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## Use of hypnosis in the field of dementia: a scoping review

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*Running head: Hypnosis and dementia*

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## **Introduction**

In 2019, *Alzheimer's Disease International* estimated that there are over 50 million people with dementia worldwide. Dementia has implications for the quality of life of both the person with the disease and their relatives. In fact, persons with dementia have a wide range of symptoms such as cognitive deficits, behavioral and psychological symptoms (McKhann et al., 2011). These symptoms limit their initiative and/or ability to perform everyday activities (Nygård & Öhman, 2002; Vikström et al., 2008) and enjoy leisure activities (Gendron & Levesque, 1993; Sikkes et al., 2009). Hence, they feel a sense of loss of freedom and autonomy (Wawrziczny et al., 2016), a decrease in self-esteem, a loss of social status and roles, and loss of function of daily life (Aminzadeh et al., 2007; Beard, 2004; Derksen et al., 2006; Frank et al., 2006; Langdon et al., 2007; Vernooij-Dassen et al., 2006). In addition, persons with dementia feel stigmatization or a feeling of “social demotion” as a consequence of their disease (Beard & Fox, 2008; Harman & Clare, 2006). These changes and losses in their life may cause negative effects on their quality of life and a high level of distress (Cerejeira et al., 2012). Therefore, the management of the distress and symptoms of persons with dementia is gaining increasing importance with a view to improving their quality of life.

Hypnosis is a method of treatment that is considered effective on physical and psychological symptoms in the following settings: emergency care (Iseron, 2014), depression (Yapko, 2001; Shih et al., 2009; Yapko, 2013), anxiety (Hammond, 2010), sleep disorders (Becker, 2015; Cordi et al., 2015), chronic pain (Morone & Greco, 2007), obesity (Cherniack, 2008), cancer (Cramer et al., 2015 ; Lioffi & White, 2001; Richardson et al., 2007), as an adjunct during colonoscopy (Elkins et al., 2006), substance abuse disorders (Green & Lynn, 2000; Potter, 2004), dermatology (Shenefelt, 2000) and sexual dysfunctions (Stanley & Burrows, 2001).

This method consists in “a state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion” (Elkins et al., 2015). This state of consciousness, known as dissociative state, is a natural phenomenon that occurs in moments of distraction, reverie or intense absorption in an activity. Everyone experiences it several times a day (Tenenbaum, 2012). It corresponds to a change in baseline mental activity owing to an induction procedure comprising verbal instructions and suggestions (Annisa et al., 2019; Tenenbaum, 2012). The person becomes absorbed, very focused and experiences a decrease in spontaneous thought and disattention to extraneous stimuli (Annisa et al., 2019). Neurobiological studies have shown that the state of dissociation triggered by hypnosis creates a breakdown in connectivity between the executive and monitoring processes, thereby allowing suggestions to bypass supervisory processes and act directly on the executive systems (Landry et al., 2017). This access to unconscious resources allows changes to be made depending on the therapeutic goals set by the individual (Ide, 2012).

Thanks to the highly relaxed state, an inner concentration and focused attention achieved through hypnosis, patients with dementia may experience more cognitive stimulation and less chronic pain (common in people with dementia), improve sleep, or/and alleviate some symptoms of depression or anxiety. However, while hypnosis has proven efficient in several health domains, its use in the field of dementia is subject to debate. On the one hand, Walker (2016) argued that hypnosis could not be used in people with dementia in his guidelines for the use of hypnosis. Other authors suggested that using hypnosis in people with dementia is limited since it implies a properly working brain and intact cognitive functioning and needs to be concentrated and attentive for a sustained period of time for a state of hypnosis to be reached (Faymonville et al., 2006 ; Heap & Aravind, 2002; Raz et al., 2006; Redel et al., 2012). On the other hand, there are neurophysiological and clinical

