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AUSTRALIAN JOURNAL OF
CLINICAL AND EXPERIMENTAL HYPNOSIS

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EDITORIAL

I wish to advise readers this is the final edition of the *Australian Journal of Clinical and Experimental Hypnosis* for which I will be responsible in the role of editor.

I assumed the office of Chairman of Publications of the Society and Editor in May 1993 and, after ten years, feel that I have contributed as much as I can to the role. Indeed, having informed the Executive Committee and Federal Council of my decision not to stand for the position when my term expired in September 2003, I felt a relieved sense of anabiosis!

There are a number of people to whom I am indebted for helping me maintain the high standards of the journal set by my predecessor, Dr Wendy-Louise Walker.

First and foremost, I express my deepest appreciation to Carl Harrison-Ford, who has been a brilliant copyeditor and proofreader. Carl has a mastery of language and a breadth of experience in journal manuscript editing. Indeed, he could never be accused of lethologica! As editor, I could rest comfortably in the knowledge that Carl would always do his best to ensure manuscripts were prepared to the highest standards. I know the incoming editor will be similarly served. Vale Carl.

My deepest appreciation also to June Simmons, who provided administrative assistance from 1993 to 2000. June worked outside of work hours to maintain the journal database and subscribers' lists and also completed preliminary editing of manuscripts prior to these being sent to Carl. I recall many hours spent working with June and regretted her decision to resign in 2000.

Early in my term as editor, I sought the services of a team of associate editors. These were Greg J. Coman (University of Melbourne), Kathryn Gow (Queensland University of Technology), Kevin McConkey (University of New South Wales), Wendy-Louise Walker, and Graham R. Wicks. Between them they represent the best of academic and clinical worlds in hypnosis in Australia. I thank them for their support and encouragement during my term as editor. Indeed, in an organisation which some see as having its share of ergasiophobics, my editorial team has been of enormous help.

Last but not least, I express my gratitude to the many members of the Society and those from outside ASH who contributed manuscripts for consideration and publication. The reputation of any journal derives in part from the quality of its published manuscripts and the utility of experimental

and clinical studies described therein. I hope it is not a nimious claim on my part to suggest the journal has met these standards under my editorship.

With this lustration, I wish the incoming editor the best and offer my assistance.

Since I wrote my final editorial, the Federal Council of the Society met to appoint the new Chair of Publications/Editor. Unfortunately no suitable candidate was available. To ensure the continuity and standard of the journal, I asked Dr Wendy-Louise Walker PhD to take up the position of Interim Editor for the May 2004 edition, a request she was happy to accept.

Barry Evans
Editor, 1993–2003

“RIDING MY MANTA RAY WITH UNCLE FESTER”: HYPNOSIS FOR MANAGING PAIN AND DISTRESS IN A DYING CHILD

Belinda Goodenough

*Psychologist, Centre for Children’s Cancer and Blood Disorders,
Sydney Children’s Hospital, Randwick*

Jan Hardy

*Clinical Nurse Consultant,
Centre for Children’s Cancer and Blood Disorders,
Sydney Children’s Hospital, Randwick*

Rhys Jarratt*

This case reports the application of hypnosis and visual imagery during palliative care for end-stage leukaemia in an 11-year-old boy. In a brief therapeutic engagement (single session), the treatment goals were specific symptom relief (e.g., pain, itch, sweating), and identifying and managing negative affective states (e.g., anxiety, anger). Positive quality of life outcomes were observed in achieving rest and comfort, as well as regaining significant levels of mastery and control during the last ten days of hospital-based care.

We thank Rhys Jarratt’s parents, Noel and Eve, as well as Dr Susan Russell (paediatric haematologist/oncologist, Centre for Children’s Cancer and Blood Disorders, Sydney Children’s Hospital, Randwick), for reviewing this manuscript. This article was prepared as a posthumous tribute to Rhys and his passion for science — also embraced by his school community at Calwell, A.C.T., who have established the Rhys Jarratt Memorial Shield to be presented, in perpetuity, for “scientific excellence.”

Requests for reprints should be addressed to Dr Belinda Goodenough, Centre for Children’s Cancer and Blood Disorders, Sydney Children’s Hospital, Randwick, N.S.W.2031. B.Goodenough@unsw.edu.au

* With parental permission, Rhys Jarratt is identified by name as third author of this paper. Rhys is acknowledged for his courageous role in creating the visual imagery metaphors reported in this paper.

While cure rates for childhood cancer have increased significantly in recent years, approximately 30% of children diagnosed with cancer will die from the disease or from complications associated with treatment. Palliative care for a dying child (and family) is a specialist discipline that must take account of a vast array of physical and psychosocial needs. While the use of play and imagery are endorsed (Baker, 1991; Sourkes, 2000), controlled studies of hypnosis in this context are lacking and perhaps difficult for ethical reasons. Even so, reports on use of hypnotherapy with children diagnosed with a terminal illness are increasing, especially in the cancer context (Olness & Kohen, 1996). The present report adds to a growing case-study evidence base (e.g. Fishman, 1988; LaClave & Blix, 1989; LeBaron & Zeltzer, 1989; Olness & Kohen, 1996) in outlining challenges and opportunities for using hypnosis with a child receiving end-of-life care in a multidisciplinary team context. The case also highlights the therapeutic gains that can be achieved even when only one formal therapy session is possible prior to death.

CLIENT HISTORY AND PRESENTATION

The client, Rhys Jarratt, was an 11-year-old boy receiving hospital-based comfort care (palliation) for relapsed acute myeloid leukaemia. Rhys was a charismatic, confident, and impressively articulate boy, with a lifelong history of serious illness involving hospitalisation and interaction with adult carers. He was diagnosed shortly after birth with Fanconi's anaemia, an inherited condition leading to bone marrow failure. Treatments included ongoing blood-product transfusions, particularly regular platelet infusions.

Rhys presented with significant distress from pain and various other issues in personal comfort relating to overheating, itchiness, and respiratory difficulties. A significant component of the pain and respiratory discomfort was associated with enlargement of the spleen. In his last hospital admission, Rhys was placed on a new standing order for regular oral administration of morphine for pain, and oral paracetamol as needed.

A case conference involving the clinical nurse consultant (J.H.) and Rhys' treating oncologist agreed upon a hypnotherapy referral to a registered psychologist in the department (B.G.). The referral was made with full parental support reflecting the fact that Rhys was requesting access to a hypnosis practitioner, having enjoyed a previous relaxation experience with a non-hospital based "visual therapist and masseur" on a recent family vacation. There were staff concerns that the family (being many hours from home and seeking

a hypnotist via the telephone directory), were vulnerable to being asked to pay high call-out fees at a time of critical need. The current service was provided free of charge and organised by the clinical nurse consultant.

PRE-SESSION ASSESSMENT AND PSYCHOEDUCATION

In paediatric clinical hypnosis, the therapist's task is to take a child's theme and transform it into an age-appropriate therapeutic metaphor to promote change (Kuttner, 1998). Applying this principle, during a pre-hypnosis assessment by the first author, Rhys was asked to describe his previous imagery experience with the massage therapist. The imagery had involved Rhys riding through his own body on the back of a manta ray, accompanied by Bluey the Whale and the family's pet bird (named Uncle Fester). In addition to positive relaxation outcomes, a goal of this previous imagery journey was to visit Rhys' spleen to allow Uncle Fester to peck at spots of disease in order to digest and excrete it as platelets into the bloodstream. The imagery had been devised as a healing metaphor, and was also consistent with Rhys' wish to leave hospital on family vacation to ride a manta ray. A family friend had also given to Rhys photos of a manta ray (and, later, after the hypnosis session, he also received a gift of toy manta ray).

