Table 1

Descriptives of the Extraction

Study	Sample Size (n)	Selected Sample of n	Removed Sample of n	Mean Age	MMGF	Control Conditions	Total Ganzfeld Sessions	Total Control Sessions	Total MMGF-EEG Sessions
Miskovic et al. (2019)	22	8F+11M =19	Hardware error - 3	23.18	1	2	19	38	19
Pütz et al. (2006)	40	Phase 1: 28F+11 M=39; Phase 2: 7F**	Phase 1: Anti-depressant - 1 Phase 2: Low mentation responses - 32**	Phase 1: 39; Phase 2: 49.2	Phase 1: 2; Phase 2: 3	Phase 1: No EEG	Phase 1: (39x2) + Phase 2: (7x3) =99	78	21
Sumich et al. (2018)	46	29F+16 M=45	Outlier with 500+ reported imagery - 1	24.15	3	Flicker-Ganzfeld + Pink noise	135	45	135
Wackermann et al. (2002)	17	12F	Low alpha activity - 5	33.3	1	5	12	60	12
Total	125	115	10	32.45	10	7	265	221*	187

F – female, M – male, MMGF – multimodal Ganzfeld experiments

****Phase 2 is not included in the total**

***Total Non-MMGF + non-EEG = 98 control sessions**

Table 2

Summary of Experimental Conditions

Study	Control Conditions	MMGF Duration	MMGF Conditions	Physiological Measurements	Self-Reports
Miskovic et al. (2019)	Eyes closed in a dark room, changing shapes on a dark screen	10 m	Uniform red light, pink noise via headphones, halved Ping-Pong balls as eye covers	EEG & a button press	Qualitative self-reports (encoded form, movement, colour & boundary fusion), written mentation transcribed to a digital format
Pütz et al. (2006)	Phase 1: MMGF Screening 1 – 20 m (no EEG), screening 2 – 30 m (button press); Phase 2: MMGF 45 m (EEG)	45 m (60-75 net)	Uniform red light, waterfall sound via headphones, translucent anatomical goggles as eye covers,	EEG, vertical electrooculogram (right eye), electromyogram, electrocardiogram, respiration & a button press	Qualitative structured reports (pre-experiment mental and somatic status & MMGF inquiry), mentation tape recorded
Sumich et al. (2018)	Pink noise	20 m 30 s	Flickering red light, fear and serenity soundtracks via earphones, cardboard panel eye frames, light diffusing goggles	EEG & a button press	Qualitative self-reports, 32-item Cardiff Anomalous Perception Scale, 35-item Betts' questionnaire on mental imagery, 60-item Positive and Negative Affect Schedule-Expanded Form, mentation audio recorded
Wackermann et al. (2002)	Wakefulness before sleep onset, sleep onset, sleep stage 1, sleep stage 2, relaxed waking, daytime waking	30-40 m (90-120 net)	Uniform red light, waterfall sound via headphones, halved Ping-Pong balls as eye covers	EEG & a button press	Qualitative on-demand inquiry, 46-items mentation reports, mentation tape recorded

MMGF – multimodal Ganzfeld, EEG – electroencephalogram, s – seconds, m – minutes, h – hours

Note - Net time includes interruptions for reporting and inquiry.

Table 3

Summary of MMGF Reports

Study	MMGF Self-Reports	MMGF-EEG Reports
Miskovic et al. (2019)	Boundary fusion was achieved. Geometric and amorphous visual forms were reported. State-dependent sporadic imagery was achieved.	Upper parieto-occipital alpha accelerations (10-12 Hz). Opening the eyes blocked theta activity (6-10 Hz) - no decrease in brain arousal. Faster alpha oscillations correlated with higher perceptual fading episodes. No difference between MMGF and eyes closed conditions. (all $p_{perm} < 0.05$)
Pütz et al. (2006)	Phase 1: Gradually evolving perceived imagery (65.9%) associated with longer pre-response interval ($r = -0.17$), 'sudden' imagery (34.1%), distinctness of imagery ≥ '4' –clear (80.5%) and reality character of imagery ≥ '4': - real (64.6%) correlated ($r = +0.602$). Sleepiness ≤ '2' – awake (67.1%). Relaxation ≥ '4' – relaxed (61.0%). Several reports correlated with self-reported alertness ($p < 0.04$). Clearness or imagery correlated with relaxation before experimentation ($p < 0.004$). The vividness of imagery correlated with life events ($p < 0.002$). Negative mood reported before experimentation correlated with sleepiness during imagery ($p < 0.005$).; Phase 2: Post hoc review confirmed well-structured audio-visual percepts.	The decline in alpha power (8-10 Hz) in parietal regions during image formation correlated with an increase in the beta frequency band. There were accelerations in alpha (10-12 Hz) when no imagery occurred. Overall beta accelerations (18-30 Hz) and centro-parietal delta (1.5-6 Hz) were observed 10 seconds before presenting mentation reports.
Sumich et al. (2018)	Men reported higher number of imagery than women. Positive schizotypy correlated with imagery in flicker Ganzfeld. Positive and Negative Affect Schedule-Expanded Form recorded significant levels of mood induction across all 3 MMGF (repeated measures analysis of variance; $p<0.001$)	Lower alpha (13.1-16 Hz) inversely related to perceptual anomalies and flicker-Ganzfeld-induced imagery. Simple and complex imagery strongly correlated with occipital alpha compared to frontal alpha. Flicker frequency was significant during alpha activity ($p<0.001$).
Wackermann et al. (2002)	Visual percepts present (91.9 sleep stage 1, 90.4 % - MMGF). Auditory percepts present (48.6 – sleep stage 1, 28.8 % - MMGF). No decrease in vigilance (46-item mentation report - MMGF).	Overall alpha (8-12 Hz) accelerated compared to other waking states. No signs of decreased vigilance of alpha acceleration in MMGF.