arguments for the possible use of hypnosis with people with dementia. Previous clinicopathologic studies in Alzheimer's disease, the most common form of dementia (Lobo et al., 2000; Prince & Jackson, 2009), have shown that the affected areas of the brain might not be incompatible with the use of hypnosis, particularly in the early stages of disease. Indeed, during hypnosis, Landry et al. (2017) observed a reduced activity of the posterior cingulate cortex and the medial prefrontal cortex, which are responsible for self-referential cognition. The posterior cingulate cortex is an area in which hypometabolism is already present in the early stages of Alzheimer's disease and contributes to memory disorders. and the medial prefrontal cortex is functional in the early stages (Chételat, 2011; Nelson et al., 2009). Landry et al. (2017) also observed: a) an increased activity of the dorsolateral prefrontal cortex and the posterior parietal cortex, which are responsible for attention maintenance, deployment of mental strategies, subjective appraisal of agency and authorship, anticipation and response preparation; b) an increased activity of the anterior cingulate cortex and insula, which are responsible for altered awareness of external and internal signals, and are preserved longer in Alzheimer's disease. Chételat (2011) and Nelson et al. (2009) showed that the early diffuse deposition of amyloid beta protein in the neocortex and, then in the mesial temporal lobe areas is associated with the neurofibrillary pathology that first appears in the mesial temporal lobe structures and then progressively affects the temporal cortex, the parietal and cingulate areas and finally the entire neocortex. Moreover, Weintraub et al. (2012) showed that the cognitive profile of Alzheimer's patients in the early stage shows prominent amnesia with additional cognitive deficits (e.g. deterioration of semantic memory, deficits in "executive functions" or in visuospatial abilities, difficulty in complex attention tasks). However, the ability to focus and sustain attention is usually affected only in the later stages of the disease. Finally, Becchio (2014) posited that hypnosis in people with dementia might lead to greater fluidity in care and a more pleasant relational atmosphere with carers.

These studies thus suggest that using hypnosis might be possible in persons in the mild-to-moderate stages of the disease.

Given the proven effectiveness of hypnosis in various fields of health and the debate concerning its use in dementia, a summary of the literature would help understand the quality of evidence regarding the use of hypnosis with people with dementia and provide directions for future research. A scoping review is an ideal format with limited literature to map the current evidence and understand its quality, identify critical areas and research gaps, and provide recommendations for future research (Munn et al., 2018).

## **Methods**

The framework for the scoping review was based on the five stages described by Arksey and O'Malley (2005): (1) identifying the initial research question, (2) searching for relevant studies, (3) selecting studies, (4) charting the data, and (5) collating, summarizing and reporting the results. Unlike a systematic review, a scoping review does not involve a quality assessment but is concerned primarily with summarizing findings in a narrative format.

### *Identifying the initial research questions*

We included studies involving the use of hypnosis for persons with dementia.

### *Identifying relevant studies*

The electronic bibliographic databases screened included: PubMed/Medline, the Cochrane Library, ScienceDirect, PsycINFO. In addition, a hand search of the reference lists of identified articles was performed and Google Scholar was used to identify any other primary sources within the grey literature. The literature review ended in December 2019. The complete search strategy for Pubmed was as follows: (“Dementia” OR “Alzheimer” AND

“Patient”) AND (hypnosis OR hypnotic OR hypnotherapy). This search strategy was adapted for each database. Reference lists of identified original articles were searched manually.

Studies were searched with no date restrictions, in the English language and published in a peer-reviewed scientific journal. All types of studies were eligible (e.g. case reports, qualitative studies, comparison studies, randomized control studies). Studies in which a hypnosis intervention or hypnotherapy was studied alone or as a part of a multicomponent intervention were eligible. Both studies with live administration and taped administration of hypnosis were eligible. Approaches such as guided imagery or relaxation methods often used with hypnosis were not included, in order to ensure that the interventions resulted in the development of a state of dissociation with an increased ability to respond to suggestions, according to the definition of hypnosis.

### *Study selection*

The process to select articles (Figure 1) followed the Preferred Reporting of Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (Moher et al., 2009). Using the key search descriptors, 1084 articles were identified. The electronic search results were downloaded into Zotero bibliographic software to sort articles and eliminate duplicates. Two authors independently screened the titles and abstracts of potentially eligible studies identified by the search strategy detailed above, and irrelevant articles were excluded. Full text versions of the relevant papers were then obtained and read in full by two authors independently, in order to determine if they met the eligibility criteria. Any discrepancies were resolved by consensus. When results of a study were reported in several publications, we identified the publication with the most complete data as the primary reference and the other papers were identified as associated papers.