The current hypnosis session built upon this original imagery shared by Rhys but without the direct promise of healing: the platelet image was not overtly challenged by the therapist, but was also not deliberately evoked as a healing metaphor. This was due to ethical doubts on biological plausibility that were validated in a post-session debriefing with the clinical nurse consultant — an increase in Rhys' platelet count (while a well-intentioned image from the massage therapist first consulted by Rhys) was neither a precursor for achieving disease remission (i.e., not a cure for the leukaemia), nor a vehicle for guaranteeing wellness sufficient to allow Rhys to leave hospital for a scuba-diving trip to ride on a manta ray in the immediate short-term.

The clinical nurse consultant had previously taught Rhys to use a simple numerical rating scale for self-report of pain states (i.e., 0–10, where 0 = no pain). This highly practised scale was used during the hypnosis session. A visiting family friend had also given Rhys a gift of a crystal which Rhys felt helped him to access “mind power” when focused upon. This crystal was incorporated into the induction phase.

Given the new regimen of oral morphine, and Rhys' distress at a significant delay in receiving his standing order for morphine on the previous day, he was asked to describe how pain could be made worse or better. Rhys indicated that he did not know "how pain happened or how drugs worked." Using a simple coloured illustration of the body (showing brain and spinal column, as per the gate control theory of pain: Melzack & Wall, 1965; Liossi, 2002), I (B.G.) gave Rhys an age-appropriate account of pain transmission and perception. This explanation emphasised the role of the spinal cord in signal transmissions, with messages travelling up and down the spine, and the possibility for control points or "switches" in the system for modifying how these messages are sent or "heard." The account also explained where drugs like morphine and paracetamol are thought to impact on these switches. Rhys indicated appreciative understanding of this information, and agreed with the therapeutic suggestion on how beneficial it might be to help medication influence these switches by using "messages and thoughts from the inside."

Immediately prior to the hypnotic session, Rhys was asked to describe his current pain levels and locations using the pain scale he had practised beforehand. He indicated pain in the upper abdomen, side of head, and lower back — all rated in the range of 6–8 out of 10. When asked if there were other feelings in his body that were bothering him, Rhys listed feeling hot, sweaty, itchy, and angry.

TREATMENT GOALS

In addition to providing immediate rest and comfort during the hypnosis session, the therapeutic goals were:

1. To manage key symptoms causing physical distress, specifically pain, itching, sweating, and sensations of overheating.
2. To identify and moderate negative affective states, specifically anxiety and anger.
3. To enhance quality of life by facilitating ability to respond with mastery to own needs, specifically empowering choices in psychosocial terms.

HYPNOTIC SESSION

The session was conducted with Rhys in bed at his private hospital bay in the inpatient oncology ward at the Sydney Children's Hospital, Randwick. His parents and visitors elected to leave the room, and the session was conducted

with both the door and bed curtain closed for privacy and noise reduction. At Rhys' request, there was soft background music from a marine-themed relaxation music CD from his private collection.

Prior to trance induction, Rhys accepted paracetamol from a nurse for his headache, and then made himself as comfortable as possible in a semi-supine posture on his bed, covered in a light blanket and with legs and head both supported by pillows. His oxygen mask was fixed, and remained in place throughout the session in order to minimise laboured distress from "air hunger."

Formal trance induction began with (at therapist's suggestion) the laying of Rhys' special crystal on his forehead, in conjunction with an eye fixation and hand catalepsy procedure effective for rapid inductions in children experiencing pain and anxiety in medical contexts (Goodenough & McKenzie, 2002; based on Auld, 1999). Hypnotic induction was swift, and Rhys proved to be a gifted subject able to quickly achieve a level of trance capable of supporting ideomotor suggestion (in this case, levitation of the left hand). A deepening metaphor evoked the familiar imagery of Rhys boarding his manta ray and riding it with sufficient precision to copy the therapist's finger as it lightly traced the letters of "Rhys" along his right arm, and with suggestions of spreading relaxation, including eye closure, as the finger writing trail reached the head and neck region.

With the hypnotic state established, the session was verbally interactive and based on Rhys riding his manta ray up and down the spinal column, watching the way that messages travelled up and down the spinal cord from various body parts to the brain. He was given the task of seeking appropriate switches associated with various symptom messages that could be directly manipulated to increase his comfort. In this way, Rhys located switches (of his colour choice) that he reported being able to turn down from the baseline 6 or 8 out of 10 to comfort levels of 2 or less out of 10 for each of his body pains. By journeying to the brain, and locating a complicated panel of various coloured switches (and with the help of Bluey the Whale and Uncle Fester), Rhys chose new comfort levels for other sensory symptoms, namely itchiness, sweating, and feeling overheated. On this brain-centred complicated main-switch panel, Rhys was also asked to look for controls that may be associated with feelings. He spontaneously reported seeing an anger switch, currently on a setting of 10 out of 10. With extended assistance over many minutes from Uncle Fester, Rhys reported being able to successfully turn the anger switch down to a more comfortable 2 out of 10.

After successfully adjusting his comfort levels for all symptoms and feelings of relevance, Rhys was given permission to explore his body in whatever journey he wished while enjoying the music he could hear playing. Rhys was given the post-hypnotic suggestion of being able, whenever he wished, to use this imaginative journey to his spinal column and brain to change messages about feelings that bothered him in his body. Rhys was also given permission at this point to choose when he wished to return to an alert resting state, and in the meantime to enjoy feeling rested and dream any dream he wished about any choices he wished to make.

Rhys spontaneously emerged from trance in his own time, having enjoyed approximately 30 minutes of hypnotic rest. He reported significantly reduced pain, and a post-session discussion focused on why he thought the “anger switch” had been initially turned on so high (10/10). Rhys reflected on his distress with the delay in morphine administration the previous day, but conversation also addressed the range of visitors and interruptions he had received to his rest¹ and feeling a burden not to let anyone down. Rhys was encouraged to give priority to his own needs and feelings, and to think about specific solutions. This included voicing friendly but firm limits he might like to place on a visitor schedule to make his life more manageable and comfortable.

DISCUSSION

The hypnotic process begins before a child even sees the therapist (Wester, 1998). In the case of Rhys, he was a gifted hypnotic subject who had already enjoyed a positive and profound experience with visual imagery in a non-hospital massage setting. While this prior imagery episode was exploited to great therapeutic advantage by the current therapist, Rhys’ case also underscores that it is essential for a hypnotherapist working with palliative paediatric patients to have an adequate working knowledge of the disease and symptom profile. Particular care must be exercised with managing healing images, such as Rhys’ image of the family pet bird pecking off disease from his spleen and excreting the waste as platelets into the bloodstream. It remains a matter of conjecture as to whether disease states are influenced by psychobiological phenomena and hence whether healing can be influenced hypnotically (Evans,

1 While in trance there were three interruptions of adults walking without warning into Rhys’ room. These did not overtly disturb the hypnotic session, but underscored issues raised by Rhys concerning visitor load and privacy.

1998; Olness & Kohen, 1996). In the meantime, patients suffering symptoms associated with terminal disease states are understandably vulnerable to positively intentioned meaning “healing” metaphors (e.g., turning waste into essential body products). Likewise, hypnotic suggestions for comfort and symptom relief should avoid unethical or unsustainable promises of health restoration, and are better focused on biologically plausible metaphors for symptom mastery and change (e.g., pain, feelings of anger and distress).

EPILOGUE

Rhys made a decision to set limits and boundaries on visiting times, which were respected by friends and family. Ten days after the hypnotherapy session, Rhys died in hospital. In these final days, his pain and distress were managed as effectively as possible by pharmacological means with psychological support, including one significant episode of pain prior to death. Rhys passed away in the company of his family and close friends — and his mantra ray for the next journey.

