to navigate these states well by themselves; availability of trusted friends by their side; impression of rather uninviting welfare spaces; not having the clarity of mind to understand that there is a need/possibility to go anywhere, when in a challenging state; feelings of intimidation regarding the need to explain things, when being in a challenging state; and uncertainty regarding the legal consequences |
| | Further comments | Welfare presence on-site was also mentioned as a key factor to take psychedelics at a festival in the first place (P69-19). Among negative experiences there was a case described, in which welfare service had let the participant's friend leave the welfare tent and wander off by themselves in a severe state of confusion (see supplementary material I, P04-12). |

In the qualitative interview participants were asked *how* they have educated themselves and which channels they saw as the *educational channels of the future* (see [Table 5](#) for results).

Although the request for advice on PEMF did not offer pre-defined options, given answers were often similar and allowed for the categorization centred around the formula "set + setting + substance" (+others) (see [Fig. 17](#)).



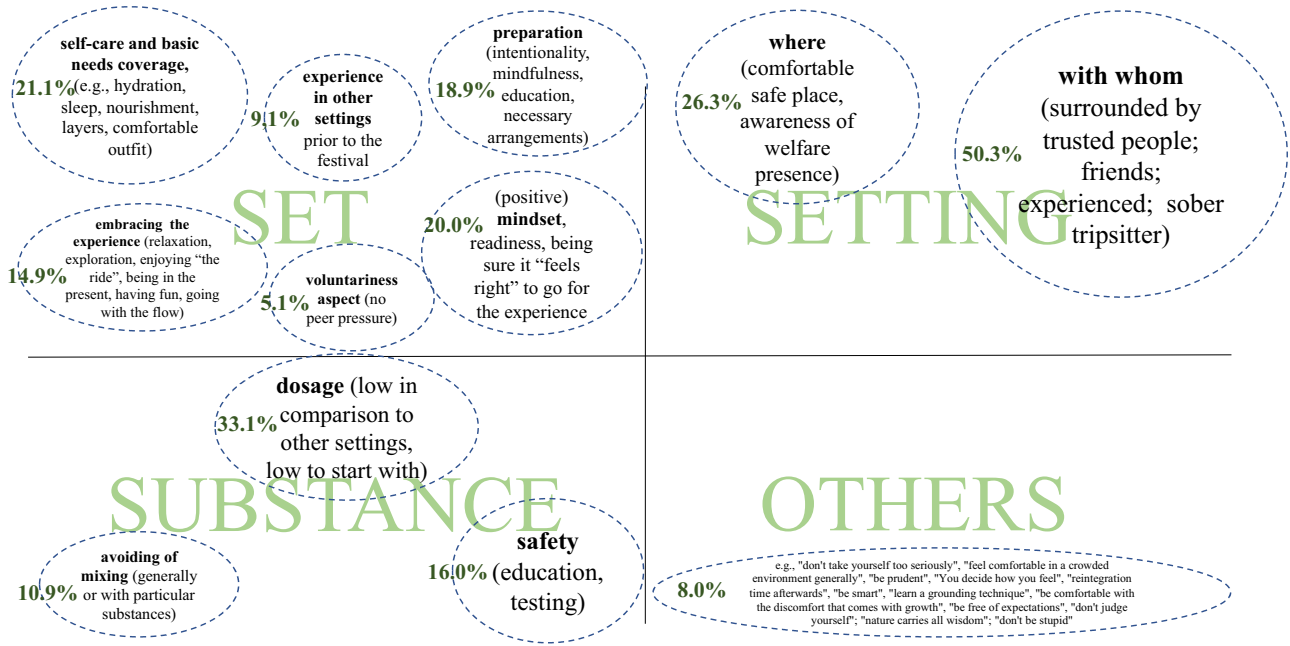


Fig. 17. Consolidated advice of experienced festival-goers (175/212)

