

## Factor Analysis of the MEQ43 Suggests Non-Psychedelic Mystical Experiences are Different from Psychedelic Mystical Experiences

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This study aimed to determine whether the 30-item Mystical Experience Questionnaire (MEQ30) is suitable for measuring non-psychedelic mystical experiences or whether a subset of questions from the 43-item Mystical Experience Questionnaire (MEQ43) is more appropriate. Participants ( $N = 136$ ) completed an online survey about their non-psychedelic mystical experience, which included the MEQ43 and its subset of items that make up the MEQ30. Confirmatory Factor Analysis revealed that the MEQ30 was not a good fit for the present study's non-psychedelic sample. Exploratory Factor Analysis of the MEQ43 suggested that an alternative set of items and corresponding factors may be more appropriate. In the new four-factor instrument (MEQ25), 25 items account for all MEQ43 factors. The new factors are Sacred Unity, Noetic Quality, Time-Space Transcendence, and Ineffable and Paradoxical. The new scale demonstrated excellent internal reliability ( $\alpha = .93$ ) and strong convergent validity with the M-Scale. The new scale is unique because it has a separate factor for noetic quality, which is considered a salient and therapeutic aspect of mystical experience. Furthermore, the refined time-space subscale better reflects the theory and subjective experience of non-psychedelic mystical experiences.

**Keywords:** mystical experience, mystical experience questionnaire, MEQ43, MEQ30, MEQ25

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In the contemporary landscape of psychological and therapeutic research, there exists a remarkable resurgence in interest in the therapeutic potential of psychedelic compounds. Termed by some as the *psychedelic renaissance*, this resurgence yields promising therapeutic benefits for a wide range of mental health problems, from depression and anxiety (Goldberg et al., 2020) to eating disorders (Peck et al., 2023), addictions (Bogenschutz et al., 2022; Johnson et al., 2017), and post-traumatic stress disorder (Averill & Abdallah, 2022; Krediet et al., 2020). However, it is widely accepted that it is not so much the psychedelic compound as it is the insights and mystical experience engendered therein that are responsible for the therapeutic benefits and persisting positive effects (Griffiths et al., 2006; Roseman et al., 2017; Rothberg et al., 2021; Yaden & Griffiths, 2021). These profound experiences transcend the psychedelic realm and extend into the broader landscape of human consciousness. Importantly, they offer a window into the relatively uncharted territory of non-psychedelic spontaneous mystical experiences which, likewise, have the potential to elicit healing, transformation and social cohesion (Miller, 2004).

A mystical experience (ME) is a unique type of altered state of consciousness that profoundly affects one's conceptualisation of oneself and the material world. Literature suggests the defining feature of an ME is a sense of unity or oneness and connection with all animate and inanimate things (James, 1902/2016; Stace, 1960). Other prominent features include sensing a living presence in all things, sacredness, positive affect, noetic quality, altered time-space perception, ineffableness, and paradoxicality (James, 1902/2016; Pahnke, 1966; Stace, 1960; Taylor & Egeto-Szabo, 2017; Underhill, 1911). A wide variety of events can trigger ME, but the most common are trauma and psychological turmoil, spiritual practices, psychoactive substances, and being in nature (Corneille & Luke, 2021; Taylor & Egeto-Szabo, 2017). For this article, ME are referred to as either non-psychedelic mystical experience (NPME) when occurring outside the context of psychoactive substances or psychedelic mystical experience (PME) occurring after ingesting psychoactive substances.

### **Theoretical Frameworks**

Early pioneers of ME research primarily drew on qualitative NPME narratives. Their research forms the theoretical foundations on which an overwhelming amount of ME research rests. James (1902/2016) states that oneness is the primary characteristic of ME and, combined with noetic quality and ineffableness, is sufficient to establish an altered state of consciousness as mystical. James' (1902/2016) assertions are supported by Underhill (1911), who provides a comprehensive discussion of these aspects. Additional defining characteristics noted by James are transiency and passivity. Stace (1960) further affirms oneness or unity as the primary characteristic, proposing that all other characteristics stem from this experience. Stace identified five additional characteristics that somewhat overlap with James (1902/2016) and Underhill (1911): objective reality, positive feelings, sacred and divine nature, paradoxicality, and alleged ineffability.

## Measuring ME in Research

Seminal research by Pahnke (1966) not only confirmed claims that some psychedelic experiences share similarities with ME, but also established that, for the purposes of research, psychedelics could engender ME. As shown in Table 1, Pahnke drew primarily on Stace's (1960) research to develop the MEQ43, a measure that enabled researchers to study PME using quantitative methodology. The MEQ43 was used extensively during the first wave of research into the therapeutic benefits of psychedelics.

