# Hypnotically Induced Near-Death-Like Experiences: An Exploratory Study of Phenomenological Similarities to Near-Death Experiences

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ABSTRACT: Near-death experiences (NDEs) are known to occur in individuals who go through the first stages of physical death but can also happen as a non-typical manifestation of several forms of non-ordinary states of consciousness. In this exploratory study, we assessed the possibility of inducing the phenomenological components of an NDE through hypnosis using a specific script in a group setting. Participants were 7 males (38.9%) and 11 females (61.1%) ranging in age from 15 to 59 years with a mean age of 35.9. NDE Scale (Greyson, 1983) scores among the 17 participants whose total scores met the criterion of 7 or higher were seemingly indistinguishable, in both content and intensity, from scores of spontaneous near-death experiencers. Older participants scored higher on the three non-cognitive subscales. The core phenomenological components were prevalently affective, pointing to the likelihood that expectations played a role in induced experiences, as may also be the case with spontaneous NDEs that were in some way anticipated. However, we were unable to conclude that,

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beyond phenomenology, a hypnotically induced experience was equivalent to a spontaneous episode. To affirm that a shift from ordinary consciousness, facilitated by hypnosis, is adequate to bring someone close to a theoretical mental threshold that might be called Near-Death Consciousness, in which a comparable event could be hypothetically achieved, at least four variables should be considered: the context, content, intensity of deviation from ordinary consciousness, and aftereffects of the experience.

KEYWORDS: hypnosis, near-death experience, near-death consciousness, near-death-like experience, non-ordinary states of consciousness

Since 1975 when psychiatrist Raymond Moody first identified a phenomenon he called near-death experiences (NDEs), researchers have studied it extensively (Holden et al., 2009). NDEs have been described in the scientific literature with regard to their phenomenology and common aftereffects, which include the ability to catalyze radical processes of inner transformation, sometimes equated with mystical experiences (Khanna & Greyson, 2013; 2015). A mostly positive and long-lasting display of transformative aftereffects seems to correspond to a consistent experiential pattern of transcendental elements that might be indicative of "a generalized awakening of higher human potential" (Ring, 1996, p. 187).

NDEs are known to occur to individuals who survive the first stages of physical death or the threat of imminent death. However, seemingly identical near-death-like experiences (NDLEs) also occur spontaneously outside the context of a close brush with death (Facco & Agrillo, 2012), and recent research (Charland-Verville et al., 2014) has shown the experiences occurring in the two circumstances—within vs. outside the context of a close brush with death—to be phenomenologically indistinguishable.

The earliest published use of hypnosis with regard to NDEs was a study (Holden & MacHovec, 1993) in which the researchers used hypnosis to enhance NDE recall in self-identified NDErs. They found their hypnotic procedure to be safe for experiencers; because their focus was safety, they did not assess the phenomenology of participants' recalled experiences. Later, however, Palmieri et al. (2014) found that NDErs' recall of their NDEs was significantly more detailed during hypnosis than during normal recall. More recently, Martial et al. (2019), while studying brain activity during hypnotic recall of NDEs, also found that the felt subjective experience was enhanced.

In addition to the occurrence of spontaneous NDEs and NDLEs, the latter experiences have been reported during the use of psychotropic substances, purposeful mystical practices, or tools such as hypnosis. In particular, hypnosis is well-established as a therapeutic tool to facilitate transpersonal experiences (Leskowitz, 2015). An acknowledged category of transpersonal hypnotherapy is out-of-body experiences (OBEs) and NDLEs produced hypnotically for the purpose of research (Zahi, 2009). Furthermore, Facco (2012) noted that "NDE-like experiences have been induced in hypnosis in the context of psychotherapy with the aim of approximating their transformational therapeutic aspects and facilitating both first- and second-order patient changes" (p. 284), including the resolution of existential concerns through the experience of how 'dying' might feel. In one such application, Levitan (1985) has used a hypnotic technique known as death rehearsal to help reduce anxiety in patients facing imminent death. In another application, hypnotist Schenk (1999) has devised a technique he called "waking dreams" in which the patient is invited to experience a fictional 'death' to evoke durable change (Schenk, 2006). Standard hypnotic procedures have also been used to induce OBEs (Tressoldi & Pederzoli, 2021; Tressoldi et al., 2014) and regression to death moments in alleged past lives (Lucas, 1993; Pederzoli et al., 2018).

In an exploratory study, Ohkado and Greyson (2018) compared spontaneous NDEs to death experiences during past-life regression therapy and concluded that 'dying' in the two conditions is comparable with regard to both phenomenology and aftereffects. In a similar study, Pederzoli et al. (2018) came to the same conclusion. Finally, Facco et al. (2019), after using hypnosis to individually induce OBEs in a group of highly hypnotizable subjects, found an 'intriguing link' between feeling out of one's body and positive emotions, an aspect that might be associated with the transformational potential and possible therapeutical implications of such experiences.

The aforementioned studies indicate both the feasibility and the potential benefit of facilitating NDLEs in non-NDErs through hypnosis. To the best of our knowledge, no researchers have yet reported using hypnosis to induce an NDLE among non-NDErs in (a) a setting that is both non-therapeutic and involves group induction within a transpersonal context, and subsequently (b) assessing the phenomenology of the experience by comparing it to the phenomenology of actual NDEs. This was the purpose of the present study.

#### Method

#### **Research Questions**

With this experiment, we sought to answer the following research questions: Among non-NDEr participants in a group hypnotic induction of an NDLE,

- (a) What percentage of participants report the phenomenology of NDEs?
- (b) What is the relationship between participants' demographics and their reported NDE phenomenology?