MMGF – multimodal Ganzfeld experiments

Table 4

Cochrane Collaboration's Tool for Risk of Bias Assessment

Bias Domain	**Source of Bias**	**Support for Judgement**	**Review Author's Judgement (assess as low, unclear or high risk of bias)**
Selection Bias	Random sequence generation	**Miskovic et al. (2019) -** Quota sampling was used. Volunteers were recruited from the university at which the experiment was conducted.	Unclear
		Pütz et al. (2006) - Simple random sampling was used. Volunteers were recruited from local newspaper ads and Wackermann et al. (2002).	Low
		Sumich et al. (2018) – Detailed selection procedure is not available.	High
		Wackermann et al. (2002) - Simple random sampling was used. Volunteers were recruited from local newspaper ads.	Low
	Allocation concealment	**Miskovic et al. (2019) -** The same participants also participated in the control settings.	High
		Pütz et al. (2006) – Seven participants were hand-selected based on the mentation reports for phase 2.	High
		Sumich et al. (2018) – The same participants also participated in the control settings.	High
		Wackermann et al. (2002) - The same participants also participated in the control settings.	High
Performance Bias	Blinding of participants and personnel*	**Miskovic et al. (2019) -** Experimenters were significantly involved and constantly communicated with the participants. Participants were wearing eye covers during most of the experimentation.	Low
		Pütz et al. (2006) - Experimenters collected mention reports through recording devices. Participants were wearing eye covers.	Low
		Sumich et al. (2018) – Experimenters collected mention reports through recording devices. Participants were wearing eye covers.	Low
		Wackermann et al. (2002) – Experimenters were significantly involved and constantly communicated with the participants. Participants were blinded, and the experimenters spoke via intercom.	Low
Detection Bias	Blinding of outcome assessment*	**Miskovic et al. (2019) –** No precise detection of imagery and interacting alpha sub-band.	Unclear
		Pütz et al. (2006) - The blinding was adequate as the electrograms recorded minute changes over a brief period.	Low
		Sumich et al. (2018) - The blinding was adequate as the electrograms recorded minute changes over a brief period.	Low

		Wackermann et al. (2002) - No precise detection of imagery and interacting alpha sub-band.	Unclear
Attrition Bias	Incomplete outcome data*	**Miskovic et al. (2019) -** Twenty-two participants were recruited, but the final segregation between male and female participants was not reported after three participants were removed. EEG contamination due to artefacts was found. Initial screening criteria were established to remove participants with photopic epilepsy and motion sickness.	High
		Pütz et al. (2006) - Forty participants were recruited. One participant using anti-depressants was removed. EEG data retrieved from seven "high responders" was selected during the initial screening for phase 2. Effects may be observed due to the participants who provided a relatively high number of mental activity reports, i.e., "high responders".	Unclear
		Sumich et al. (2018) – An outlier was identified. Artefacts were structurally removed. Failures to generate significant data were systematically noted.	Low
		Wackermann et al. (2002) - Seventeen participants were recruited. Five participants were removed because of low alpha activity. The inclusion criteria were reported, and only participants with good health, no medication, no reported sleep disorders, no neuropsychiatric pre-history and a well pronounced alpha rhythm were included.	Low
Reporting Bias	Selective Reporting	**Miskovic et al. (2019) -** Brief experiment. Speculative reporting.	High
		Pütz et al. (2006) – Participants were classified as "high responders" based on subjective mental activity reports.	High
		Sumich et al. (2018) – Four electrode channels were studied to minimise data inflation. Quantifiable reporting was adequate.	Low
		Wackermann et al. (2002) – Multiple controls assessed simultaneously. Quantifiable reporting was adequate.	Low
Other Biases	Anything else, ideally prespecified	**Miskovic et al. (2019) -** Small sample size. Brief experiment. Evaluation and experience of the EEG technicians. Guided inquiry.	High
		Pütz et al. (2006) – Small sample size. Evaluation and experience of the EEG technicians. Unstandardised self-reports.	High
		Sumich et al. (2018) - Small sample size. Evaluation and experience of the EEG technicians.	High
		Wackermann et al. (2002) – Small sample size. Overnight experimentation. Evaluation and experience of the EEG technicians. Guided inquiry. Unstandardised self-reports.	High

***Assessments made for each main outcome.**