**Table 1**

*ME Measures and Description of Their Underlying Factors*

Measure	Underlying Factor	Description
MEQ43	Internal Unity	Loss of personal identity and its limitations, or a fusion of it with something far greater.
	External Unity	Becoming united with the external world, feeling at one with your surroundings and/or an awareness of a living presence in all things.
	Transcendence of Time-space	Alterations in time and space perception as though there are no time-space boundaries. A sense of being outside of time or even that time does not exist. Being unaware of one's location.
	Ineffablility and Paradoxicality	The inability to effectively communicate the experience to those who have not had such experience. Paradoxicality points to the sense that two opposing statements can both be true.
	Sense of Sacredness	The sense that the experience has a divine, holy or sacred element which is profound and deeply meaningful, leaving the experiencer in awe and reverence with a sense of being at a spiritual height.
	Noetic Quality	The sense of gaining insightful knowledge and intuition from an encounter with an ultimate reality. An awareness of a more real reality than that experienced subjectively in everyday consciousness.
	Deeply-felt Positive Mood	The experience includes feelings of ecstasy, exaltation, universal love, tranquillity, tenderness and gentleness.
MEQ 30	Mystical	Sense of unity or oneness with something greater than oneself, like an ultimate reality, pure beingness or infinity. An insight that all is one and has a living presence. The experience is sacred or holy and leaves one feeling at a spiritual height.
	Time-Space	Loss of the usual sense of time, space and awareness of where you are or of being outside of time and space in a place with no time-space boundaries.
	Positive Mood	Feelings of amazement, tenderness, gentleness, ecstasy, peace and tranquillity.
	Ineffability	The inability to effectively communicate the experience to those who have not had such experience.

Today, ME are regularly engendered in experimental psychopharmacological research using psychedelics and measured using the MEQ30 (MacLean et al., 2012), a subset of questions from the MEQ43 that was developed, refined and validated (Barrett et al., 2015) with PME samples (Table 1). Despite calls from MacLean et al. (2012) and Barrett and Griffiths (2018) for MEQ30 validation in non-psychedelic samples, to the author's knowledge, this has not yet been done. Nevertheless, the MEQ30 is increasingly being adopted for measuring NPME. See, for example, Perry et al.'s (2021) investigation of mystical states during chanting, Russ and Elliott's (2017) and Vieten et al.'s (2018) investigations of ME during meditation and Lynn and Evans' (2017) experimental research engendering ME through hypnotic suggestion. The appropriateness of the MEQ30 for measuring NPME rests on assumption rather than evidence. This oversight could potentially lead to blind spots in NPME understanding and bias research results.

### **Comparison of NPME and PME**

Few researchers have directly compared the subjective qualities of PME and NPME despite countless debates within transpersonal psychology, religious psychology and theology on the subject (Jones, 2019). To address this gap in the literature, Yaden, Le Nguyen, Kern, Belser et al. (2017) compared spiritual/religious experiences with psychedelic experiences and found that the latter had higher ratings for ME and its impact on their lives. However, spiritual/religious experiences are not synonymous with ME (Daniels, 2005; Jones, 2019). Furthermore, ME is widely considered a multi-faceted experience, and the experience of one facet alone does not constitute an ME (Barrett et al., 2015; Stace, 1960). Nevertheless, a four-item subscale that measures just one facet of ME, ego-dissolution, was used in this study. Considering that ego-dissolution is a key feature of psychedelic experiences (Nour et al., 2016), this measure alone is insufficient to determine whether or not participants had an ME and would bias results in favour of psychedelic experiences. Consequently, the study falls short in its comparison of NPME and PME.

While not directly researching the differences and similarities of NPME and PME, Doblin (1991) found that people who have had both NPME and PME report that while the NPME engendered primarily positive emotions, the PME was more intense and accompanied by negative emotions such as fear, agony and self-doubt. These findings suggest that there may be subjective differences between PME and NPME.