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A STRUCTURAL ANALYSIS OF THE HARVARD GROUP SCALE OF HYPNOTIC SUSCEPTIBILITY: A GENERATION ON

John P. Sjostedt
The University of Newcastle

John D. C. Shea
The University of Newcastle

Through a series of six studies during the period 1996–2001, a sample of 894 predominantly first-year Psychology students from the University of Newcastle, with an average age of 23.1 years ($SD = 8.0$), participated in an investigation of the structure of the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS). Ages ranged from 17 to 60 years and there were 694 females ($M = 23.0$ years, $SD = 7.9$) and 156 males ($M = 24.6$ years, $SD = 9.1$); a group of 44 students failed to record age and sex details for reasons of confidentiality. To investigate dimensional complexity and to broadly replicate aspects of the McConkey, Sheehan, and Law (1980) study into the factorial structure of the HGSHS, a tetrachoric correlation matrix was formed from dichotomously rated HGSHS items to simulate effects of a continuous rating scale. Principal Components (PCA) and Maximum Likelihood analyses (MLA) were performed to determine scale structure. It was hypothesised that the complexity of hypnosis would be reflected in the multidimensional structure of the HGSHS. It was also expected that the structure of the HGSHS would conform to that found in the McConkey et al. (1980) study. Very broadly, this was found, with the MLA solution proving to be more interpretable by comparison with PCA. Theoretical arguments concerning the hypothesised complex, multidimensional nature of hypnosis (Hilgard, 1965) were discussed in relation to Coe and Sarbin's (1971) role-skill/item difficulty continuum hypothesis.

It has been argued that the fundamental mechanisms producing hypnosis are a mystery (Schumaker, 1991). While research evidence, or lack thereof, may support such a view, standardised instruments purporting to measure hypnotisability, the Stanford Hypnotic Susceptibility Scale (Weitzenhoffer & Hilgard, 1959, 1962: SHSS) and the Harvard Group Scale of Hypnotic Susceptibility (Shor & Orne, 1962: HGSHS), have been used continuously for many years for that very purpose. In effect, those instruments and the phenomena they elicit (e.g., suggested ideomotor movements, suggested amnesia, suggested hallucination, and post-hypnotic suggestions) have defined our concept of hypnotic suggestibility. At the same time, clinically helpful hypnotic qualities like analgesia and core phenomena, such as, involuntariness, delusion, and trance logic (Hilgard, 1981; Hull, 1933; Orne, 1959; Shor, 1962; Sutcliffe, 1960, 1961) are not measured by any of the standardised scales. This has raised speculation and debate about what our standardised hypnosis instruments actually measure (Kirsch, 1997; Kirsch & Braffman, 2001).

In this regard, Weitzenhoffer (1980, 1989) criticised the Stanford scales, of which he is a co-author (Weitzenhoffer & Hilgard, 1959, 1962), arguing that the scale measures only overt behavioural responses and suggestibility and not involuntariness (automaticity), held by early researchers to be the true indicator of hypnotisability (see also Hilgard, Weitzenhoffer, Landes, & Moore, 1961). Hilgard (1981) was of a different mind to Weitzenhoffer (1980, 1989), arguing that while the scales do measure hypnotic suggestibility, they should be used and an “index of hypnotisability.” This would have the effect of renaming hypnotic suggestibility and calling it hypnotic susceptibility. In more recent times, debate about the measurement of hypnosis has continued with Kirsch (1997) asking: “What do our scales really measure?” According to Kirsch (1997), our standardised measures of hypnotic susceptibility really measure *imaginative suggestibility* and not hypnosis. While there is obvious conjecture and debate about definitions and measurement of hypnotic susceptibility there are very few definitive answers and a great deal of uncertainty.

ORIGINS AND PUBLISHED STRUCTURE OF THE HARVARD GROUP SCALE OF HYPNOTIC SUSCEPTIBILITY (HGSHS)

The Harvard scale, derived from the earlier Stanford scales, which in turn used the Friedlander–Sarbin scale of hypnotic depth (Friedlander & Sarbin, 1938; Weitzenhoffer, 1980) as its model, is a self-report measure used for group

testing. The HGSHS purports to measure hypnotic susceptibility using a set of dichotomously rated behavioural tasks representative of hypnotic experiences, categorised as: challenge, direct ideomotor suggestion, and cognitive-distortion or cognitive-delusory items (Coe & Sarbin, 1971; Hilgard, 1965; McConkey et al., 1980; Tellegen & Atkinson, 1976). Challenge test items (item numbers are included in brackets), arm immobilisation (4), finger lock (5), arm rigidity (6), verbal inhibition (8), and eye catalepsy (10), are suggestions, which require the inhibition of voluntary control (Hilgard, 1965). Ideomotor suggestion items, that is, head falling forward (1), eye closure (2), hand lowering (3), and hands moving together (7), are items which occur as a result of thinking about a suggested movement (Hilgard, 1965). The final three tasks in the HGSHS, the fly hallucination (9), post-hypnotic suggestion (11), and suggested amnesia (12), form the cognitive-distortion/delusory category (Hilgard, 1965), considered to be the “very essence of hypnosis” (Bányai, 1991; Orne, 1959). These three item category types, challenge, ideomotor and cognitive-distortion/delusory, were designed by Weitzenhoffer and Hilgard (1959) to give the original SHSS, and the later HGSHS (Shor & Orne, 1962), multi-rather than unidimensional scale characteristics.

ARGUMENTS REGARDING A MULTIDIMENSIONAL STRUCTURE FOR THE HGSHS

The idea of a multidimensional structure was supported by quantitative research based on analyses of performance on the HGSHS and its correlates (Ås & Lauer, 1962; Hammer, Evans, & Bartlett, 1963; Hilgard, 1965). However, this interpretation was challenged by Coe and Sarbin (1971), who claimed that multifactorial results were a measurement artefact related to the emergence of “difficulty factors” (see also Tellegen & Atkinson, 1976). According to Coe and Sarbin’s single role-specific skill and item difficulty continuum thesis, challenge items are more difficult to pass than direct ideomotor suggestions. Therefore, Coe and Sarbin contend that successful responses to easier ideomotor items and an ensuing sense of self-efficacy facilitate the development of a “cognitive parameter” which interacts with a “believability parameter” to enhance responding on more difficult challenge items. For example, eye closure may occur due to eye tiredness after staring at a fixation point, or gravity may assist an arm to lower. Thus, passing easier items cognitively facilitates and makes more believable the possibility of passing difficult items. As a consequence, according to Coe and Sarbin, Principal Components analytic (PCA)

procedures tend to cause dichotomously rated items of like difficulty to cluster together, giving hypnotisability the appearance of having a complex though pseudo-multidimensional structure.

ARGUMENTS IN FAVOUR OF MULTIDIMENSIONALITY

Coe and Sarbin's (1971) hypothesis was challenged by Tellegen and Atkinson (1976). Using a modified 7-item version of the Harvard scale with the addition of a 4-point rating scale, that is (a) impossible; (b) quite difficult, only with special effort; (c) somewhat more difficult than normal; and (d) easy, just like normal, which subjectively assessed the extent to which subjects experienced task difficulty (for details see Roberts & Tellegen, 1973), Tellegen and Atkinson found that dimensional complexity, and not item difficulty, explained both their and Coe and Sarbin's findings. In a later analysis using a very large student sample from four separate studies, McConkey et al. (1980) re-examined the structure of the HGSHS:A, along with Coe and Sarbin's item difficulty hypothesis, using Rasch analysis (Rasch, 1960) statistical procedures aimed at testing difficulty parameters. Their analyses also confirmed the multidimensionality of the HGSHS:A, challenging Coe and Sarbin's interpretation, but their investigation raised doubts about the stability of the third cognitive-distortion dimension. Thus, doubts have arisen about the types of statistical methodologies appropriate for use in determining the empirical structure of the HGSHS.