#### Measures

All participants completed two measures. One was a short sociodemographic questionnaire (SDQ) in which they reported gender, age, education, occupation, and religious or spiritual affiliation. The other was the Near-Death Experience Scale (NDE Scale; Greyson, 1983), extensively used in research and developed to address researchers' needs to identify the presence and features of NDEs. The NDE Scale was developed based on responses of spontaneous NDErs. Interitem correlation resulted in 16 items grouped into cognitive, affective, paranormal, and transcendental four-item subscales (Greyson, 1983, 1985, 1990). Each item contains three response options: 0 (feature not present), 1 (feature moderately present), or 2 (feature strongly present). Total score ranges from 0 to 32, and each subscale score ranges from 0 to 8 (Greyson, 1990). The scale yields a unidimensional measure with interval-scaling properties, as each item in the scale differentiates NDEs qualitatively and quantitatively from other responses to the threat of death, as shown by a Rasch rating scale analysis (Lange et al., 2004). For research purposes, a score of 7 (1 standard deviation below the mean) or higher indicates the presence of an NDE. Regarding reliability, the entire scale yielded a Cronbach's coefficient alpha of .88 for internal consistency as well as good split-half reliability and 6-month test-retest reliability. Regarding validity, NDE Scale scores correlated well with prior measures of NDEs (Greyson, 1983).

To address the first research question, we calculated percentages of NDE Scale total scores that met or exceeded the criterion of 7 or higher as well as subscale scores that met or exceeded the criterion of 5 or higher. Regarding our second research question, we conducted Pearson chi-square tests ( $p \le .05$ ) to assess the relationship between SDQ data and the NDE total scale and subscale scores, on one hand, and

Spearman's rho correlation ( $p \le .05$ ) analyses, on the other, to explore in more detail the association between age and NDE subscale scores. For all data analyses, we used IBM SPSS Statistics v. 25 software.

### **Participants**

In the context of a conference organized by the European Transpersonal Association, the first and last authors offered a workshop entitled *The Therapeutic Effects of Near-Death Experiences*, for which 25 conference participants enrolled and attended. The full content of the workshop was previously approved by the organizing committee. Prior to the workshop, all participants were informed that, during the workshop, they would undergo a hypnosis experience designed to induce the typical phenomenological manifestations of an NDE. They were also informed about common risks associated with hypnosis, that full anonymity would be ensured, and that they were free to withdraw from participation at any time prior to or during the workshop. All participants were an adult or a minor with parental consent who reported no previous NDE and no current psychiatric diagnosis or medication.

Following the experiential component of the workshop, all participants completed and submitted the measures described below, of which seven forms containing more than one missing value were excluded. The remaining sample (N=18) comprised 7 males (38.9%) and 11 females (61.1%) ranging in age from 15 to 59 years with a mean age of 35.9 (SD=13.75). Regarding education level and occupation, 77.8% of the sample had university degrees, of which 38.9% were psychologists or therapists and 22.2% were teachers. Regarding religious/spiritual affiliation, 44.4% of the sample reported a religious affiliation, 22.2% a spiritual one, and 33.4% both.

#### **Procedure**

After hearing a presentation that included topics on phenomenology, explanatory models, and available scientific data on NDEs, the audience sat in chairs forming a large circle facing the experimenters. The induction protocol was applied (see Appendix), combining breathing and deep relaxation techniques, storytelling strategies, visual imagery, and background music, to facilitate an immersion into the fictional process of transitioning from life to near-death in a dreamlike scenario. The script included explicit and implicit suggestions concerning the main core elements of a typical NDE. After participants'

safe return to normal consciousness, they completed and returned the two assessment measures.

#### Results

Regarding the first research question, the total NDE Scale scores ranged from 2 to 23 (M=13.89, SD=6.33). Of the 18 respondents, 17 (94.4%) produced NDE Scale total scores of 7 or higher. Among those who scored above the cut-off point, 50% scored below 12, and 50% scored 12 or higher, with 44.4% scoring above 18. Regarding subscales, 10 of the 18 participants (55.6%) scored at least 5 on one subscale: five (27.7%) on the affective, three (16.6%) on the cognitive, and two (11.1%) on the transcendental subscale. The remaining eight participants' (44.6%) scores did not reach the criterion of at least 5 on any subscale.

Regarding the second research question, we found no statistically significant relationship (p > .05) between total NDE Scale scores and participants' gender, religious or spiritual affiliation, occupation, or age. However, we found a significant Spearman's correlation between age and at least one component of the NDE subscales: Older age correlated with higher affective  $(r_{\rm s}=.478,\,p=.05)$ , paranormal  $(r_{\rm s}=0.585,\,p=.014)$ , and transcendental  $(r_{\rm s}=0.508,\,p=.037)$  subscale scores.

#### Discussion

### **Research Question Results**

The aim of this exploratory study was to understand the aptitude of a group-administered hypnotically induced NDE to mimic the phenomenological components of a spontaneous episode and to understand the relationship between participants' demographics and their results.

After the induction, we were able to verify empirically, through observation, that all participants responded to hypnotic suggestions with classical hypnotic physical signals, including physical relaxation, eyelids fluttering, twitching, changes in breathing pace, and catalepsy. Although pre-existent individual differences in hypnotizability and in depth and intensity of trance were not controlled for, they should be assued, and despite their presumed existence, results pointed to a shift from everyday consciousness among all participants, leading them into a state of receptiveness regarding suggestions (Lynn et al., 2015).

NDE Scale (Greyson, 1983) results showed that all but one of the

18 participants scored above the cut-off point, indicating the presence of an NDE. Thus, the incidence of NDLE in this sample appeared indistinguishable from the incidence among Greyson's (1983) validation study sample of NDErs. Therefore, as a result of our particular group-based hypnosis protocol, nearly all of our participants achieved the phenomenological content and intensity characterizing spontaneous NDEs that had occurred under the circumstances of a close brush with death.