Griffiths et al. (2019) compared psychedelic-engendered "God encounters" with non-psychedelic experiences and found remarkable similarities between the groups in both the experience and long-term effects. However, the psychedelic group scored significantly higher than the non-psychedelic group on the total MEQ30 score and the four latent factors: Mystical, Positive Mood, Time-Space, and Ineffability. Moreover, the psychedelic group had a higher prevalence of Complete Mystical Experience (CME), meeting a score  $\geq 60\%$  on all four latent factors, with a 64% prevalence compared to 43% in the non-psychedelic group. The difference in CME occurrences between the groups

is potentially due to low Time-Space scores in the NPME group. This is no surprise, given that Time-Space scores are associated with psilocybin dosing (Griffiths et al., 2018; Nicolas et al., 2018). These findings further suggest that PME and NPME could be subjectively different.

The results of an investigation into the phenomenological aspects of spontaneous spiritual awakening and kundalini awakening give reason to believe this could be the case. Corneille and Luke (2021) compared NPME with PME, and whilst they used the MEQ30 as a measure of CME, they also utilised the 11D-ASC, a scale that is considered to be stable across triggers (Studerus et al., 2010), to compare phenomenological aspects. Like Griffiths et al. (2019), they found striking similarities in distribution and magnitude between NPME and PME. However, NPME scored significantly higher than PME on the dimensions of the experience of unity, spiritual experience, blissful state, and insightfulness. In summary, while the scores for PME in Griffiths et al. were significantly higher than the NPME scores using the MEQ30 items, in Corneille and Luke (2021), the NPME scores were significantly higher than PME scores on several 11D-ASC dimensions. It is, therefore, possible that the MEQ30 does not account for all facets of NPME and could also be more appropriate for measuring PME than NPME.

In light of the findings from these studies and the increasing use of the MEQ30 for measuring NPME in research, the validation of the MEQ30 in NPME samples is long overdue. Consequently, this research aims to investigate whether the MEQ30 is a valid measure for NPME or whether other MEQ43 questions may be more appropriate, which may also lead to different underlying facets for NPME.

## Method

### Study Design

A quantitative study using survey methodology was employed. Part 1 of the study consisted of a Confirmatory Factor Analysis (CFA) of the MEQ30 with an NPME sample. Part 2 focused on the Exploratory Factor Analyses (EFA) of the MEQ43 with the same sample.

### Materials

A questionnaire consisted of an introduction and consent box, questions about participant demographics and the participant's ME such as potential triggers, duration and time-lapse, the MEQ43, the MEQ30, the Hood Mysticism Scale (Hood, 1975) and a debrief.

### ***MEQ43 - Pahnke-Richards Mystical Experience Questionnaire***

The MEQ43 (Griffiths et al., 2006) has seven subscales: Internal Unity (6 items), External Unity (6 items), Transcendence of Time-Space (8 items), Ineffability and Paradoxicality (5 items), Sense of Sacredness (7 items), Noetic Quality (4 items), and Deeply-Felt Positive Mood (7 items). Each item is rated on a 6-point Likert scale from 0 (*none, not at all*) to

5 (*extreme; more than ever before in my life and stronger than 4*). The author could not locate reliability or validity statistics for the MEQ43. However, in the present study, Cronbach's alpha for the scale was excellent ( $\alpha = .95$ ). This scale may be used to obtain a total score by summing up all items. Scores are regularly expressed in the literature as a percentage of the maximum possible score for the MEQ total and factor scores (Griffiths et al., 2006). The scale may also be used for the designation of a CME, defined as scores  $\geq 60\%$  on either the Internal Unity or External Unity and all of the remaining five factors (Griffiths et al., 2006).

### **MEQ30**

The MEQ30 (MacLean et al., 2012) is a subset of questions from the MEQ43 that was developed and validated (Barrett et al., 2015) with PME samples. The measure retains 30 questions and has four latent factors: Mystical (15 items), Positive Mood (6 items), Time-Space (6 items) and Ineffability (3 items). It uses the same Likert scale as the MEQ43. The MEQ30 total score demonstrated excellent internal consistency ( $\alpha = .93$ ; MacLean, 2012), while its sub-scales demonstrated good internal consistency: Mysticism ( $\alpha = .93$ ), Positive Mood ( $\alpha = .83$ ), Time-Space ( $\alpha = .81$ ) and Ineffable ( $\alpha = .80$ ). The MEQ30 total also demonstrated substantial convergent validity with the M-Scale total ( $r = .81, p < .001$ ). In the present study, Cronbach's alpha for MEQ30 total score was also excellent ( $\alpha = .93$ ), as was Cronbach's alpha for Mysticism ( $\alpha = .90$ ) and Time-Space ( $\alpha = .86$ ) and moderate for Positive Mood ( $\alpha = .78$ ), and Ineffable ( $\alpha = .85$ ).