### *Data extraction*

After the final decision to include studies in the review, data extraction was performed by at least two independent persons. A Microsoft Excel data collection form was used to collect all of the data needed to analyze the studies: type of the study (e.g. case study, trial design, randomization, pilot study), characteristics of the population (e.g. type of dementia, sample size, age), characteristics of the intervention (e.g. type of hypnosis, type of control intervention), outcome measures, and results.

### *Summarizing and reporting the results*

Study results were organized to highlight key themes and the two following categories were revealed by the analysis: 1) hypnotizability of individuals with dementia, and 2) benefits of hypnosis with regard to physical and psychological difficulties in people with dementia.

## **Results**

### *Literature search*

The literature search retrieved 1261 records after duplicates were removed. We excluded 1236 articles and 25 full-text articles were assessed for eligibility. The Flow Diagram in Figure 1 provides details on the inclusion and exclusion process. Characteristics of the sample, interventions, outcome measures, and results are shown in Table 1.

Seven studies were included in the scoping review (Duff & Nightingale, 2005; Duff & Nightingale, 2006; Duff & Nightingale, 2007; Hall et al., 2012; Moldawsky, 1984; Simon & Canonico, 2001; Witz & Kahn, 1991). Three articles described the same longitudinal pilot study at different times: over 9 months (Duff & Nightingale, 2005), over 12 months (Duff & Nightingale, 2006), and at all assessment times (Duff & Nightingale, 2007). Duff and

Nightingale (2007) was classified as the primary reference and Duff and Nightingale (2005) and Duff and Nightingale (2006) as associated papers.

### *Setting and Participant Characteristics.*

Two studies included 2 female patients diagnosed with Huntington disease (HD) and one female with undiagnosed HD (two 36-year-olds and a 53-year-old). HD is a hereditary syndrome of dementia characterized by memory loss, confusion, general cognitive dysfunction and involuntary movements (Moldawsky, 1984; Witz & Kahn, 1991). One study included a 61-year-old woman with Alzheimer's disease (Simon & Canonico, 2001). The sample in Hall et al. (2012) consisted in 3 groups composed of 8 persons with mild Alzheimer's disease, 8 persons with mild cognitive impairment and 14 normal controls with a mean age of 74.30 years. In Duff & Nightingale's pilot study (2007), they recruited only 6 participants per condition (hypnosis group, discussion group and treatment as usual group). They included patients with various types of dementia (vascular dementia, Parkinson's disease-related dementia and dementia) with a mean age ranging from 77.2 to 79.8 years.

Patients were recruited from their residential or nursing home or care home (Duff & Nightingale, 2007; Hall et al., 2012), and information was not clear about the origin of the patients in the other studies (Moldawsky, 1984; Simon & Canonico, 2001; Witz & Kahn, 1991).

### *Key results.*

Analysis revealed two key findings: 1) the hypnotizability of individuals with dementia; 2) the benefit of hypnosis in alleviating both physical and psychological difficulties in dementia patients.

## 1) Hypnotizability of individuals with dementia

In this scoping review, the case reports considered that patients with dementia experienced moderate-to-high hypnotizability because they responded to different types of suggestions such as guided imagery, arm levitation, positive hallucination, negative hallucination, and posthypnotic suggestions (Moldawsky, 1984; Simon & Canonico, 2001; Witz & Kahn, 1991). Nevertheless, Simon and Canonico (2001) reported that some adjustments concerning the induction process were necessary.

Duff and Nightingale (2007) requested an ideomotor response to initiate the therapeutic session, considering this as a faster and more convenient measure of hypnotizability than the standard susceptibility scales used during the induction of hypnosis in individuals with attentional deficits. They observed a good level of hypnotizability because, of the 216 times that ideomotor responses were attempted (6 participants x 36 sessions), most were induced at the first attempt, 4 at the second, and only one was abandoned.

Only two studies used a validated tool to assess hypnotizability. Patients with dementia scored moderate to high on the items on the Stanford Hypnotic Susceptibility Scale (SHSS) (Form B, Witz & Kahn, 1991 ; Form C Modified, Hall et al., 2012). Hall et al. (2012) also found no difference in performance on this scale between normal older people, older people with mild cognitive impairment, and older people with mild dementia. Suggestions for auditory and visual hallucinations were unsuccessful in all groups.