Our participants also reported high levels of peace and joy in the affective subscale of the NDE Scale. This result matched results of previous studies in which predominantly non-cognitive experiences were reported both by spontaneous NDErs who had anticipated their life-threatening circumstances (Greyson, 1983; 1985) and by subjects who had been hypnotically regressed to the moment of their 'death' in an alleged past life (Pederzoli et al., 2018). Conversely, when NDErs had not expected their life-threatening circumstances, their NDEs were predominantly cognitive, as in the case of military veterans whose NDEs had occurred during combat (Goza et al., 2014). Previous authors have discussed the hypothetically protective value of a predominantly cognitive NDE—with features such as time slowing down and thoughts speeding up during unanticipated life-threatening situations (Grevson, 2001; Ohkado & Greyson, 2018, p. 76). Thus, the presence or absence of expectation may increase or decrease noncognitive NDE features, respectively, confirming what Gabbard and Twemlow (1991) asserted more than 30 years ago: that the state of mind of the near-death subject is far more important than the state of the body in influencing the content of an NDE (p. 46).

Considering this apparent pattern, it seems reasonable to attribute the affective tendency we found to the fact that the participants were well informed, generally relaxed, and eager to let the experience unfold. In post-induction debriefings, no participant mentioned any reluctance to go into the virtual scenario nor any feelings of fear, anxiety, or overwhelm with disturbing emotions. Altogether, the relaxed setting, the previous preparation, and the tone of the script most likely predisposed the participants to abdicate possible inhibitory mechanisms that might have prevented a full immersion into the experience. Thus, among our non-NDEr participants, the factors of their having learned about NDEs and having been reassured about the very low probability of an adverse experience under hypnosis may have contributed, at least in part, to their subsequent reports of emotionally positive experiences.

One participant, who was grieving the loss of a close relative, reported that even though we had not yet made the hypnotic suggestion, they were already experiencing contact with their loved one. This experience could be due to the contents of the presentation, to a possible predisposition to make such a 'contact,' or both. Other factors may have contributed to participants getting deeply involved in the novel experience we provided in the workshop. These include that participants were attending a conference on the topic of transpersonal phenomena and that almost 40% were psychologists or therapists interested in less conventional areas, which might indicate a preexisting interest in the topic, a motivation to become absorbed in the activity, and/or the presence of certain favorable personality traits such as openness to experience (Tellegen & Atkinson, 1974) that encompasses "both receptivity to many varieties of experience and a fluid and permeable structure of consciousness" (McRae, 1994, p. 251). In addition, any pre-existing hypnotic suggestibility may have been enhanced by expectancy and motivational factors.

The lack of correlation between sociodemographic characteristics and a reported NDLE supported the discriminative validity of the NDE Scale (Greyson, 1983) and replicated previous findings (Greyson, 1990; Greyson & Khanna, 2014; van Lommel et al., 2001). However, the relationship between higher scores on the three non-cognitive subscales and increased age that we found in participants over 40 years old might indicate that aging predisposes to a higher openness to the topic of death and dying and/or to a more relaxed and confident attitude towards non-ordinary experiences. Other possible factors include a longer involvement with the transpersonal community and experience with comparable practices and/or a greater likelihood of having lost a loved one. Personality variables would be worth exploring in future research with larger samples to learn if and how these variables might influence the experience.

## Is a Hypnotically Induced NDLE a Real NDE?

The NDE Scale differentiates real events from ambiguous experiences (Greyson, 1990) and, for this reason, has been used in a variety of contexts (Timmerman et al., 2018; Van Gordon et al., 2018), including hypnotically induced past-life regressions, in which death experiences were facilitated (Ohkado & Greyson, 2018; Pederzoli et al., 2018). It is well known that an event resembling a spontaneous NDE can be elicited under various circumstances that facilitate deviations from

normal, everyday consciousness, bringing forward episodes with comparable phenomenological elements. In fact, the type of circumstance does not seem determinant for the experience, along with the subsequent cascade of contents and aftereffects, to occur. Beyond NDEs occurring with individuals who go through the first stages of physical death, spontaneous episodes have been reported without any discernible causes (Facco & Agrillo, 2012); in the context of what have been called fear-death experiences in which life-threatening injury was anticipated but did not, in fact, occur (van Lommel et al., 2001); and during a variety of practices not involving proximity to physical death but facilitating non-ordinary states of consciousness (NOSCs), such as holotropic breathwork (Grof, 1992), ingestion of psychotropic substances (Bates & Stanley, 1985; Liester, 2013; Siegel & Hirschman, 1984; Timmerman et al., 2018), immersion in sensory isolation tanks (Gaona Cartolano, 2012), meditation (Van Gordon et al., 2018) and shamanic trance (Green, 1998; 2001). Therefore, the circumstance of the experience, by itself, does not seem to be a reliable diagnostic criterion to define the experience, as a considerable number of causes may be at the origin of the same effect.

Also, phenomenology, by itself, does not seem a reliable criterion to establish the 'realness' of the experience. In the context of this study, the outcome was purposefully induced, as the protocol contained several suggestions designed to facilitate the process of going through the core structure of a spontaneous episode. Because suggestion was part of our protocol, our results indicating phenomenological equivalence between our participants' experiences and spontaneous NDEs should be interpreted with caution—even though during informal post-workshop conversations with our participants, we learned that, beyond the script content, their inner experiences incorporated idiosyncratic features that we had not suggested, as in the case of a participant who, during her experience, met a deceased relative who offered the participant personal advice. As Facco (2012) affirmed, "experiences similar to those of NDEs can be easily generated during hypnosis" (p. 292), meaning that, as in spontaneous NDEs, relevant elements of a transpersonal nature spontaneously arose, intertwining themselves with explicit suggestions and personal features, including history, culture, and belief systems, thus providing tailormade experiences as a result of a subjectively unique combination of variables. Regarding hypnosis, as Spiegel (2005) concluded, "multilevel explanations are an absolute necessity in understanding human mind/brain/body phenomena because we are both neurally-based and social creatures who experience the world in mental phenomenal terms" (p. 32).