### **Hood Mysticism Scale (M-Scale)**

The M-Scale (Hood, 1975), used for construct validity, shares the same theoretical underpinnings as the MEQ43. It contains 32 questions rated on a 5-point Likert scale, from -2 (*this description is definitely not true of my own experience*) to +2 (*this description is definitely true of my own experience*). There are four questions for each of the eight characteristics outlined by Stace (1960): Ego Quality, Unifying Quality, Inner Subjective Quality, Temporal / Spatial Quality, Noetic Quality, Ineffability, Positive Affect and Religious Quality. Factor analysis of the M-Scale has returned mixed results with two and three-factor solutions (Anthony et al., 2010; Caird, 1988; Hood, 1975). Recently, Streib et al. (2021) confirmed a three-factor model: Introvertive, Extrovertive and Interpretive that demonstrated excellent internal reliability in both a U.S. sample ( $\alpha = .96$ ) and a German sample ( $\alpha = .97$ ).

### **Procedure**

This research aimed to determine whether the underlying aspects found in the MEQ30 are appropriate for measuring NPME. The survey was published online for 11 weeks (January to April 2022) using Google Forms. Participants were required to report their ME and answer questions retrospectively. Participants were recruited online through social media platforms, personal correspondence, and snowballing. Participation criteria included people over 18 identifying as having had a mystical or awakening experience. Exclusion criteria were people under the age of 18 and those whose experience involved

psychoactive substances. Ethical approval was obtained from the Psychology Research Ethical Committee at Liverpool John Moores University. Research conformed with the BPS Code of Human Research Ethics (British Psychological Society, 2021) and guidelines for transpersonal research (Geldenhuys, 2019).

### **Data Analysis**

Jamovi Version 2.2.5 (The jamovi project, 2021) was used for all analyses. In Part 1 of the study, CFA of the MEQ30 determined whether its four-factor structure is supported with an NPME sample. Due to the study's small sample size, the Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA) were used to reduce Type I and Type II errors. The cut-offs for the model fit indices were  $TLI \geq .95$  and  $RMSEA \leq .09$ .

In Part 2, EFA were carried out on MEQ43 to determine whether a different subset of MEQ43 questions and consequent factor model would provide a better fit for NPME than the MEQ30. During the first phase of Part 2, a parallel analysis was run to determine the number of factors to be retained. This method was adopted because parallel analysis is considered the most accurate method for factor extraction (Watkins, 2018). The scree plot, parallel analysis with its simulated data and Eigenvalues were examined to ensure the optimum number of factors were extracted.

All potential factor solutions underwent a second phase of analysis where EFA was conducted using Maximum Likelihood with an Oblimin rotation. Oblimin rotation was chosen because previous research (Barrett et al., 2015) suggests the underlying factors are all facets of the more general construct and are expected to correlate (Reise et al., 2000; Watkins, 2018). Furthermore, Reise et al. (2000) suggest that an oblique rotation, such as Oblimin, is superior in that it allows an orthogonal solution if it is appropriate. Items were then evaluated for retention or exclusion. Items were removed for low primary loading ( $< .4$ ), poor discrimination, and high unique variance ( $> .6$ ) or low communality ( $< .4$ , Fabrigar et al., 1999; Floyd & Widaman, 1995). A final parallel analysis was conducted on the retained items to confirm the factor structure. No further items were removed.

The potential factor solutions were compared on factor loadings, model fit indices, reliability and validity statistical tests and conceptual and theoretical meaning and robustness to determine the optimal solution. The new factor structure was tested for internal consistency using Cronbach's alpha and construct validity with the M-Scale. In addition, to confirm adequate sample size, the Kaiser-Meyer-Olkin test ( $> .8$ ) and Bartlett's test of sphericity were conducted ( $p < .001$ ).

## **Results**

### **ME Characteristics**

Participants could enter more than one significant trigger from a short list of potential triggers. Forty-nine per cent cited spiritual practice, 29% being in nature, 28%

psychological trauma and 18% reported no discernable trigger or other. Regarding the time-lapse since the experience, 14.7% said the experience occurred less than one year ago, 15% 1–2 years ago, 18% 2–5 years ago, 15% 5–10 years ago, and 37% reported more than 10 years ago. For the duration of experience, 56% said the experience lasted a few minutes, 10% hours, 10% weeks, 7% months and 16% reported more than one year. The mean MEQ43 score was 74% ( $SD = 17$ ), with 55% of participants meeting the a priori criteria for CME. The mean M-Scale score was 80% of the maximum possible score.