## 2) Benefit of hypnosis in alleviating both physical and psychological difficulties in patients with dementia.

### Types of intervention

The case studies reported different types of protocol using hypnosis either in the primary intervention (Witz & Kahn, 1991) or after other types of therapy (Moldawsky, 1984; Witz &

Kahn, 1991) or administered in two steps (Simon & Canonico, 2001). Clinicians used hypnosis after individual and couple therapy, or in a combined intervention with 10 consecutive sessions (5 sessions of relaxation and 5 sessions of hypnosis), or after treating primarily with drug therapy and supportive psychotherapy as an adjunct to treatment, or in two sessions with a first preprocedural session (hypnotic assessment, preparation for procedure, hypnotic rehearsal, suggestions for procedural comfort, and safe space imagery) and during the lumbar puncture. Some of these interventions were also reinforced by daily home practice both with and without audio tapes (Moldawsky, 1984; Witz & Kahn, 1991).

Duff and Nightingale (2007) reported a longitudinal pilot study comparing hypnosis to usual treatment or discussion group at several time points: once at the start of the study period, and then at 3-monthly intervals over a 9-month period, and after 12 months of follow-up. The participants received weekly sessions, each of the 36 sessions lasting approximately one hour. Direct suggestions relating to 7 items (concentration, relaxation, motivation, activities of daily life, immediate memory, memory of significant life events, and socialization), along with additional calmness, relaxation and confidence (CRC) suggestions, were administered.

### *Benefit of intervention*

Studies examined the qualitative feedback of patients with dementia (Moldawsky, 1984; Simon & Canonico, 2001; Witz & Kahn, 1991) or quantitative measures (Duff & Nightingale, 2007; Hall et al., 2012) concerning hypnosis interventions. The patients with Huntington disease patients reported a decrease in anxiety (Moldawsky, 1984; Witz & Kahn, 1991), better sleeping patterns and a decrease in choreiform movements during induction (Moldawsky, 1984), a feeling of being less floppy and more coordinated, a decrease in muscle spasms, fewer falls, an increased sense of control, enhanced self-confidence in maintaining

relationships and social activities and coping with pressure, an increase in self-esteem and short-term goal accomplishment (Witz & Kahn, 1991). Simon and Canonico (2001) reported that their patient with Alzheimer's disease was satisfied with the lumbar puncture procedure, felt no discomfort and expressed a temporal constriction and amnesia during the entire procedure.

In Duff and Nightingale's study (2007), a set of measures was developed by the authors to assess each patient on seven Quality of Life (QOL) items on a 7-point Likert scale: concentration, relaxation, motivation, activities of daily life, immediate memory, memory of significant life events, and socialization. Each patient was rated by a blinded member of the nursing staff and 5% of these measures were double-rated. Over a 9-month period, the group who received hypnosis showed an overall increase on each of the seven measures (Duff & Nightingale, 2005), and over 12 months, the group receiving hypnosis showed improved performance on concentration, activities of daily life, immediate memory and memory of significant life events compared to the two control groups (Duff & Nightingale, 2006).

## **Discussion**

The results of this scoping review provide important knowledge about the possibility of using hypnosis with people with dementia and the quality of research in this field. These findings may be useful to clinicians who use hypnosis in their practice and would like to use it with people with dementia, as well as to researchers for future clinical trials.

### *Participants*

While all studies reported the experience of patients with dementia, they investigated small samples and included various types of dementia with very different clinical characteristics (Huntington disease, Parkinson disease, vascular dementia and Alzheimer disease). Future

research will require larger samples and should especially pay greater attention to the clinical homogeneity of diagnoses (Duff & Nightingale, 2005; Hall et al., 2012), the stage of the disease (Witz & Kahn, 1991), places of recruitment (home, residential or care home), and the evaluation of cognitive functions. Finally, more methodological information is required about the recruitment process: origin, context of the meeting (place, practitioner), informed consent, and IRB approval. Indeed, concerning ethical issues, in the case reports, patients requested hypnosis repeatedly and they were highly motivated to try it because they believed it would be helpful (Moldawsky, 1984; Simon & Canonico, 2001; Witz & Kahn, 1991). Nevertheless, we have no ethical information. In the others studies (Duff & Nightingale, 2007; Hall et al., 2012), participants provided informed consent to taking part in the study. The ability to understand the written information in the consent form was determined with interview and neuropsychological testing (i.e. The Mental Capacity Act), as well as the ability to understand the aim of the study and to have the ability to give consent. Moreover, consents were requested prior to each hypnosis session and participants were informed that they were free to withdraw at any time without effect on their treatment or care (Duff & Nightingale, 2007).