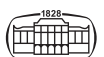
Table 5. Educational channels of the present & the future

| Channel | Details |
|---------|---|
| Present | <ul style="list-style-type: none"> - friends (most participants); - online research (websites mentioned: erowid.org; reddit.com; google.com; tripsafe.org; drugscience.org.uk; psychonautwiki.org; bluelight.org; maps.org; lucys-magazine.com; https://wearetheloop.org); - school; - medical and psychedelic journals (no specific ones mentioned); - books ("How to Change Your Mind" – Michael Pollan); - psychedelic conferences (mentioned: Breaking Convention); - learning by doing/trial and error; - volunteering with harm reduction services; - following psychedelic research; - following the work of particular individuals (e.g. Paul Stamets; Ram Dass; Terence McKenna) |
| Future | <ul style="list-style-type: none"> - social media (e.g. TikTok, Instagram, YouTube, Facebook); - informational packages from the festivals – at the entrance to the festivals or prior online/- workshops on substance use and harm reduction; - festival apps with link to welfare/harm reduction information |

SUMMARY AND DISCUSSION

The motivation of people to choose a music festival setting for substance-induced psychedelic experiences appeared to be manifold: having fun, loosening up, giving attention to the playful inner child, enhancement of the sensory exploration of the outer world, and deepening the connection to the diverse parts of it, especially through engagement with art, nature and other beings. The data gathered suggested that participants approached PEMF with the "positive expectancy", which contributes to positive outcomes in psychedelic therapy (Kocarova et al., 2021, p. 9). Furthermore, it became apparent that the factors, distinguishing music festivals from other settings (such as non-controllability of the environment, community and connection aspect, diversity and richness of the surroundings and pharmacological specifics), played a key role for the choice of the setting. Remarkably, the non-controllability of the environment, otherwise avoided in the

current research on psychedelics, contributed to the life-changing effects of PEMF. Exploring the nature of PEMF it was found that, mostly rooted in poly-drug use, the enjoyable ones were clearly dominating over the challenging ones. The mystical PEMF appeared to be surprisingly common, given the fact that music festival setting is very different from the "golden standard" in clinical research. Participants shared their life-changing effects of PEMF, evolving around changed perception (increased empathy, awareness, acceptance; gaining new perspectives, etc.) and changed behaviours (increased mindfulness in all life areas; making different life choices; changed approach to relationships, etc.). Except for post MDMA recovery, a positive impact of PEMF on mental health and the emotional state of the participants (self-assessed) was detected, referring to increased levels of happiness, compassion, awe, trust and restoring emotional balance. Examples of PEMF and their life-changing effects can be found in [supplementary material I – IV](#).



These findings can be linked to the initial question on whether PEMF have the potential to help *prevent* mental health disorders by increasing one's emotional well-being. When looking at proactive mental health strategies, beside the appropriate physical self-care (sleep, nutrition, physical fitness), it is recommended to process emotions, practice mindfulness engaging with the present moment, and give priority to social bonding with other human beings (Mental Health Foundation UK). This study showed that PEMF supported these strategies in various forms, apart from the (not necessarily, but possibly) tricky physical self-care for the duration of such events. The long-lasting life-changing effects of PEMF might be resulting from the psychedelics-induced plasticity and the interaction with the *setting itself*, which appeared to provide therapeutic value. Its elements could be linked to music, dance-movement, and art therapy, and it was compared to tribal rituals. Art generally and music specifically were found to be “the guide” or “the container” for the experience.