STATISTICAL CONSIDERATIONS CONCERNING THE STRUCTURE OF THE HGSHS

That there is a recognised, published structure to the Harvard scale is well documented in the hypnosis literature. In *Hypnotic Susceptibility*, Hilgard (1965) discusses in some detail the source and types of items in the Harvard scale and reasons for selecting items for this scale from the Stanford Hypnotic Susceptibility Scale (Weitzenhoffer & Hilgard, 1959, 1962). Shor and Orne (1962), when later creating the HGSHS for group administration, chose similar items and dimensions to the SHSS. However, while the SHSS and the HGSHS still seem quite relevant to the task of measuring hypnotic suggestibility, having withstood the passage of time reasonably well, it should be recognised that both of these instruments are now between 38 and 41 years old, the original norms may no longer be appropriate, and the contribution of items to factorial structure may well have changed markedly.

It seems appropriate, at this juncture, to consider the statistical methodologies used to empirically confirm the theoretical structure of the HGSHS:A, as this could markedly affect statistical analyses based on that structure. In some statistical analyses, for example, regression analyses, it might be appropriate to use both the hypnosis scale total score and the total scores of items contained within the published ideomotor, challenge, and cognitive-distortion dimensions. Alternatively, it might be appropriate to use participants' factor scores as predictors in relation to other salient variables. Under such circumstances the statistical methodologies used to determine dimensional or factor structure become of vital importance.

While sample size is an important consideration (in a sample size of greater than 480, about 20 subjects per item of the HGSHS is considered "very good": Tabachnick & Fidell, 1996, p. 640) the use of different statistical methodologies can also influence the number of factors extracted and the item composition of those factors. For instance, early structural analysis studies of HGSHS showed some variability in the number of factors extracted by Principal Components Analysis (PCA). Studies by Coe and Sarbin (1971) and Peters, Dhanens, Lundy, and Landy (1974), both extracted three factors (though the later study omitted the suggested amnesia item). However, McConkey and colleagues' (1980) structural analysis of the HGSHS using PCA followed by Varimax rotation confirmed Hilgard's (1965) dimensions but, as mentioned earlier, reported doubts about the stability of the third cognitive-distortion/delusory dimension when using the Alpha Factor Extraction (AFE) with Varimax rotation methodology. In a recent even larger study ($N = 4,752$) testing Australian student volunteers, McConkey, Barnier, MacCallum, and Bishop (1996) once again confirmed the three-factor structure of the HGSHS using the PCA plus Varimax rotation method only. The Tellegen and Atkinson (1976) study, using a revised 7-item version of the HGSHS, extracted only two factors but, considering all items from the cognitive distortion/delusory dimension were omitted, this was to be expected.

STRUCTURAL VARIABILITY OF THE HGSHS AND STATISTICAL TECHNIQUES

The relevance of the foregoing discussion is related to the structural variability, which can occur as the result of using one statistical methodology rather than another. For instance, within the hypnosis literature, the traditional method for determining scale structure, in the vast majority of empirical studies, is via PCA plus Varimax rotation on the dichotomously rated items of the HGSHS. As just mentioned, the McConkey et al. (1980) study, but not the McConkey et al. (1996) study, departed from this commonly accepted methodology in that, in addition to PCA, it also used AFE on items for which the Φ (Phi) coefficient had been obtained. These methodologies often produce quite different results.

For instance, the role of PCA (plus subsequent rotation) is to analyse variance, whereas Factor Analysis (FA), plus rotation, analyses covariance, or communality (Tabachnick & Fidell, 1996). Principal Components Analysis groups items together into components and mixes common, unique, and error variance within the components, but makes no assumptions with respect to underlying structure. The goal of PCA plus Varimax rotation, then, is to extract maximum variance from the data for each of the principal and subsequent components. Thus, PCA plus Varimax rotation has a tendency to over-estimate the amount of variance within the data compared with some other methodologies (Tabachnick & Fidell, 1996). On the other hand, according to McConkey et al. (1980), AFE “separates the variance of an item into common and unique components and then determines the factors defining the common variance among the items” (p. 169). Accordingly, we might expect to find the factor structures determined by the two methods (i.e., PCA and AFE with Varimax rotation) to be similar though not necessarily identical. In effect this is what occurred with the McConkey et al. (1980) study: Some items failed to load within the theoretical dimensions originally proposed by Hilgard (1965). It was for this reason that McConkey and colleagues (1980) drew attention to a possible instability in the third, cognitive-distortion dimension. This instability in the third dimension appears to have resurfaced in recent years even under the more lenient PCA methodology used in the recent study by McConkey et al. (1996).

Amongst other things, this structural instability in the third dimension raises questions about the nature of what is being measured by our standardised scales. The third cognitive/delusory dimension of the HGSHS contains items

— hallucination (item 9), amnesia (11) and post-hypnotic suggestion (12) — which for years have been considered the “very essence of hypnosis” (Bányai, 1991; Orne, 1959). If, in the future, more stringent statistical methodologies were used, for example, Maximum Likelihood (MLA) factor extraction, which uses population estimates for factor loadings, would Hilgard’s (1965) third dimension manage to stand at all? What then would become of the “very essence of hypnosis,” which this dimension is said to represent? Given the example of those studies that eliminated one or more of the cognitive distortion items, there seems to be a distinct risk of developing a measure of hypnosis that is psychometrically superior but that does not measure the core elements of hypnosis.

In view of these questions and the reputed complexity underlying the hypnotic experience, it can be argued that single-factor theories, for example, neo-dissociation theory (Hilgard, 1976) and sociocognitive theories (Spanos, 1991; Wagstaff, 1991) of hypnosis will inevitably fail to capture the full scope of hypnotic phenomena. If hypnosis is a complex multidimensional experience, it seems evident that the tasks used to measure it must reflect its complex, multidimensional profile. It was for this reason, to verify the multidimensional structure of the HGSHS, that the present study was undertaken.

AIM AND HYPOTHESIS

The aim of this section of this research is to determine the statistical structure of the HGSHS using both PCA and MLA factor analysis techniques upon items for which an estimate of continuous, rather than dichotomous, item rating has been made (using a tetrachoric correlation matrix). It is predicted that these methods will reveal the complex, multidimensional structure reported in studies by McConkey and colleagues (1980, 1996) and others (Ås & Lauer, 1962; Hammer et al., 1963; Hilgard, 1965; Tellegen & Atkinson, 1976). The Coe and Sarbin (1971) item difficulty hypothesis will be explored.

Method

Participants A total of 894 students (Psychology students from the University of Newcastle, Australia), with ages ranging from between 17 and 60 years ($M = 23.12$ years; $SD = 7.99$) participated in the hypnosis elements of this research. Forty-four of these student participants failed to record details of age and sex. The majority of participants received course credit, that is, about 1%

per hour, for experimental participation. Additionally, some Tertiary and Further Education students from the Hunter Institute of Technology ($n = 46$) were also tested.

Materials The Harvard Group Scale of Hypnotic Susceptibility: Form A comprises 12 subjectively rated, behavioural tasks. All items are rated dichotomously and are administered in the form of suggestions or counter suggestions during a standard hypnotic induction or, as in the case of item 12, dichotomously assessed by the experimenter. Items are categorised as direct ideomotor suggestions (items: 1, 2, 3, 7), where suggestions are presented to perform a specific movement, challenge suggestions (items: 4, 5, 6, 8, 10) where participants are asked to inhibit motor actions, and cognitive-distortion/delusory suggestions (items: 9, 11, 12).