Consent requires the ability to understand and make choices. Considering the progressive decline of cognitive abilities that can impact on decision-making capacity, recommendations supported by Thorogoud et al. (2018) have to be followed by researchers to protect persons with dementia from abuse and exploitation. They proposed for example: early communication (in advance of a loss of capacity) should be led with the persons with dementia to express their preferences about (future) participation in research and data sharing; if required, the legally authorized representative should decide taking into account these preferences; capacity assessment tools need to be developed, validated, used proportionately to the risks to person and mentioned in research protocols.

## *Principal results*

### 1) Response to hypnosis of individuals with dementia

While some authors consider that hypnotizability requires intact cognitive and attentional functioning (Faymonville et al., 2006; Heap & Aravind, 2002; Raz et al., 2006; Redel et al., 2012; Walker, 2016), this scoping review shows that patients with dementia are hypnotizable. Hall et al. (2012) were the first to examine the hypnotizability of various groups of older participants regarding their level of cognitive impairment. They found no significant differences between the groups, suggesting that people with dementia have sufficient attentional processing ability to benefit from hypnosis. Nevertheless, this finding should be considered with caution since it is based on non-validated measures, such as responses to various types of suggestions, ideomotor responses and scores on the SHSS (Stanford Hypnotic Susceptibility Scale). While this tool was validated, it has no specific norms for older people with cognitive impairments. Future research needs to evaluate hypnotizability with validated tools.

Moreover, the case reports included in this scoping review (Moldawsky, 1984; Witz & Kahn, 1991) underline that expectancies and attitude towards hypnosis are important factors to consider the level of hypnotizability of individuals. They showed that while practitioners were reluctant to use hypnosis with their patients owing to previous recommendations, they finally agreed to do so considering their patients' motivation and optimism, and they achieved moderate-to-high levels of hypnosis. This is consistent with Gravitz (1979), who posited that positive expectancies, a positive attitude towards hypnosis and motivation are important predictors of hypnotizability. In the same line, Kinney and Sachs (1974) showed that subjects who were very reluctant failed to improve their hypnotizability significantly after the training sessions. Subjects feeling skepticism, anxiety or fear of losing control were too anxious and

resistant. The authors suggested that devoting time to changing attitudes towards hypnosis might have helped increase their hypnotizability.

According to the Jensen et al. review (2015), in addition to hypnotizability, motivations and expectations, other factors influence the response to hypnosis: biological (neurophysiological correlates), psychological (absorptive capacity/fantasy proneness) and social (alliance between a clinician and a patient) factors. Given the lack of evidence in the field of dementia, all of these factors need to be investigated.

## 2)The benefit of hypnosis for patients with dementia

Hypnosis was used either in one or several sessions, alone or combined with other types of intervention and reinforced with daily self-hypnosis with or without audio tapes. Nevertheless, the content of the sessions was not always clearly defined (Moldawsky, 1984; Witz & Kahn, 1991) to allow the replicability of the design and a better understanding of the results obtained.

Hypnosis may help in improving the physical and psychological symptoms of patients with dementia. These results are consistent with the effects obtained in other health domains (Becker, 2015; Cherniack, 2008; Cordi et al., 2015; Cramer et al., 2015; Green & Lynn, 2000; Hammond, 2010; Iserson, 2014; Lioffi & White, 2001; Morone & Greco, 2007; Potter, 2004; Richardson et al., 2007; Shenefelt, 2000; Shih et al., 2009; Stanley & Burrows, 2001; Yapko, 2001; Yapko, 2013). Moreover, the Duff & Nightingale study (2007) showed improved performance on concentration, immediate memory and memory of significant life events, even after the hypnosis sessions had ended. These results suggest that hypnosis may have a stimulating cognitive effect in the long term. However, these results are based on either qualitative returns or quantitative measures without established reliability for validity data (Duff & Nightingale, 2007). As suggested by the guidelines for the assessment of efficacy of clinical hypnosis applications, it is necessary to blind data collectors and responsible for the



statistical analysis with respect to group allocation (Kekecs et al., 2021), in order to reduce the risks of biases and determine the quality of the evidence.