This synergy of internal (set) and external (setting) aspects adds difficulty to the process of discerning the 'realness' of an hypnotically induced NDE episode, as it is already challenging to clearly separate between elements within the realm of NOSCs or, as they have been called, 'modified' or 'altered states of consciousness' (ASCs). A state of consciousness, according to Kokoszka 2007), is a way of experiencing, a state of mind delineated by both its content and its form. When any 'alteration' or 'modification' occurs, it becomes a state in which an "extraordinary" content is experienced or in which the manner of experiencing is "unusual," or both. It is precisely because of their extraordinary nature that, even among skilled subjects in the NOSC experiential ground, differentiating between what belongs exclusively to the hypnotic script and what belongs to the NDLE, might constitute a challenging endeavor. Indeed, non-ordinary experiences are reputed to be 'ineffable' (Yaden et al., 2015).

However, discussion about correctly discerning between, on the one hand, phenomenological aspects attributable to the script's suggestions and, on the other hand, other aspects attributable to the episode the script was meant to induce is somehow incontrovertible, because the tool facilitating the event—hypnosis—also limits the conclusions that can be legitimately drawn. Being able to differentiate between what came from the script and the NDLEs, in order to help discern the 'realness' of the result, is not a straightforward process. In fact, there are no rigorous methodological tools designed to compartmentalize NOSCs, but one of them is Vaitl et al.'s (2005) four-dimension reference system. Using their model, we observed that the relaxed activation, narrow awareness, absent self-awareness and decreased sensory dynamics are features that apply both to hypnosis—a psychological method for inducing an NOSC—and spontaneous NDEs. In our study, the experiences were psychologically induced, causing a seemingly overlap of categories and bringing about further challenges in distinguishing experiences.

What we can conclude is as follows. The fact that there may be several aspects present, consisting of possible manifestations of more than one state of consciousness, also prevents phenomenology from functioning as a diagnostic element even when a certain type of content is, in principle, a distinct trait of an NDE. Therefore, a word of caution should also be used concerning the ability of the NDE Scale (Greyson, 1983) to discriminate between anomalous experiences, es-

pecially those lying outside the category of non-life threatening or consciousness compromising episodes (Tassell-Matamua & Holden, 2020). Similar scores between NDEs and NDLEs might look the same but might not, in fact, reflect the same phenomena. Thus, even considering the encouraging results of hypnosis as an induction tool, the degree of similarity between spontaneous and induced events remains unclear.

Considering the results so far, there is no substantiated evidence to support an unequivocal equivalence between spontaneous NDEs and hypnotically induced NDLEs. Because specific suggestions were part of the equation, the results clearly manifested a phenomenological outcome, but a reasonable degree of similitude to a non-induced NDE cannot yet be established.

# Near-Death Consciousness as a Diagnostic Criterion and Considerations for Future Studies

Considering what we know so far, many documented—but also non-documented and even non-documentable—factors might be at the origin of a specific state of consciousness, eliciting a mysterious event that has been coined an NDE. However, even if a variety of situations might carry the aptitude to prompt an episode, it might also be true that not all NDEs are created equal, even when sharing a core phenomenology. Hence, the question that needs to be answered is whether a hypnosis protocol can induce NDLEs comparable to NDEs in not only phenomenology—the qualitative element—but also aftereffects—the quantitative element.

Overgaard and Overgaard (2010) argued that conclusions about levels of consciousness depend in a very direct way on conclusions about content, but we would add that the argument goes both ways, and that the type of content also depends on the level of consciousness. Assuming consciousness encompasses quantitative and qualitative aspects (Plum et al., 1998), beyond the type of trigger (quality) and its ability to produce a shift in consciousness, the degree of such a deviation (quantity) might be equally relevant to produce a certain type of content and aftereffects, which could hypothetically facilitate an NDLE. All considered, it seems crucial to move beyond the method of induction and phenomenology, as sole diagnostic criteria, to establish the 'realness' of induced NDEs. Indeed, when observing other experiences described in the literature that involved consciousness-altering tools.

what seems to precede NDEs unvaryingly is an adequate shift from an ordinary to a non-ordinary type of consciousness.

In our study, the theoretical point of departure was the assumption that, in response to specific suggestions, participants could achieve an approximation to a hypothetical NOSC we labeled Near-Death Consciousness in which they would experience a certain phenomenological result, conceptually defined as an NDE. Metaphorically, and imagining that different states of consciousness are rooms inside a house allowing for different dimensions of perceptual experience, hypnosis would facilitate entering a so-called NDE room (or rooms) through one of many possible doors. Each entrance would correspond to a specific trigger, whether life-threatening, non-life-threatening, spontaneous, or planned. Beyond this door, and after a critical shift from everyday consciousness was achieved, a typical experience would become accessible. However, based on our data, we were unable to conclude unequivocally that our participants went beyond the optimum threshold and experienced an induced NDE—not only because the experience might be caused by different triggers, but also because the phenomenological results, by themselves, are insufficient to determine if a critical threshold of activity needed for a certain dynamic to happen did, in fact, happen.