Scoring of responses to HGSHS tasks largely follows the methods set by Shor and Orne (1963). Items 1 to 11 are awarded a score of 1 if participants are self-assessed as correctly responding to each behavioural criterion, that is, criterion A, described in the HGSHS:A response booklet. Participants were awarded a score of 0 if their responses failed to meet established behavioural criteria. For item 12, a post-hypnotic suggested amnesia task, participants were awarded a score of 1 if they initially recalled fewer than 3 tasks and later, following the reversibility cue, recalled 2 or more tasks (Kihlstrom & Register, 1984). Test-retest reliability of the HGSHS:A is reported as 0.82 with validity against other hypnotic measures of approximately 0.70 (Shor & Orne, 1963).

Procedure During this research project, each study included a live introduction and question session, which immediately preceded administration of HGSHS:A. Live introductory explanations and instructions for the completion of the Harvard Response Questionnaire, following the hypnotic induction, were administered in accordance with procedures described in the HGSHS manual. Because level of intonation in a hypnotist's voice has been found to affect hypnotisability (Griffis, 1994), a professionally produced and recorded version of the HGSHS hypnotic induction was employed to standardise presentation of all hypnotic inductions.

All statistical analyses were performed using STATISTICA Version 6.0 (Statsoft, 2000) for Windows. The dichotomously rated responses to HGSHS items were converted to a tetrachoric correlation matrix, using an iterative approximation methodology (Statsoft, 2000), to provide an estimate of continuousness. Finally, the positive or correct dichotomous responses to HGSHS items were counted and percentages were calculated against the total

sample ($N = 894$) participating in hypnosis. These percentages were then ranked and recorded in Table 1 to provide an indication of the difficulty level participants experienced during test administration. A Rasch (1960) analysis on the dichotomously rated HGSHS items (Linacre, 2003) is briefly noted and discussed.

Results

General Introductory Analyses In the process of investigating the structure of the HGSHS, the sample was divided on the basis of variables, SEX and STUDY, in order to examine differences in group response that may have existed. One-way analysis of variance using SEX as the independent variable and the HGSHS total score (HYPTOT) as the dependent variable found the mean score for females ($M = 7.4$; $SD = 2.8$) to be significantly greater ($F(1, 848) = 10.5, p = .001224$) than for males ($M = 6.5$; $SD = 3.1$). Analysis of variance using STUDY as the independent variable and HYPTOT as the

Table 1: HGSHS Rotated PCA and MLA Factor Solutions, Item Frequencies, and Rankings

No.	Item Description	PCA				MLA			Freq %	Rnk
		C1	C2	C3	C4	F1	F2	F3		
1	Head falling	-0.01	-0.62	-0.52	0.05	0.12	-0.06	0.56	78.9	4
2	Eyes closure	0.08	0.03	-0.85	0.16	-0.08	0.13	0.41	79.4	3
3	Hand lowering	-0.07	-0.69	-0.39	0.42	0.53	-0.04	0.83	80.5	1
4	Arm immobil'n	0.83	0.05	0.11	0.15	0.11	0.77	-0.17	56.3	8
5	Fingers lock	0.84	-0.32	0.10	0.01	0.14	0.72	0.04	72.7	5
6	Arm rigidity	0.87	0.12	0.08	-0.03	-0.03	0.82	-0.12	64.9	6
7	Hands moving	-0.07	-0.93	0.12	0.02	0.36	-0.10	0.46	79.5	2
8	Verbal inhib'n	0.87	0.13	-0.02	0.27	0.18	0.90	-0.02	58.1	7
9	Hallucination	-0.03	0.07	-0.13	-0.90	-0.73	-0.12	0.02	34.2	11
10	Eye catalepsy	0.84	0.10	-0.17	0.08	-0.03	0.84	0.08	55.6	9
11	Post-hyp. sugg.	-0.42	0.19	0.19	-0.69	-0.51	-0.46	-0.19	26.4	12
12	Amnesia	0.18	0.17	0.70	0.35	0.39	0.15	-0.65	34.7	10
Expl. variance		3.82	1.95	1.77	1.73	1.45	3.59	1.89		
Prop. of total		0.32	0.16	0.15	0.14	0.12	0.30	0.16		

Note: Loadings < 0.30 are emboldened. According to Tabachnick and Fidell (1996) loadings of 0.71 (50% overlapping variance) are considered “excellent”; 0.63 (40% overlapping variance) “very good”; 0.55 (30% overlapping variance) “good”; 0.45 (20% overlapping variance) “fair”, and 0.32 (10% overlapping variance) “poor” (p. 677). Loadings less than 0.32 are considered unreliable.

dependent variable found no significant main effect for STUDY. Pos hoc analysis showed no differences between studies: 1 ($M = 7.6$; $SD = 2.6$); 2 ($M = 7.3$; $SD = 2.9$); 3 ($M = 7.5$; $SD = 2.7$); 5 ($M = 7.5$; $SD = 2.9$), and 6 ($M = 7.2$; $SD = 2.9$). However, the mean for Study 4 ($M = 6.4$, $SD = 3.1$) was significantly lower ($F(5,888) = 3.4$, $p = .005224$) than for the other studies. With respect to the relationship between the HYP TOT score and the sample AGE, univariate regression found a small but significant negative relationship ($F(1,848) = 11.24$, $p = .00836$; $r = -0.1144$, $p = 0.001$) which accords with the findings of earlier research (Hilgard & Hilgard, 1975).

Pre-Conditions for the Structural Analyses of the HGSHS As indicated earlier, two main forms of analysis were used in this investigation: PCA and MLA. This was done to parallel, though not to exactly replicate, the earlier McConkey et al. (1980) study.

A tetrachoric correlation matrix of all items of the HGSHS (i.e., items HYP1 to HYP12) was formed and used for both PCA and MLA, and in the process the standardised Cronbach's Alpha internal consistency for the HGSHS was calculated and found to be a high 0.87. Component and factor extraction were on the basis of a convergence of the Scree Test (Cattel, 1966), eigenvalues ≥ 1.00 , and a non-significant Chi square (χ^2) goodness of fit statistic for the Maximum Likelihood Analysis.

Principal Components Analysis (PCA) A PCA followed by a Varimax rotation (PCAVR)¹ was performed on these data. Table 1, columns C1 to C4, provides the rotated loadings for this analysis. The Principal Component (C1) is a well-defined challenge item component comprising items 4, 5, 6, and 10, all loading very strongly, showing positive loadings greater than 0.8. Item 11, normally considered a cognitive distortion/delusory item, loaded negatively and weakly and shared common variance with Component 4 (C4).

Component 2 (C2) comprises ideomotor items 1, 3, and 7, loading negatively on this component, as well as item 5, a negatively loading weak challenge item which shares common variance with C1.

Component 3 (C3) comprises ideomotor item 2, which loads strongly on this component, and items 1 and 3, all of which load negatively and share common variance with C2. Item 12, a cognitive distortion/ delusory item, also loads moderately strongly and positively on C3.

Component 4 (C4) is nominally a cognitive distortion/delusory component.

¹ Throughout this paper all PCA were conducted using a Varimax rotation.

Item 9 loads strongly negatively on this component though items 11 and 12, both of which share common variance with C1 and C3, load (respectively) only moderately negative and weakly positive. Item 4, a challenge item, also loads weakly positive upon this component.

Maximum Likelihood Factor Analysis (MLA) An MLA followed by Varimax rotation (MLAVR)² was performed on these data. Table 1, columns F1 to F3, provides the rotated factor loadings for this analysis.