More research is also needed to establish the efficacy of hypnosis with a randomized controlled trial (RCT) including a control group (Witz & Kahn, 1991) in which validated outcome measures and subjective experiences are combined with blinding of allocation and outcome assessors (Duff & Nightingale, 2005). A longitudinal approach would be the most fruitful. As suggested by the guidelines for the assessment of efficacy of clinical hypnosis applications, for chronic conditions, a long follow-up assessment (six months or longer) is necessary to establish the efficacy of hypnosis (Kekecs et al., 2021). Nevertheless, this approach is more complex because of the high mortality rate of the participants (Duff & Nightingale, 2005).

#### *Modifications to standard protocols to treat persons with dementia*

This review shows that hypnosis seems accessible for persons with dementia. However, given the memory disorders in the early stages of the disease, adaptations are necessary. In the induction phase, it would be appropriate to use long-term memories as they are preserved longer in dementia. Moreover, loss of short-term memory is not necessarily an obstacle, since amnesic persons are able to acquire new knowledge during hypnosis, even though they are unable to remember the circumstances in which they learned it and/or what they learned. Amnesic persons have been shown to benefit from a form of implicit learning during hypnosis (Kihlstrom, 2007).

Given the concentration and attention disabilities of patients with dementia, trance exits are more frequent. Sessions should be shorter. The authors proposed sessions lasting 60 to 90 minutes (Duff & Nightingale, 2005; Hall et al., 2012), with an induction period lasting between 10 and 20 minutes (Moldawsky, 1984; Simon & Canonico, 2001). A session around

30 minutes might be more appropriate (Simon & Canonico, 2001). Moreover, a very directive induction phase is necessary (continually redirecting attention with verbal directions and nonverbal head movements) with minimal extended pauses (1 or 2 seconds) (Simon & Canonico, 2001). Suggestions should be restricted to only one of the five sensory modalities (Simon & Canonico, 2001) depending on the patient's representational system: visual, auditory, kinesthetic, olfactory, and gustatory (VAKOG) (Hamill, 2012). To increase the hypnotizability of persons with dementia, auditory and visual hallucinations were not successful (Hall et al., 2012), but it is important to spend some time in changing attitudes toward hypnosis, and to set up regular sessions (Moldawsky, 1984; Witz & Kahn, 1991). Indeed, attitude and motivation toward hypnosis and regularity are important predictors of hypnotizability (Gravitz, 1979).

In the later stages of the disease, the lesions progressively affect the entire neocortex including the frontal areas (Chételat, 2011; Nelson et al. 2009). Interestingly, an increased sensitivity to suggestion was found to be correlated with decreased functioning of the frontal lobes and left dorsolateral prefrontal cortex (Dienes & Hutton, 2013; Ludwig et al., 2013). Finally, classical induction seems difficult to perform in patients with language and executive function disorders. Paraverbal communication then becomes more appropriate by focusing on synchronization with the person with dementia and performing conversational hypnosis (Burlaud, 2013).

Finally, it is important to adapt to persons with dementia, to identify the most suitable moment to intervene (Duff & Nightingale, 2007) and to attenuate the anxiety they may feel by blending into their habits and environment, by using items familiar to them such as photos, paintings, pieces of music, etc. Moreover, building a climate of trust, rapport and empathy with these patients requires pacing by matching with paraverbal features like breathing tempo, tone and tempo of voice, predicates and syntax (Hamill, 2012).

**Conclusion**

This scoping review suggests that hypnosis may be feasible and acceptable with patients with dementia. They can experience a moderate-to-high state of trance and are susceptible to different types of suggestions, but given their severely impaired attention capacities, some adaptations to the induction procedure are required. Persons with dementia showed improved cognitive performance and reported better control of both physical and emotional symptoms, as well as an increased quality of life. Nevertheless, some methodological limitations should be addressed in future research. Additional studies are now required to establish the efficacy of hypnosis with a larger homogeneous sample, a standardized detailed induction procedure, longitudinal protocol, and an RCT trial that assesses qualitative and quantitative validated outcomes.