To determine if this specific type of hypnotically induced event carried the aptitude, beyond phenomenology alone, to facilitate an experience analogous to a spontaneous NDE, other variables should be considered, with the goal of attaining a clearer perspective on how suitable a tool such as hypnosis is to approach the threshold we called *Near-Death Consciousness*. Thus, a hypothetical assessment model for using hypnosis as a tool to induce NDLEs should include at least four variables. Regarding the *quality* of the experience, two elements were already considered in this study:

- (a) the *context*, or trigger, used to facilitate the NDLE, that is, the group hypnotic induction and the script of choice, and
- (b) the *content*, indicated by the phenomenological elements, assessed with the NDE Scale (Greyson, 1983);

Regarding the *quantity* of the experience, two new elements should be measured in future studies:

(c) the *shift* from an ordinary state of consciousness, indicated by the intensity and depth of the subjective deviation, retrospectively assessed with adequate psychometric tools, and (d) the aftereffects, projecting into the future the magnitude of the experience's impact, as to provoke irreversible structural biopsychospiritual changes and outstanding attitudinal adjustments, as it happens in spontaneous NDEs, assessed in follow-up with appropriate instruments.

In addition to such elements, there might be very different degrees of success in inducing an NDLE with hypnosis as a trigger, depending on other conditions. The combination of different scripts with more or less detailed suggestions and the measurement of individual variations in hypnotizability should provide a more precise idea about the degree of influence to expect from the suggestions and the intensity of the experience in each subject. By manipulating such variables and discriminating between subjective and objective factors, it would be possible to know more about the adequacy of hypnosis to facilitate an NDLE. In a project in its final stages (Machado Ferreira, under review), with the financial support of a BIAL Foundation Grant, such limitations were partially addressed by exploring additional variables.

#### Conclusions

As far as phenomenology is concerned, it was possible to conclude that a structured hypnosis protocol caused an observable response reaction seemingly indistinguishable, in content and intensity, to an actual NDE, according to what the NDE Scale (Greyson, 1983) measures. As predicted, a specific hypnosis protocol can be used as a tool to mimic a spontaneous NDE, considering that 94.4% of our participants reported a phenomenologically indistinguishable experience compared to the original sample of NDErs from Greyson's (1983) validation study. In addition, an induced event elicited positive responses regarding the affective quality of the event, supporting the probable role of expectations. Apart from a tendency of older participants to score higher in non-cognitive components, we found no correlation between sociodemographic variables and the occurrence of an NDLE. However, by using the NDE Scale as an a posteriori assessment tool built upon a pre-established pattern of experience, it was possible to conclude only that the participant's narratives were phenomenologically similar to those of spontaneous NDErs. Therefore, hypnosis, as a method of induction could be considered an appropriate vehicle to bring forward an episode, with a phenomenological core structure resembling a spontaneous NDE. However, it remains unclear how much of the outcome was a mere expression of the content of the hypnosis script. Indeed, the phenomenological outcome of specific suggestions, by itself, did not provide enough data to conclude, beyond any doubt, that a hypnotically induced event replicated a spontaneous NDE. As such, methodological difficulties in differentiating between what belongs to the method and what belongs to the experience should be addressed in future studies. To be able to affirm that induced and spontaneous experiences are comparable and to conclude that hypnosis enables the participants to come close to a hypothetical state that can be called Near-Death Consciousness, other assessment strategies beyond the analysis of phenomenological variables should be used in the future, including the measurement of aftereffects.

### References

- Bates, B. C., & Stanley, A. (1985). The epidemiology and differential diagnosis of near-death experiences. *American Journal of Orthopsychiatry*, 55(4), 542–549.
- Charland-Verville, V., Jourdan, J-P., Thonnard, M., Ledoux, D., Donneau, A-F., Quertemont, E., & Laureys, S. (2014). Near-death experiences in non-life-threatening events and coma of different etiologies. Frontiers in Human Neuroscience, 8, 203. https://doi.org/10.3389/fnhum.2014.00203
- Facco, E. (2012). Near-death experiences and hypnosis: Two different phenomena with something in common. *Contemporary Hypnosis and Integrative Therapy*, 29(3), 284–297.
- Facco, E., & Agrillo, C. (2012). Near-death-like experiences without life-threatening conditions or brain disorders: A hypothesis from a case report. Frontiers in Psychology, 3(490). https://doi.org/10.3389/fpsyg.2012.00490
- Facco, E., Casiglia, E., Al Khafaji, B. E., Finatti, F., Duma, G. M., Mento, G., Pederzoli, L., & Tressoldi, P. (2019). The neurophenomenology of out-of-body experiences induced by hypnotic suggestions. *International Journal of Clinical and Experimental Hypnosis*, 67(1), 39–68.
- Gabbard, G. O., & Twemlow, S. W. (1991). Do "near-death experiences" occur only near-death? revisited. *Journal of Near-Death Studies*, 10, 41–47. https://doi.org/10.17514/JNDS-1991-10-1-p41-47.
- Gaona Cartolano, J. M. (2012) ¿Son las experiencias cercanas a la muerte (ECM) la base empírica que demuestra la existencia del alma? [Are the near-death experiences (NDE) the empirical basis to prove the existence of the soul?] *Journal of Transpersonal Research*, 4(2), 72–108. Retrieved from http://www.transpersonaljournal.com/pdf/vol4-issue2/Gaona%20Jose%20 Miguel.pdf
- Goza, T. H., Holden, J. M., & Kinsey, L. (2014). Combat near-death experiences: An exploratory study. *Military Medicine*, 179(10), 1113–1118. https://doi.org/10.7205/MILMED-D-14-00051
- Green, J. T. (1998). near-death experiences, shamanism, and the scientific