### Part 1: MEQ30 CFA

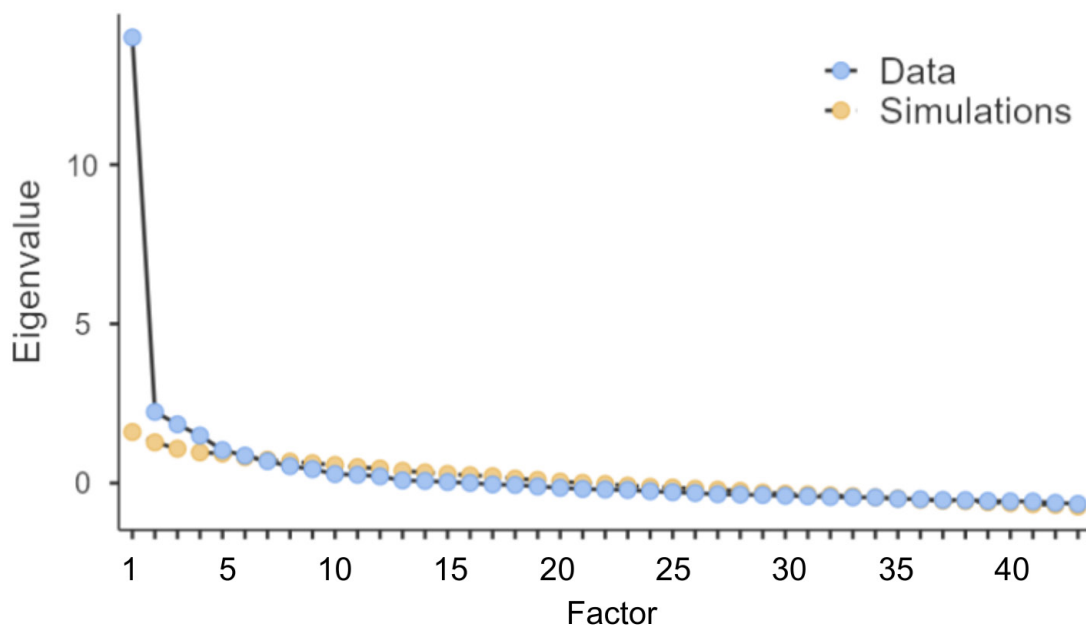
CFA of the MEQ30 factor structure demonstrated poor model fit ( $TLI = .714$  and  $RMSEA = .103$ ) for the present sample.

### Part 2: MEQ43 EFA

Examination of the parallel analysis, scree plot and Eigenvalues revealed that a four, five or six-factor model might be appropriate. However, the parallel analysis (Figure 1), showed that while the observed data for the five and six-factor models was only marginally higher than simulated data, observed data for the four-factor model was considerably greater than its corresponding simulated data point.

**Figure 1**

*MEQ43 EFA Scree Plot*



The potential factor solutions performed similarly under statistical tests. As seen in Table 2, all met the criteria for RMSEA. However, none met the TLI criteria. Cronbach's alphas for each model were excellent. The percentage of variance for the potential models was adequate.



**Table 2***MEQ43 EFA Comparison Table of Potential Factor Solutions*

	4 factor	5 factor	6 factor
RMSEA	.0864	.0813	.0713
TLI	.826	.810	.867
% Variance explained	56	56	60
Scale Cronbach's $\alpha$	.93	.93	.92
Mean Factor Cronbach's $\alpha$	.86	.84	.83

Considering factor model stability, Floyd and Widaman (1995) recommend that at least three variables load strongly on each latent factor. At the same time, Fabrigar et al. (1999) recommend at least four to six variables per factor. Of the three potential factor models, only the four-factor model met both criteria. Furthermore, conceptually and theoretically, the five and six-factor models contained high-loading anomalies, while the four-factor solution was easier to interpret. Taken together, a four-factor model was deemed optimal. The four-factor model was subjected to an Oblimin rotation. Eight items with low primary loading ( $< .4$ ) were deleted (item numbers 1, 4, 8, 15, 22, 23, 29 and 30), and one item (39) was deleted for poor discriminate value (loading  $> .4$  onto more than one factor). Nine additional items were removed for high unique variance (item numbers 2, 3, 12, 16, 17, 18, 28 and 42). Table 3 shows the factor loadings for the remaining items. Only one round of item deletion was carried out in the refinement process. As a result, the four-factor solution, the Mystical Experience Questionnaire-25 (MEQ25), retained 25 items and explained 56.3% of the variance.