Based on these findings, can music festivals be seen as a form of group therapy, in which individuals are self-medicating according to their knowledge and goals? While such experiences are oftentimes life-changing in a positive way, they can also lead to psychological issues (e.g., lasting paranoia states, drug-induced psychosis, hallucinogen-persisting perceptual disorder). A great variety of individual experiences, resulting in a multitude of subjective opinions, needs to be acknowledged, while “mindfulness” versus “mindlessness” might be the two polarities on the emotional scale of looking at the PEMF. “Mindlessness” is a term, used by Wildhack (2022). He suggests that the psychonauts would use the mindfulness approach as a form of anxiety mitigation and that on the contrary, a more spontaneous (mindless) consumption of psychedelics can help reduce anxiety and support fulfilling experiences, contributing to adventurous exploration and play. How much mindfulness is necessary for PEMF? And how much mindlessness can a possibly traumatized person, or someone with genetic predisposition for psychiatric disorders invite into their experience? The complexity of the set, setting as well as mixed consumption impede a universal success formula. Therefore, the necessity of high-quality education prior to festivals to empower conscious choices of substance users, as well as the necessity for high-quality welfare service presence and promotion on-site are among the learnings obtained from this research. Acknowledging and de-stigmatizing the recreational use is important for meaningful changes, like implementation of drug testing services on-site. Furthermore, taking into consideration the advice from experienced festival-goers gathered in this study can help reduce the risks.

RESEARCH LIMITATIONS AND FUTURE POSSIBILITIES

The limitations of this research include: the response bias due to the self-selection of the participants; no possibility of linking experiences to a single substance due to the multiple-choice

option in combination with high mixed consumption; limited generalizability of the findings due to high individuality of the experience and their interpretation from every participant's unique framework of belief systems; diverse influential factors left out of the scope due to the project size reasons (e.g., sleep deprivation, differentiation between different festival kinds and concepts); absence of the comparison of the findings regarding the experiences to those of sober festival-goers; limited results on “spiritual emergencies” due to the framing of this topic in the survey, leading to the irrelevance of the findings in the context of the present study; non-availability of the data on mental health conditions of participants.

Following research ideas could help deepen the understanding of musical festivals as a setting for experiences with psychedelic substances:

- a comparative study of the settings: e.g., administration of the equal dose of a psychoactive substance to the same person in subsequent sessions with breaks in 1. a clinical setting; 2. at home; 3. in a ceremonial setting and 4. at a festival – assessment and comparison;
- possibly at some stage in the future, a “festival trial” instead of a “clinical trial”, specifically for research purposes, with festival guests being the study volunteers. With psychotherapeutic accompaniment prior to and post the dosing session, such study would allow to see whether the results are similar to the ones previously found/measured in a clinical setting;
- further single substance focus to enable a better correlation between the substances and the types of PEMF;
- gathering the data at the end of or right after an event to avoid the loss of the intensity of the memories and impressions;
- gathering data at a festival, known to be a psychedelic gathering, versus a commercial event could be interesting in terms of understanding PEMF in the context of the specific festival characteristics;
- sleep deprivation, associated with brain activation, and with disassociation, can lead to a non-ordinary state by itself (Newson et al., 2021). Widely occurring at festivals, it is an important factor in the PEMF context and should be included in further investigations;
- secondary data analysis to investigate correlation between pre-existing religious beliefs and PEMF.

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SUPPLEMENTARY DATA

Supplementary data to this article can be found online at <https://doi.org/10.1556/2054.2023.00282>.



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LIST OF ABBREVIATIONS

| | |
|-----------|--|
| CSTC | Cortico-Striatal-Thalamo-Cortical (model) |
| DMT | N,N-Dimethyltryptamine |
| LSA | lysergic acid amide |
| LSD | lysergic acid diethylamide |
| MDA | 3,4-Methylenedioxyamphetamine |
| MDMA | 3,4-Methylenedioxymethamphetamine |
| NDE | near-death experience |
| PEMF | psychedelic experiences at music festivals |
| REBUS | Relaxed Beliefs Under Psychedelics and Brain Entropy (model) |
| 2-FMA | 2-Fluoromethamphetamine |
| 3-MeO-PCE | 3-Methoxyeticyclidine |
| 5-MAPB | 5-(2-methylaminopropyl)benzofuran |

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