- method. Journal of Near-Death Studies, 16, 205–222. https://doi.org/10.17514 /jnds-1998-16-3-p205-222.
- Green, J. T. (2001). The near-death experience as a shamanic initiation: A case study. *Journal of Near-Death Studies*, 19, 209–225. https://doi.org/10.17514/JNDS-2001-19-4-p209-225.
- Greyson, B. (1983). The Near-Death Experience Scale: Construction, reliability, and validity. *Journal of Nervous and Mental Disease*, 171(6), 369–375.
- Greyson, B. (1985). A typology of near-death experiences. American Journal of Psychiatry, 142(8), 967–969.
- Greyson, B. (1990). Near-death encounters with and without near-death experiences: Comparative NDE Scale profiles. *Journal of Near-Death Studies*, 8, 151–161. https://doi.org/10.17514/JNDS-1990-8-3-p151-161.
- Greyson, B. (2001). Posttraumatic stress symptoms following near-death experiences. *American Journal of Orthopsychiatry*, 71(3), 368–373.
- Greyson, B., & Khanna, S. (2014). Spiritual transformation after near-death experiences. Spirituality in Clinical Practice, 1(1), 43–55.
- Grof, S. (1992). *The holotropic mind*. Harper Collins E-Books.
- Holden, J. M., Greyson, B., & James, D. (Eds). (2009). The handbook of neardeath experiences: Thirty years of investigation. Praeger/ABC-CLIO.
- Holden, J., & MacHovec, F. (1993). Risk management in hypnotic recall of neardeath experiences. American Journal of Clinical Hypnosis, 36(1), 38–46.
- Khanna, S., & Greyson, B. (2013). Near-death experiences and spiritual well-being. *Journal of Religious Health*, 53(6), 1605–1615.
- Khanna, S., & Greyson, B. (2015). Near-death experiences and posttraumatic growth. *Journal of Nervous and Mental Disease*, 203(10), 749–755.
- Kokoszka, A. (2007). States of consciousness: Models for psychology and psychotherapy. Springer.
- Lange, R., Greyson, B., & Houran, J. (2004). A Rasch scaling validation of a "core" near-death experience. *British Journal of Psychology*, 95(2), 161–177.
- Leskowitz, E. D. (Ed.). (1999). Transpersonal hypnosis. Gateway to body, mind and spirit. CRC Press.
- Levitan, A. A. (1985). Hypnotic death rehearsal. American Journal of Clinical Hypnosis, 27(4), 211–215.
- Liester, M. B. (2013). Near-death experiences and ayahuasca induced experiences —Two unique pathways to a phenomenologically similar state of consciousness. *Journal of Transpersonal Psychology*, 45(1), 24–48.
- Lucas, W. B. (1993). Regression therapy: A handbook for professionals (Vol. I: Past-life therapy; Vol. II: Special instances of altered state work). Deep Forest Press.
- Lynn, S. J., Laurence, J. R., & Kirsch, I. (2015). Hypnosis, suggestion, and suggestibility: An integrative model. American Journal of Clinical Hypnosis, 57(3), 314–329.
- Machado Ferreira, A. S. (under review). *Induced near-death-experiences in healthy volunteers: Phenomenology and aftereffects* [Doctoral thesis]. University of Northampton.
- Martial, C., Mensen, A., Charland-Verville, V., Vanhaudenhuyse, A., Rentmeister, D., Bahri, M. A., Cassol, H., Englebert, J., Gosseries, O., Laureys, S., & Faymonville, M. E. (2019). Neurophenomenology of near-death experience

- memory in hypnotic recall: A within-subject EEG study. Scientific Reports, 9, 1–11. https://doi.org/10.1038/s41598-019-50601-6
- McCrae, R. R. (1994). Openness to experience: Expanding the boundaries of Factor V. European Journal of Personality, 8(4), 251–272.
- Moody, R. A. (1975). Life after life. Mockingbird Books.
- Ohkado, M., & Greyson, B. (2018). A comparison of hypnotically-induced death experiences and near-death experiences. *Journal of International Society of Life Information Science*, 36(2), 73–77.
- Overgaard, M., & Overgaard, R. (2010). Neural correlates of contents and levels of consciousness. *Frontiers in Psychology*, 1, 164. https://doi.org/10.3389/fpsyg.2010.0016422
- Palmieri, A., Calvo, V., Kleinbub, J. R., Meconi, F., Marangoni, M., Barilaro, P., Broggio, A., Sambin, M., & Sessa, P. (2014). The "reality" of near-death-experience memories: Evidence from a psychodynamic and electrophysiological integrated study. Frontiers in Human Neuroscience, 8. https://doi.org/10.3389/fnhum.2014.00429
- Pederzoli, L., De Stefano, E., & Tressoldi, P. (2018). Hypno-death-experiences: Death experiences during hypnotic life regressions. *Death Studies*, 45(4), 322–326. https://doi.org/10.1080/07481187.2019.1626949
- Plum, F., Schiff, N., Ribary, U., & Llinás, R. (1998). Coordinated expression in chronically unconscious persons. *Philosophical Transactions of the Royal So*ciety London, Biological Sciences, 353,1929–1933.
- Ring, K. (1996). Near-death experiences: Implications for human evolution and planetary transformation. In L. W. Bailey & J. Yates (Eds.), *The near-death experience: A reader*. Routledge.
- Schenk, P. W. (1999). The benefits of working with a "dead" patient: Hypnotically facilitated pseudo near-death experiences. *American Journal of Clinical Hypnosis*, 42(1), 36–49.
- Schenk, P. W. (2006). The hypnotic use of waking dreams: Exploring near-death experiences without the flatlines. Cromwell Press.
- Siegel, R. K., & Hirschman, A. E. (1984). Hashish near-death experiences. Anabiosis: The Journal for Near-Death Studies, 4, 69–86. https://doi.org/10.17514/JNDS-1984-4-1-p69-86.
- Spiegel, D. (2005) Multileveling the playing field: Altering our state of consciousness to understand hypnosis. *Contemporary Hypnosis*, 22(1), 31–33.
- Tassell-Matamua, N. T., & Holden, J. M. (2020). Near-death experiences: The mystical feeling of "crossing over" and its impact on faith and spirituality. In K. E. Vail, III, & C. Routledge (Eds.), *The science of religion, spirituality, and existentialism* (pp. 51-64). Academic Press.
- Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology*, 83(3), 268–277.
- Timmermann, C., Roseman, L., Williams, L., Erritzoe, D., Martial, C., Cassol, H., Laureys, S., Nutt, D., & Carhart-Harris, R. (2018). DMT models the near-death experience. Frontiers in Psychology, 1424, 1–12. https://doi.org/10.3389/fpsyg.2018.01424
- Tressoldi, P., & Pederzoli, L. (2021, December 13). Out-of-body experience induced by hypnotic suggestion: Phenomenology and perceptual characteristics. https://doi.org/10.31231/osf.io/kqh3t