### **MEQ25**

**Factor 1: *Sacred Unity*** - Ten items capture the experience of merging into oneness and the accompanying subjective emotions such as reverence. It represents MEQ43 factors Internal Unity, External Unity, Sense of Sacredness, and Deeply Felt Positive Mood. This first factor explained 17.4% of the variance after rotation. See Table 4 for the complete list of question items and corresponding factors.

**Factor 2: *Time Space Transcendence*** - Retaining five of the eight MEQ43 Transcendence of Time Space questions, this subscale retains items suggesting temporal-spatial markers receded in importance. However, items that suggest some disorientation or disconnection from one's usual temporal-spatial aptitude were deleted. Factor 2 explains 14.8% of the variance.

**Factor 3: *Noetic Quality*** - The six items capture the noetic quality and objective reality. It takes three items from the MEQ43 Noetic Quality, two from External Unity and one from Internal Unity. Factor 3 explains 13.5% of the variance.

**Factor 4: *Ineffable and Paradoxical*** - Retaining all four items from MEQ43 Ineffability and Paradoxicality makes this factor robust and re-introduces the paradoxical aspect of ME. Factor 4 explains 10.3% of the variance.

**Table 3***MEQ25 Item Factor Loadings*

Item	Factor 1	Factor 2	Factor 3	Factor 4
Q31	0.739			
Q33	0.657			
Q11	0.641			
Q40	0.620			
Q38	0.576			
Q19	0.556			
Q21	0.530			
Q25	0.513			
Q37	0.474			
Q9	0.429			
Q20		0.843		
Q35		0.838		
Q24		0.752		
Q27		0.713		
Q10		0.631		
Q41			0.650	
Q34			0.626	
Q36			0.602	
Q7			0.594	
Q13			0.576	
Q26			0.565	
Q14				0.903
Q6				0.833
Q43				0.631
Q32				0.434

Note: 'Maximum likelihood' extraction method was used in combination with an 'oblimin' rotation. Item numbers correspond to the original MEQ43 item numbers.

**Scale Validation and Reliability**

Kaiser-Meyer-Olkin's measure of sampling adequacy was .852, which is above the commonly recommended value of .6. Bartlett's test of sphericity was significant ( $\chi^2(300) = 2104$ ,  $p < .001$ ), demonstrating adequate sample size. Cronbach's alpha showed excellent internal consistency for MEQ25 (.93) and good internal consistency for its factors; Sacred Unity (.89), Time Space Transcendence (.84), Noetic Quality (.89) and Ineffable and Paradoxical (.82). Convergent validity was also satisfactory with strong correlations between the M-Scale and the MEQ25 and their factors (Table 5).

**Discussion**

Part 1 of the study set out to investigate whether or not the MEQ30 that was developed with PME samples is an appropriate instrument for measuring NPME. CFA demonstrated that the MEQ30 factor structure is not a good fit for the present study's NPME data. One potential explanation for this finding is that NPMEs are subjectively different in some way from PMEs. With this in mind, the second part of the study explored alternative questions and related

**Table 4***MEQ25 Factor Model*

Item No.	Item
<b>Factor 1: Sacred Unity</b>	
9	Experience of oneness or unity with objects and/or persons perceived in your surroundings
11	Feelings of tenderness and gentleness
19	Sense of profound humility before the majesty of what was felt to be sacred or holy
21	Freedom from the limitations of your personal self and feeling a unity or bond with what was felt to be greater than your personal self
25	Experience of ecstasy
31	Sense of reverence
33	Feelings of universal or infinite love
37	Feeling that you experienced something profoundly sacred and holy
38	Awareness of the life or living presence in all things
40	Sense of awe or awesomeness
<b>Factor 2: Time Space Transcendence</b>	
10	Loss of your usual sense of space
20	Sense of being “outside of” time, beyond past and future
24	Feeling that you have been “outside of” history in a realm where time does not exist
27	Being in a realm with no space boundaries
35	Experience of timelessness
<b>Factor 3: Noetic Quality</b>	
7	Gain of insightful knowledge experienced at an intuitive level
13	Certainty of encounter with ultimate reality (in the sense of being able to “know” and “see” what is really real at some point during your experience)
26	Experience of the insight that “all is One”
34	Intuitive insight into the inner nature of objects and/or persons in your surroundings
36	You are convinced now, as you look back on your experience, that in it you encountered ultimate reality (i.e., that you “knew” and “saw” what was really real)
41	Experience of unity with ultimate reality
<b>Factor 4: Ineffable and Paradoxical</b>	
6	Sense that the experience cannot be described adequately in words
14	Feeling that you could not do justice to your experience by describing it in words
32	Sense that in order to describe parts of your experience you would have to use statements that appear to be illogical, involving contradictions and paradoxes
43	Feeling that it would be difficult to communicate your own experience to others who have not had similar experiences