Factor 1 (F1) is a somewhat ill-defined cognitive distortion/delusory factor comprising cognitive items 9 and 11, both loading negatively and strongly to moderately strongly, respectively, and item 12 which loads weakly positive on this factor and shares common variance with Factor 3. Ideomotor items 3 and 7 also load positively on Factor 1, though they are moderately strong to weak.

Factor 2 is a well-defined challenge item factor with items 4, 5, 6, 8, and 10 all loading and very strongly positive (all load > 0.72). Item 11, a cognitive distortion/delusory item, loads moderately negative on this factor and shares common variance with Factor 1.

Factor 3 is a well-defined ideomotor factor with items 1, 2, 3, and 7 loading moderately to strongly positive. Item 12, a cognitive distortion/delusory item, also loads moderately strongly negative on this factor and shares common variance with F1.

Indicators of Response/Item Difficulty As noted earlier, Table 1 records the frequency of correct responses as a percentage and then ranks those percentages. This provides an indication of item difficulty. Thus, it may be seen that what are considered the easier ideomotor items, 1, 2, 3, and 7, are ranked 4, 3, 1, and 2, respectively, indicating that these items were most frequently responded to correctly with percentages of correct responding ranging from 80.5% to 78.9%. Similarly, the challenge items, 4, 5, 6, 8, and 10, considered by most researchers to be more difficult, are ranked by frequency as 8, 5, 6, 7, and 9, respectively, with percentages of correct responding ranging from 72.7% to 55.6%. Thus, these groupings of correct responses indicate that challenge items are less frequently responded to correctly compared with ideomotor items. Finally, the cognitive distortion/delusory items, 9, 11, and 12, were responded to correctly less frequently than all others, with rankings of 11, 12, and 10,

² Throughout this paper all MLA were conducted using a Varimax rotation.

respectively, and with percentages of correct responding ranging from 34.7% to 26.4%, compared with both other categories of items.

Table 2 provides an additional solution for both PCAVR and MLAVR, omitting cognitive distortion/delusory items 9, 11, and 12. This solution is readily interpreted with respect to the MLA analysis. However, for PCA two ideomotor components are still in evidence, sharing considerable variance. It should be noted that all items in this solution load positively.

DISCUSSION

The discussion to follow will first address the hypothesis and issues concerning expectancies with respect to the Harvard Group Scale of Hypnotic Susceptibility. Second, there will be discussion of relevant matters with respect to methodological issues. Directions for future research will be proposed.

Addressing the Hypothesis

It was hypothesised that the current investigation would confirm the multidimensional structure reported in studies by McConkey and colleagues (1980 1996) and others (Ås & Lauer, 1962; Hammer et al., 1963; Hilgard, 1965;

Table 2: HGSHS Rotated Factor Loadings for Principal Components (PCA) and Maximum Likelihood (MLA) Solutions (Omitting Cognitive Distortion Items: 9, 11, and 12)

No	Item Description	PCA			MLA	
		C1	C2	C3	F1	F2
1	Head falling forward	-0.04	0.64	0.55	-0.06	0.65
2	Eyes closure	0.06	0.06	0.93	0.09	0.31
3	Hand lowering	-0.02	0.80	0.30	-0.02	0.83
4	Arm immobilisation	0.84	-0.06	-0.10	0.78	-0.09
5	Fingers locked	0.83	0.29	-0.04	0.75	0.20
6	Arm rigidity	0.87	-0.14	-0.02	0.84	-0.13
7	Hands moving together	-0.05	0.91	-0.22	-0.10	0.67
8	Verbal inhibition	0.90	-0.09	0.06	0.89	-0.01
9	Fly hallucination					
10	Eye catalepsy	0.84	-0.08	0.21	0.82	0.02
11	Post-hypnotic suggestion					
12	Suggested amnesia					
	Explained variance	3.66	2.01	1.36	3.37	1.73
	Proportion of total	0.41	0.22	0.15	0.37	0.19

Tellegen & Atkinson, 1976). It was planned that the Coe and Sarbin (1971) item difficulty hypothesis would be explored.

As expected, from the results displayed in Table 1, the multidimensional structure of the HGSHS was confirmed by the Principal Components Analysis (PCA) solution, though not unequivocally. C1 and C4, which challenge and cognitive distortion/delusory dimensions, respectively, are quite well defined with the items that would normally be expected to load on their respective components, loading moderately to strong. However, C2 and C3, predominantly containing ideomotor items, are more problematic with item 12, a cognitive distortion/delusory item, loading strongly on C3. Table 2, omitting the cognitive distortion/delusory set of items, was clearer and easier to interpret; however, C2 and C3, containing ideomotor items, which would be expected to fall within the same theoretical dimension, failed to consolidate.

One possible interpretation of the shared variance between C2 and C3 in Table 1 is an effect of item 12 upon the solution. Item 12 is the only manipulated item in the HGSHS. It is subjectively interpreted by the experimenter on the basis of written responses by very relaxed participants who, for the most part, have very recently been hypnotised and who have only two minutes to make a sensible written response following the suggested amnesia cancellation cue, that is, "Now you can remember everything." Under such circumstances, participants may not have recovered alertness sufficiently nor have had the cognitive capacity to respond effectively to the task. Yet such an argument falls down when Table 2 is considered, as PCA C2 and C3 still fail to consolidate in spite of the omission of item 12. It is not clear why this should be so.

The traditional interpretation of multidimensionality, with respect to the HGSHS, is more clearly supported when the Maximum Likelihood with Varimax rotation (MLAVR) solution is considered (see Tables 1 and 2). There is little evidence of shared variance across factors, that is, Factors F1 and F2 in Table 2, and the interpretation of the theoretical dimensions these factors seem to represent is quite apparent. Difficulties in dimensional interpretation arise when cognitive distortion/delusory items are included (see Table 1), particularly post-hypnotic suggestion and suggested amnesia items, items 11 and 12, respectively. Yet responding to these variables, considered to be the "very essence of hypnosis" (e.g., Bányai, 1991; Orne, 1959) is the almost exclusive province of only the most highly hypnotisable few.

The ranking of response frequencies clearly shows that ideomotor items are

most frequently responded to correctly and presumably are the easiest items. It is readily apparent that challenge items are the next easiest set of items to respond to correctly, and cognitive distortion/delusory items are the most difficult. This set of group rankings as well as a Rasch Analysis performed (Linacre, 2003), supports Coe and Sarbin's (1971) item difficulty hypothesis. This finding is at odds with the findings of earlier hypnosis research (McConkey et al., 1980; Tellegen & Atkinson, 1976).

With respect to the difficulty factors hypothesis, despite criticisms by Weitzenhoffer (1980), Hilgard (1981) readily affirms that his original design intention for the Stanford scales was to provide groupings of easy suggestions that many individuals, though not all, could pass, and groupings of difficult suggestion items, so that the scale discriminated between high and non-hypnotisable. In that design context, Tellegen and Atkinson (1976) and McConkey and colleagues (1980) maintain that the multifactorial complexity of the HGSHS is due, not to the clustering of items of like difficulty, but to an inherent, characteristic multidimensionality. The result of the current research suggests otherwise.

Methodological Issues and Future Research

Much of the present argument in hypnosis research concerning dimensional complexity and difficulty factors arises from commonly used and accepted statistical procedures, for example, Principal Components Analysis (PCA). The vast majority of the literature has used, and continues to use, this form of analysis on dichotomously rated HGSHS items to determine structure, complexity, and multidimensionality. Yet, as Tabachnick and Fidell (1996) point out, the very nature of dichotomous variables, having only two points, limits analysis to relationships based upon assumptions of linearity, for example, correlation and linear regression, and thus may fail to adequately reveal multidimensionality.