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## **Author contributions**

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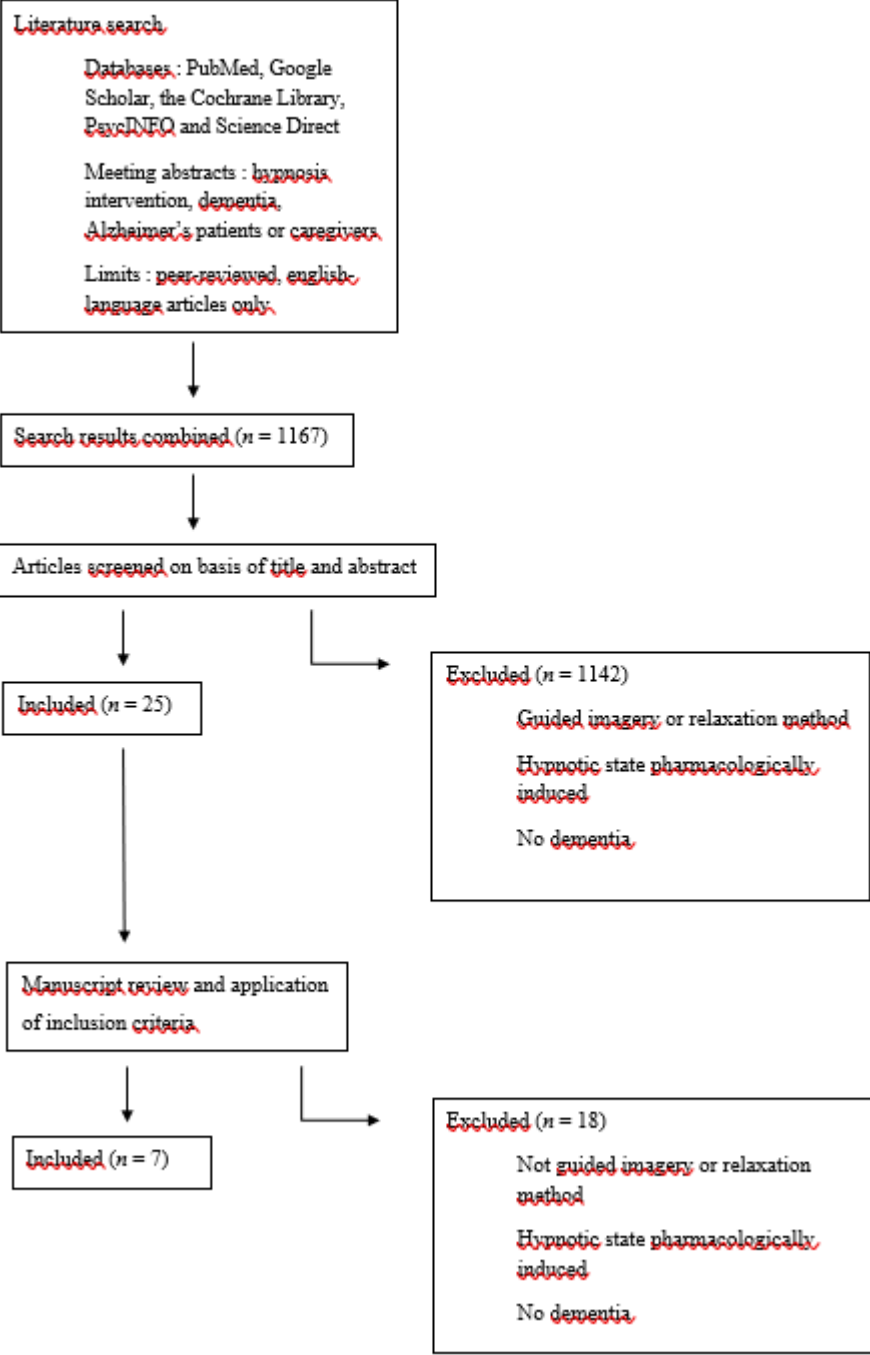
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Figure 1. PRISMA flow diagram for article selection