factors that could better capture the nuances of NPME. Following an EFA of the MEQ43, a four-factor model was identified. The model (MEQ25) has four latent variables: Sacred Unity, Time-Space Transcendence, Noetic Quality, and Ineffable and Paradoxical. It retains 25 items that account for all seven MEQ43 latent variables. The MEQ25 meets guidelines for internal consistency and convergent validity.

This study aligns with previous research by Griffiths et al. (2019) and Corneille and Luke (2021), which indicated remarkable similarities between PME and NPME. The MEQ25 and the MEQ30 overlap considerably, sharing 20 of the same items. However, the few

**Table 5***Correlation Matrix – MEQ25 and M-Scale*

	MEQ25 Total	MEQ25 F1 Sacred Unity	MEQ25 F2 Time Space Transcendence	MEQ25 F3 Noetic Quality	MEQ25 F4 Ineffable & Paradoxical
M-Scale Total	0.756	0.665	0.620	0.621	0.443
M-Scale Introvertive	0.641	0.488	0.655	0.383	0.531
M-Scale Extrovertive	0.656	0.591	0.488	0.613	0.328
M-Scale Interpretation	0.701	0.654	0.542	0.586	0.366

Note: All correlations are Pearson's r  
 All correlations are significant ( $p < .001$ )

item differences are noteworthy and may provide insight into the mechanisms underlying these experiences. In particular, the exclusion of two items depicting a loss of time-space awareness suggests that while NPMEs may experience time-space alterations, they do not experience a loss of temporal-spatial aptitude. This finding echoes the work of Chen et al. (2011), who observed that when Buddhist monks are in the mystical state, rather than losing their temporal-spatial aptitude, time and space become extraneous. Furthermore, Griffiths et al. (2019) and Corneille and Luke (2021) found that their NPME participants scored considerably lower on the time-space facet than the PME participants. Significantly, Corneille and Luke (2021) reported a general disagreement with one of the excluded items representing a loss of time-space awareness. These findings support the idea that alterations in temporal and spatial perception may not be such prominent aspects of NPME as PME and may even be felt differently. It is worth noting that previous research has demonstrated that psychoactive substances affect temporal and spatial perception (Girn & Christoff, 2018; Hasler et al., 2004). Indeed, Nicholas et al. (2018) showed that time-space scores are positively associated with psilocybin dose. Considering the results of the present study and previous literature, it can be assumed that psychedelic compounds influence the subjective experience of time and space during an ME and that researchers should expect time-space alterations to be milder and different in NPME populations.

Another notable difference between PME and NPME in the present research is that paradoxicality seems to be a more salient aspect of NPME. This supports the findings of Garcia-Romeu et al. (2015), who found that 40% of the participants in their grounded theory ME research reported that the experience was paradoxical, while only 27% of their participants cited psychoactive substances as a catalyst. In contrast, paradoxical questions were removed from both the MEQ30 (MacLean et al., 2012) and the M-Scale (Hood, 1975), making the MEQ25 the only scale to measure this construct. This is important because both Western literature (James, 1902/2016; Underhill, 1911; Stace, 1960) and Eastern scriptures (Abhayananda, 1992/2000) indicate that the paradoxical nature of ME is salient across cultures and time. Stace (1960) warns that glossing over the paradoxical nature of ME is a shallow interpretation favoured by those with scientific minds and logical fervour. Dias and Safra (2016) support this view, advocating that ME requires a broader epistemological

perspective than positivistic psychologies allow. Whilst the paradoxical nature of ME may not sit comfortably within the realms of positivist science, it is often part of the experience of having an ME and should be reflected in any scale that pertains to measuring ME. However, whether NPMEs tend to be more paradoxical than PME is a matter for further investigation, but this study suggests this might be the case.