There is an even more difficult issue in the quest to understand the nature of hypnosis. In the preceding analysis attention was given to examining the HGSHS in detail. The aim was to determine important psychometric properties of the scale, in particular, the major coherent dimensions that the scale addresses. The examination was conducted against the backdrop of earlier theories about the nature of hypnosis. However, an understanding of the way the HGSHS items cluster together has to do with issues of the mechanics of the scale. The information gathered does not really address

the theoretical issue of what hypnosis is about. Certainly we may have a better idea of what the HGSHS is about, but this is not necessarily the same thing.

While the issues of complexity and multidimensionality are important, they are less important than the issue of: What is the phenomenon of hypnosis itself? If, as Hilgard (1981) argues, hypnosis is not merely suggestibility, *imaginative suggestibility* as Kirsch (1997) prefers to label it, but something much more, then both the SSHS and the HGSHS need also to be able to measure the domain of hypnosis (Evans, 2000) that is more than suggestion. According to Braffman and Kirsch (1999; Kirsch & Braffman, 2001), the broader domain of hypnosis beyond suggestion includes such variables as response expectancy, attitudes towards hypnosis, fantasy-proneness, and absorption. In addition to suggestion and expectancies, Evans (2000) includes such characteristics as dissociation, trance logic, and flexible control of consciousness. Others, doubtless, would include involuntariness, amnesia, analgesia, and delusion in such a domain of hypnosis. We may also need to include other variables relating to the phenomenology of consciousness (Pekala, 1982; Pekala & Levine, 1981), cognitive flexibility (Crawford, 1989), and brain states (Mészáros, Crawford, Szabó, Nagy-Kovács, & Révész, 1989), as well as bio-physiological factors (Bányai, 1991), neuro-chemistry and, of course, individual differences in personality. All of these factors, and more, go together to form the broad multidimensionality that is hypnosis.

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RECIPE FOR A MIRACLE: DETERMINATION, OPTIMISM, MEDICAL TECHNOLOGY, AND HYPNOSIS IN IVF

Susan Hutchinson-Phillips

Psychologist

Involuntary childlessness is now commonly treated using in-vitro fertilisation (IVF) programmes, although the process involved is usually a long and frustrating one for the couples involved, with a four to five year wait for successful pregnancy for most. Hypnosis has traditionally been used in childbirth to assist in relaxation and to enhance perceptions of control, both of which can be negatively impacted during the course of IVF procedures. However, literature regarding use of hypnosis to assist in cases of infertility is almost non-existent. Success using hypnosis as an adjunct to IVF procedures in the following case suggests that its use in this area could be beneficial to those who through diagnosable or idiopathic reasons are unable to conceive naturally.

Infertility is diagnosed when couples are unable to conceive a child after a year of normal sexual relations (Diamond, Kezur, Meyers, Scharf, & Weinschel, 1999). The term primary infertility is applied when couples have never had a child, while secondary infertility describes couples who have previously produced offspring but who are currently unable to do so. It is estimated that 10% of all married couples in the U.S.A. have been involuntarily childless over the last 25 years (Berger, Goldstein, & Fuerst, 1995). Mosher and Pratt (1990, in Diamond et al., 1999) found that for women over 40 the infertility rate is as high as 45%. With infertile couples, up to 90% result from diagnosable male and female factors, while 10% are medically inexplicable (Marrs, 1997, in Diamond et al., 1999).

While there is a substantial literature regarding possible therapy with involuntary childlessness (e.g., Cooper-Hilbert, 1998; Deveraux & Hammerman,

1998), little has been written about the use of hypnosis in working with such couples. Diamond et al. (1999) and Mikesell (2000) noted the use of relaxation by Domar, Seibel, and Benson (1990) in assisting infertile women to cope with stressful infertility treatments. Their study reported a higher percentage of patients achieving pregnancy as a result of a 10-session cognitive-behavioural programme which emphasised a relaxation response model, compared with similar clients who did not attend such a course.

Mikesell (2000) noted that recent trends in psychosocial care in IVF treatment programmes now emphasise the mind-body connection, but cautioned that understanding emotional responses to involuntary childlessness and the roller-coaster process of assisted reproductive technologies (ART) is important. Such treatments place stress on the relationship between the couple and take a toll on the woman's emotional and physical wellbeing. Research connecting psychological distress and infertility is difficult to find, because there has been no discrimination between anatomic, endocrine, and idiopathic causes of infertility in such studies. However, the literature does emphasise the combination of despair and loss of hope as the treatment period lengthens, and the negative impact on self-esteem and general wellbeing which affects the female member of the couple. Often, Mikesell noted, women were told that pregnancy would occur if the woman could *just relax*. Her own experience (Mikesell & Stoner, 1995, cited in Mikesell, 2000) indicates the usefulness of self-hypnosis and relaxation as a means of reducing anxiety and physiological stress related to painful and invasive medical procedures. She cited work by Zolbrod (1993) in successfully using imagery with this population to visualise coping with such treatment procedures.

Gravitz (1995) reviewed the existing literature, noting case studies that reported the usefulness of hypnotic interventions with infertility, and speculated that muscular relaxation may have been part of the reason for such successes. His own documented cases suggested that somatic function may also have changed as a result of hypnosis, allowing pregnancy to occur.

This meagre literature suggests that relaxation and coping strategies for invasive medical procedures may be helpful for women who are undergoing ART, especially when the treatment has been protracted. Such clients may benefit from messages that enhance self-esteem and target feelings of control, competence and general wellbeing.

CASE STUDY

Ivan, aged 51, and Lydia, aged 45, were referred by a colleague, requesting “relaxation techniques” to help Lydia undergo a final IVF procedure. Some 16 previous attempts had all resulted in failure. They were a couple who had met later in life, and who had families with other partners. Lydia had four children (ranging in age from 16 to 26 years of age) and Ivan had six children (age range 16 to 32 years). All these children were either living independently or had remained with the previous partners, although contact with all children was maintained and included periods of residence with Lydia and Ivan. Both felt that it would be a wonderful symbol of their love to parent a child together.

Their quest had been long and difficult, having spanned five years and two continents. Legally unable to obtain donors in Australia, they had been able to find a female donor in the U.S.A. Their efforts to conceive were fruitless, and finally Lydia was diagnosed with “sticky blood,” which meant that her blood was too thick to allow insemination. Injections of blood thinning medication were prescribed to address this problem.

When I was consulted, they had only three eggs remaining, and this was to be their last attempt at fertilisation. Therefore there was much psychological and emotional pressure involved, as they had made considerable investments of time, money, emotional and physical pain in the success of the IVF programme. Additionally, the preceding several months had been difficult ones as the result of several family deaths and problems with one of Ivan’s children.

Rationale for Use of Hypnosis

After discussion with Ivan and Lydia, it became apparent that these were two people who were very self-aware and extremely supportive of each other in what had been a fairly traumatic period of their lives. Lydia described the tension she felt with each IVF procedure and was sure that she would be better prepared to face this final episode if she could learn self-hypnosis. They described having bought a relaxation tape which they had played, and both of them had gone to sleep long before the tape ended each time, so it was likely that they were fairly susceptible. Progressive muscle relaxation was the focus of this tape, and they had both enjoyed this.

Their knowledge of hypnosis and what it involved seemed to suggest that their belief was grounded in their experience of relaxation procedures. As

Gravitz (1995) noted, hypnosis is a benign modality, therefore a positive outcome would be the fulfilment of this couple's dream, and a lack of success would have no deleterious effects. The recommendations given by Mikesell (2000) likewise suggested that increasing feelings of relaxation and competence during the procedure, as well as reminding Lydia of her former success in conception and childbearing, should also contribute to a successful outcome. Self-hypnosis is a skill that can be usefully employed in a large number of tension- or anxiety-producing situations. The fact that it was Lydia's belief that this would be helpful augured well for raising her expectations of success in the IVF enterprise.