Authors, Year	Sample	Age	Dementia diagnosis	Groups	Type of study	Type of hypnosis intervention	Outcome Measures	Results
Duff, Nightingale, 2007 ♦	18 participants HG: *4 men *2 women DG: *2 men *4 women TG: *6 women	Mean age HG: 77.2 years (SD _ 2.48) Mean age DG: 79.7 years (SD _ 8.78). Mean age TG: 79.8 years (SD _ 3.00).	HG: *four vascular dementia *one Parkinson disease–related dementia, *one dementia DG: *three vascular dementia *three dementia TG: *three Dementia *two vascular dementia *one Parkinson disease–related dementia.	6 randomly assigned to each group: > hypnosis group (HG) > discussion group (DG) > treatment-as-usual group (TG).	Comparison pilot study	Over 9 months of intervention: *HG received weekly individual sessions of hypnosis (36 sessions)  *DG received weekly discussion sessions (36 sessions)  *TG received standard treatment from residential home staff meeting basic care needs	5 assessment times: -Baseline -at three times during 9 months of intervention (3/6/9 months) -at 12-month follow-up.  Subjective blinded assessments of trained nursing staff on each of 7 items:  (1) concentration (2) relaxation (3) motivation (4) activities of daily living (5) immediate memory (6) memory of significant life events (7) socialization	(1) Concentration: HD: 7777 DG: →→→↘ TG: ↘↘↘7  (2) Relaxation: HD: 777↘ DG: →→→↘ TG: ↘ ↘↘7  (3) Motivation: HD: 7↘↘↘ DG: →→→→ TG: ↘↘↘↘  (4) Activities of daily life: HD: 7777 DG: →→→↘ TG: ↘↘↘7  (5) Immediate memory: HD: 7777 DG: →→→→ TG: ↘↘↘7  (6) Memory of significant events: HD: 77→→ DG: →→→↘ TG: ↘↘↘7  (7) Socialization: HD: 7 77↘ DG: →→→↘ TG: ↘↘↘7
Hall, Pennington, Swicegood, Winter, 2012	30 volunteers: *11 males *19 females	Mean age: 74.30 years Age range:	*14 normal controls *8 subjects with mild cognitive	3 groups: *normal controls *subjects with mild cognitive	Comparison pilot study	Live administration, Standardized Single session	Stanford Hypnotic Suggestibility Scale (SHSS; Form C Modified)	>No significant differences between groups found on total SHSS score. >Suggestions for auditory and

		65 - 87	impairment. *8 subjects with mild Alzheimer's disease (individuals diagnosed with Alzheimer's disease and one diagnosed with mixed Alzheimer's and Vascular Dementia)	impairment. *subjects with mild Alzheimer's disease				visual hallucinations were unsuccessful for all groups
Moldawsky, 1984	A woman	53-year-old	Huntington's Disease	NA	Case report	Treatment administered two years after drug therapy and supportive psychotherapy  Live administration, individualized Single session + daily home practice	Qualitative returns: Control involuntary movements	>During induction: *deep muscle relaxation. *decrease in choreiform movements (arms, legs, trunk) >Upon assuming normal conscious state: sense of mild euphoria subjective decrease in anxiety >1 and 3 months later: *less anxiety *better sleeping patterns
Simon, Canonico, 2001	A woman	61-year-old	Alzheimer disease	NA	Case report	Live administration, individualized 2 sessions: preprocedural session and lumbar puncture procedure	Qualitative returns: alleviate lumbar puncture procedural distress	*expression of very minimal withdrawal response to first needle prick *no further discomfort during rest of procedure *temporal constriction *great satisfaction *amnesia of entire procedure
Witz, Kahn, 1991	A woman	36-year-old	Huntington's Disease	NA	Case report	Treated for 9 years: individually and with her husband (one year and a half) and during 3 last years: individual psychotherapy	Qualitative returns: physical and psychological difficulties	*control anxiety and pain *achievement of short-term goals *body less floppy and more coordinated *enhanced relaxation and coordination



	A woman	36-year-old	Huntington's Disease		<p>+hypnosis session live administered, individualized in most treatment sessions + daily self-hypnosis (both with and without audio tapes)</p> <p>Live administration, Individualized, primary intervention</p> <p>10 individual sessions (5 relaxation and 5 hypnosis)+ audio relaxation and hypnosis tapes + learn self-hypnosis</p>	<p>Qualitative returns: control of both physiological and emotional symptoms.</p>	<p>*engagement in activities and social situations previously relinquished *ordered lifestyle *improved borderline symptomatology. *greater control over emotional lability *sense of self-esteem</p> <p>* muscle spasms decreased *decreasing daily tension *more able to cope with pressure *decrease and manage anxiety *control going down steps *fewer falls *efficiency at work</p>
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◆ Primary reference; hypnosis group: HG; discussion group: DG; treatment-as-usual group: TG.

**Table 1. Included studies**