- Tressoldi, P. E., Pederzoli, L., Caini, P., Ferrini, A., Melloni, S., Richeldi, D., Richeldi, F., & Trabucco, A. (2014). Out-of-body experience induced by hypnotic suggestion: Phenomenology and perceptual characteristics. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2443719
- Vaitl, D., Birbaumer, N., Gruzelier, J., Jamieson, G. A., Kotchoubey, B., Kübler, A., Lehmann, D., Miltner, W. H., Ott, U., Pütz, P., Sammer, G., Strauch, I., Strehl, U., Wackermann, J., & Weiss, T. (2005). Psychobiology of altered states of consciousness. *Psychological Bulletin*, 131(1), 98–127.
- Van Gordon, W., Shonin, E., Dunn, T. J., Sheffield, D., Garcia-Campayo, J., & Griffiths, M. D. (2018). Meditation-induced near-death experiences: A 3-year longitudinal study. *Mindfulness*, 9(6), 1794–1806.
- van Lommel, P., van Wees, R., Meyers, V., & Elferrich, I. (2001). Near-death experience in survivors of cardiac arrest: A prospective study in the Netherlands. *Lancet*, 358(15), 2039–2045.
- Yaden, D. B., Eichstaedt, J. C., Schwartz, H. A., Kern, M. L., Le Nguyen, K. D., Wintering, N. A., Hood, R. W. Jr., & Newberg, A. B. (2015). The language of ineffability: Linguistic analysis of mystical experiences. *Psychology of Religion* and Spirituality, 8(3), 244–252.
- Zahi, A. (2009). Spiritual-transpersonal hypnosis. *Contemporary Hypnosis*, 26(4), 263–268.

# Appendix Hypnosis Script

INDE PROTOCOL TO BE APPLIED AFTER A RELAXATION AND DEEP HYPNOSIS PROTOCOL. Soft music is playing in the background along with nature sounds, when appropriate. Duration: approximately 35 minutes. Imagine . . . just imagine . . . imagine that you are in this safe place where you allow yourself to have a dream, different from other dreams you might had before, just by following my instructions. Allow yourself to listen to my voice and to my words, as if they were yours. Pay attention to my voice, to my words. Allow yourself to enter your new dream . . . Imagine that you are away, taking a break from everyday life . . . And that this time you decided to travel to a place where snow is all around, no matter the time of the year. Today you have decided to go hiking alone, to enjoy the snowy landscape and the fresh, crisp air . . . The sun is shining brightly over the white mountain path, the birds are singing in anticipation of warmer weather . . . it is quiet and peaceful all around. You have a winding path in front of you, sided by towering, evergreen trees, and you can hear your footsteps over the snow as you move forward. You inhale deeply, breathing the pure, cool air, in contrast with the warmth of the sun gently touching your face . . . You are enjoying the moment and feeling grateful for being exactly where you are, as you move on towards the dense forest nearby, following the gentle sound of a water stream hidden behind the trees where birds are cheerfully singing. Suddenly in the middle of the walk, every natural sound that you were listening to before seems to come to a halt... even the birds stop singing. All is silent now . . . Too silent . . . Suddenly, you hear a ferocious rumbling trembling sound, like a thunder coming from inside the earth, and you understand that a snow avalanche is coming from the mountain above in your direction . . . You know that you do not have a chance of escaping, you are too far in the woods, and it is impossible to run over the snowy grounds. And as your thoughts are speeding up, in an attempt to flee, you are suddenly caught by the avalanche and pressed down to the ground by the layers of snow crushing over you. At the same time, you feel cold and hot, from the weight of the snow of top of you, like a smothering white blanket, preventing you from breathing as you should . . . Your thoughts are racing right now, trying to find a way out of this white prison—what will happen? Is this how it feels to reach the end? Is this how it feels? . . . You feel your awareness slowly fading away, you cannot move, you don't seem able