Although the present results differ from those of MacLean et al. (2012), suggesting there may be nuanced differences between PME and NPME regarding temporal-spatial aptitude and paradoxicality, the present results show that PME and NPME are much more similar than different. Both types of experience are permeated with a sense of oneness and the resulting noetic quality, positive emotions and ineffableness. More specifically, both PME and NPME seem to contain internal and external unity elements. This observation is consistent with earlier studies by Chen et al. (2011) and Hood (1975), who found that internal and external unity converge into a single factor. Together, these findings corroborate the work of Stace (1960), who noted that an experience can be both introvertive and extrovertive and that mystics make no distinction between the two. That said, in the present NPME sample, external unity was more prominent than internal unity, while, in contrast, the MEQ30 indicates that the opposite may be true of PME. Indeed, research has shown that psychedelic compounds disrupt the cognitive, perceptual and sensory systems, reduce neural activity, specifically the default mode network, and regularly engender ego-dissolution (Letheby & Gerrans, 2017), a key feature of internal unity. While there is scant research on the internal and external nuances of ME, de Castro (2017) offers a model to explain these nuances that hypothesise internal unity is experienced when the cognitive, perceptual and sensory systems are disrupted, which evidently occurs under the influence of psychedelic drugs.

One final point worth noting about the present study results is the prominence of noetic quality in NPME, which resulted in the re-introduction of a scale that specifically measures the noetic aspects of NPME. This means the MEQ25 and MEQ30 factor structures differ in a profound way. While the MEQ30's main factor subsumes all the mystical elements of ME and emphasises positive affect, the MEQ25 has distinct scales for measuring the subjective and noetic qualities supporting Daniels' (2005) assertion that the noetic aspect of ME is distinguishable from the subjective. This finding is congruent with Yaden, Le Nguyen, Kern, Wintering et al. (2017), who found that 69% of religious, spiritual and mystical experiences are noetic. Furthermore, our results are consistent with Corneille and Luke (2021), who found that NPME scored considerably higher on Insightfulness and Changed Meaning of Percepts than PME. Furthermore, the present study supports James (1902/2016), Underhill (1911) and Stace (1960), who viewed the noetic aspect as fundamental. Moreover, James asserts that ME could be identified by just two aspects: noetic and ineffable, of which the MEQ25 has a factor for each. This finding is important because the noetic aspect of ME positively correlates with self-report levels of well-being (Yaden, Le Nguyen, Kern, Wintering et al., 2017). Furthermore, the noetic aspect of PME has been considered "the nexus of its therapeutic potential" (Cole-Turner, 2021, p. 1058). Accordingly, Yaden, Le Nguyen, Kern, Wintering et al. (2017) point out the urgent need for a better understanding of ME and

precisely the noetic aspect of ME. A scale such as the proposed MEQ25 that emphasises noetic dimension could be advantageous in this regard.

### **Limitations and Future Directions**

Despite attaining sampling adequacy, the small sample size limits the present study. Therefore, the newly proposed measure could be unique to the participants and not generalisable to a larger population. Furthermore, the use of Jamovi dictated that TLI and RMSEA were used when other fit indices may have been more appropriate for a small sample size. Consequently, further confirmatory factor analysis of the MEQ30 with larger NPME populations is warranted. Notwithstanding these limitations, the present research adds to the ongoing debate on the differences and similarities between PME and NPME. While the current research suggests that PME and NPME are largely similar, it also suggests there are nuanced differences that should be explored. For example, firstly, an inquiry into how time and space are experienced in PME and NPME could further our understanding of the underlying dimensions of ME. Secondly, further exploration into the paradoxical nature of ME could greatly support the many people who experience this facet of ME and struggle to integrate the experience. Thirdly, considering the prominence of the noetic aspect of NPME and its hypothesised dominant role in healing and transformation in PME, it would be advantageous to explore this element further. Though like paradoxicality, it will undoubtedly raise questions that challenge the present scientific paradigm. Returning to the limitations of this study, it is important to note that in developing a new scale from the MEQ43, this study was restricted to the theoretical underpinnings of James (1902/2016) and Stace (1960) and may perpetuate a narrow conceptualisation of ME born out of psychedelic research. Future research could broaden the lens to investigate the subjective and noetic NPME of today.

### **Conclusion**

In summary, the present research supports previous literature demonstrating that NPME and PME to a large extent are similar. However, it is becoming evident that there are nuanced differences in these experiences. Specifically, this research has highlighted nuanced differences in the dimensions of time and space perception, paradoxical nature, internal and external unity and noetic quality. Despite its limitations, the present research adds to a growing body of literature on human consciousness, mystical-type experiences and, specifically, NPME, which, until now, have remained relatively under-researched. It is hoped that future research will continue to untangle the mystical nature of this very ordinary yet extraordinary type of altered state of consciousness capable of engendering healing, transformation, quantum change, and social cohesion.

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