to breathe as you should, your thoughts are slowing down, and you feel like you should not even resist anymore, giving up seems to be what is left right now, you start losing touch with what remains of your external world . . . however, from afar, there is a sound, it seems that dogs are barking at a distance and maybe, even human voices . . . is there a chance that someone is coming to your rescue? . . . And as you hope, you feel like you are slowly fainting . . . losing your consciousness entirely . . . Then, all of a sudden, you see yourself in a simple platform bed, like you were lying inside a monastic cell, covered in white blankets . . . you feel you might have been rescued from the avalanche . . . but you are not sure . . . It is possible that you might have died, you don't feel your body, and there is some confusion, like you lost track of space and time, and even of yourself, it is like your mind is in a very different place disconnected from what was your body, that you do not feel anymore as totally yours, but you know is lying down, covered in white covers . . . And that your mind is somewhere else, like it has taken off . . . You now have the strong impression that you, or what you feel as yourself, your awareness is somewhere else, gently floating above your body, whether dead or alive . . . lying below at a distance ... high above the bed. Now you are clearly floating farther away from your body and going up . . . up . . . and up. You have a clear perception of seeing your body from above, covered in white covers, either dead or alive, but this does not bother you the least, you are not concerned, you are still you and you feel somehow free, strangely, and pleasantly free . . . And as you are free floating upwards, you are also moving, almost speeding, through a void, you have this feeling of empty space, without light, it could be a tunnel . . . or a black hole or some other kind of nameless, formless space ... oddly welcoming ... you build momentum as you move up and forward, there is a clear sense of quickening ... some sort of strange wind blowing might be heard or felt, propelling you to keep on going . . . Now it is clear for you that you are being pulled towards a tunnel like space . . . and with a sudden 'whoosh', it is like you, what you feel as you, is now inside a super-high-speed elevator going up through the tunnel . . . And ahead there seems to be only darkness . . . welcoming darkness . . . Inside this formless space you feel like you are moving faster and faster, and your mind keeps up with this swiftness, your thoughts are racing, but more coherent, you feel connected to a deeper wisdom, that seems to be now fully awake, and have access to profound insights and sharp observations, about yourself, others, and life in general... It seems now possible that you have access to this abundant current of higher knowledge about life, your true nature, and your place in a wider scheme of things ... And as you flow within this intelligent stream, you keep on feeling irresistibly pulled towards another unknown place . . . Suddenly you notice a very bright light from a distance, and you seem to be irresistibly pulled towards it, with a clear sense of direction, it is straight ahead of you, and you cannot resist the attraction, the overwhelming emotion of returning to a welcoming place where you have been many times before and know so well . . . You are now clearly ascending towards a bright light at the end of the darkness . . . A light of incredible brilliance, an iridescent light shimmering in front of you . . . attracting you irresistibly with its glowing, familiar, gleam . . . For the first time since you left your body behind, you have the feeling you are not alone ... you feel this incredibly bright light has attracted other life forms. you can sense shapes, energies, around you . . . they give you distinct feelings, they might come from people, animals, plants . . . You might know them ... or not ... but they feel somehow familiar to you ... some of them might have been close to you . . . you feel deep loving, caring feelings from them and towards them . . . Some never existed in your real world . . . they might have lived in stories, legends, myths ... some might even look like religious figures or spiritual entities ... they might not have physical bodies . . . they might look like they are made of light . . . or energy . . . they are fully alive no matter who they are and their presence is reassuring, all is well, you know it . . . And whoever or whatever they might be, they bring you great joy . . . a feeling of belonging . . . of being welcome . . . so much lightness, joy, and happiness in this encounter . . .

You notice you are able to communicate without words, like telepathy . . . with them . . . and you understand everything they want you to know, about them, about yourself, about life . . . and death also . . . Whoever they are, their presence is heartening, loving, caring . . . they knew you were coming and were waiting to greet you. . . . you feel their utter benevolence . . . And they are making way for you, you are now approaching the indescribable light you have glimpsed before . . . You feel intense emotions of profound peace, well-being, love, growing inside you as you are approaching . . . And you feel this deep benevolent and reassuring embrace like nothing you have ever felt before . . . like you are being softly cradled by this compassionate, loving light . . . A feeling of overwhelming love, like nothing you can remember having felt before, pours softly into every part of you . . . At the same time you feel, deep inside you, the tremendous joy of being in this place, free from of your body and earthly troubles, and in the presence of loving

beings and the unconditional love that comes from this bright light . . . You feel you have no masks, you no longer need them . . . this light knows you in every aspect of yourself big or small, but at the same time you feel totally accepted and loved in this knowing, deeply safe and profoundly happy . . . You feel whole, as you have never felt before . . . You feel this source of love is also a source of unlimited knowledge, and you may even receive a part of all this knowledge, as if the wisdom and some of the secrets of the universe could now be shared with you ... you are able to know things ... important things ... for your journey . . . Now, you have a sense of having moved "somewhere else," to a territory that may seem like a spiritual realm with an otherworldly landscape . . . It is the most beautiful landscape you have ever seen . . . colors are more vivid . . . vou seem to be listening to celestial music clearly, like nothing you have ever felt on an earthly plane, natural elements like you could have never imagined, incredible trees, flowers, and birds . . . And you feel deep inside yourself the privilege of being here . . . deep inside . . . you want to retain this memory . . . hold it inside your body, as you are being showered with the energy of the true fountain of life, love, and wisdom . . . As you feel all of this . . . you might sense that close to you, there is a loved one, or a holy presence or what can be called a spiritual guide . . . telling you that it is not yet your time to be here for more than a short visit . . . he reminds you about your family, friends, maybe pets, about a task you left unfinished or a project you have to undertake as part of your life's mission, you still have lots of experiences to be accomplished somewhere else ... in the place where your body was left behind ...

And you seem to hear a voice saying 'Do turn around and go back. It is not your time to be here yet'... And you decide to acknowledge this instruction ... But before returning, it seems that you are being given access to a review of your entire life ... you are given the opportunity to see and relive every thought, emotion, action and feeling you experienced before, and the impact it had on yourself and others ... You even recall all your thoughts, words, and actions in relation to different situations ... You feel the impact your choices had on others ... you just know ... This is an important lesson you are learning right now from this perspective, as an observer of your own life ... about what is important ... and what should be important from now on ... You feel that finding your own inner truth ... who you really are and what you are meant to do right now with your life is the most important thing ... who you really are ... you feel loved

and appreciated ... and this is the most important lesson ... And you have learned it well. Now you know what matters. And you feel this is the moment to go back ... along with a strong reluctance to go back ... but you realize that you need to return ... your earthly mission must yet be accomplished before you are allowed to stay in this newfound home ... Suddenly, you hear a loud voice inside your mind ... the same sacred being, an ancestor, a guide, or just your own wise voice saying that you must return right now ... that you shouldn't be here for so long anymore. It's not your time yet. You must go back ... And you decide to return to your body ... to the monastic bed where you were left under white covers ... And this is when you feel warm, strong arms gently pushing you back to the bed where your body was left behind ... It is time now to return.

[APPLY: POSITIVE PROGRAMMING, SAFE RETURN FROM THE HYPNOSIS SESSION, AND DEBRIEFING.]