Session 1

To further reinforce this expectancy, I first administered Patrick McCarthy's "tea pot test" of hypnotic susceptibility (2000, personal communication). This is a simple imagery experience of making tea and drinking it, which exploits the person's ability to see, hear, taste, and feel as well as to assess whether the person prefers to dissociate or to remain present in a mentally pictured series of activities. Because it is simple and effective, it can be used to highlight the imaginative talents that the person brings to the exercise.

Both Ivan and Lydia joined in this activity, and thoroughly enjoyed it. Lydia was able to generate very convincing imagery in all modalities, and appeared to enjoy the dissociative qualities involved. They both rated their relaxation level at around 7.5 out of 10. I congratulated her on her excellent hypnotic abilities and told her that it augured well in using this skill for her IVF procedure.

General information about preferences and enjoyable activities was gathered as a basis for the script I planned for the next session. As well, I had Lydia describe the details of the IVF procedure, her usual mode of transport to the clinic, Ivan's part in the situation, and the general time frame at which we were looking.

Session 2

The second session was postponed because of an interstate funeral that the couple had to attend. Lydia told me that this had been quite a stressful event for her, but that she had "made a pot of tea" during the funeral and found that this had helped her to relax. She was very impressed with her skill in helping herself to cope so well with this anxiety and tension.

Lydia responded well to an induction which focused on comfort, tranquillity, and relaxation followed by progressive muscle relaxation. Deepening was achieved by counting from 20 to 1. Because Lydia had been so thrilled with Patrick McCarthy's methods, I continued to use his techniques as part of this second session. We established her own safe and comfortable place, and I guided Lydia through some methods for producing both anaesthesia and dissociation. In the remainder of the hypnosis session, she was told that as soon as she got in the car to go to the clinic, she would find herself moving into a very relaxed and pleasant hypnotic state, which would deepen every time Ivan spoke to her. I suggested that she might find herself going to some of the places she and Ivan had visited on their honeymoon, and various other overseas trips, when the procedure began.

Time distortion was also suggested, as well as the idea of seeing herself as though in a movie or on TV as the procedure continued. The idea that her body already knew how to become pregnant and to carry a baby to term was likened to other natural phenomena, especially those connected with beaches and the ocean which held very pleasant and joyous memories for her.

Ideomotor signals were established to check with her unconscious that we had done all that was needed to ensure that Lydia was prepared for her next IVF experience. The unconscious signalled that we had covered all that was needed. A reverse count from 1 to 20 was used to end the trance experience.

Session 3

The third session with Lydia was held eight months after the second session, with the purpose of discussing the kind of hypnotic experience that might be most beneficial to her during the birth of her son. She told me how very helpful she had found the work we had done together. She still listened to the tape we made then, and found it useful. For example, she had used the anaesthesia techniques to assist her when she had headaches, so that she did not need to take drugs.

She described her last trip to the IVF clinic and how she had dropped off into a deep trance on the trip in the car, as soon as Ivan had started talking to her. Her ability to relax her muscles and let go of tension had really amazed her. She believed that the hypnosis had been a major factor in her ability to conceive this last and most important delivery. The ability to "go to the beach" had been very helpful to her in many stressful moments, and she used it to great effect on this occasion.

Session 4

Currently we are preparing the script Lydia would like to use for the birth of her son. She is very enthusiastic about using hypnosis to make the birth of her last child a satisfying and empowering experience. She is in the process of developing a “book of memories” for this “precious bundle” to read when he is of an age to appreciate how very much he was wanted and to document the contributors to his longed-for appearance on this earth.

CONCLUSION

Obviously the contributions to the conception and birth of this much-wanted child have been legion. The medical profession has been of inestimable help not only in making IVF available to childless couples but also in making specific diagnoses regarding the exact issue which was preventing pregnancy for Lydia. The dedication of this couple to a process that involved physical pain, emotional and psychological stress, and maintaining hope when it seemed hopeless, has been a major contributor. But it would be very interesting to know just what part hypnosis played in the successful IVF outcome. Lydia believed it had been extremely helpful.

Given her apparent self-awareness and her ability to communicate with her own body and understand the need for hypnotic relaxation, Lydia’s contention probably has the ring of truth. Scientific exploration of the validity of her belief might generate optimism for the many couples whose sole hope of having children is to use such an IVF process. Having suggested a role for hypnosis in assisting childless couples, the mechanisms for its contributions, (e.g. relaxation, changes in somatic function, or expectancy) can then be investigated.

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PERSONALITY CHARACTERISTICS, BELIEFS, AND THE NEAR-DEATH EXPERIENCE

Kathryn Gow

Queensland University of Technology

Adam Lane

Queensland University of Technology

David Chant

University of Queensland

This study attempted to address the psychological correlates of near-death experience (NDE) reports. A sample of 239 participants (30 NDE experiencers, 120 NDE believers, and 89 controls) was drawn from the general population. Participants were assessed on the variables of fantasy proneness, paranormal beliefs, spiritual beliefs, and the intuition and feeling personality dimensions of the Myers-Briggs Type Indicator. NDE experiencers were assessed separately on the NDE scale, and experiencers' qualitative accounts of the NDE were also assessed. Experiencers differed significantly from controls on the variables of fantasy proneness, as measured by the Inventory of Childhood Memories and Imaginings, and paranormal beliefs, as measured by the Paranormal Beliefs Scale. The findings showed that experiencers and believers differed significantly on feeling preference of the Myers-Briggs Type Indicator. Believers differed significantly from controls on all of the variables.

BACKGROUND TO THIS RESEARCH

Work by Gow and co-researchers on the relationship between fantasy proneness, paranormal belief, personality characteristics, and anomalous experiences has led to some evidence that anomalous experiencers in their

reports on past lives (Robertson & Gow, 1999) and alien abductions (Gow et al., 2001) score more highly on fantasy proneness, paranormal beliefs, and certain dimensions of the Myers–Briggs Personality typologies than believers and non-believers in these specific anomalous experiences.

While alien abductions and past lives may be perceived as exotic experiences, it is currently more commonly accepted that persons who report near-death experiences are more likely to be experiencing a spiritual state, rather than an exotic state (Parnia & Fenwick, 2002). Thus it would be expected that in addition to the measurement of paranormal belief, fantasy proneness, and personality characteristics, the assessment of a person's spiritual beliefs should add some clarification to the quandary as to why some people, who have had close encounters with death, report such experiences and others do not.

Near-Death Experiences

The near-death experience (NDE), “a profound psychological event with transcendental or mystical elements typically occurring to individuals close to death” (Greyson, 1985), has been the subject of considerable interest from the early days of written history. Religions such as Christianity, Hinduism, Buddhism as well as the faiths of many indigenous populations have perceived visions at death or of the very ill as being important signs of an afterlife or as a trigger for significant life changes (DeSpelder & Strickland, 1987).

Raymond Moody is credited as the first researcher to undertake an analysis of NDEs based on the reports from experiencers. Although far from a scientific study itself, due primarily to the absence of sampling procedures and statistical analysis, Moody's *Life After Life* (1975) opened a Pandora's box with several studies following his work in the analysis of NDEs (Ring, 1980). The bulk of research in this field of inquiry has been spent on defining the experience itself and analysing the demographic variables that are consistent among NDE experiencers. These studies have resulted in classification of NDEs along a 5-stage continuum: firstly feelings of peace; secondly a sense of detachment from the body, out-of-body experience (OBE); thirdly entering a transitional world or tunnel; fourthly emerging into a bright light; and finally entering the bright light (Ring, 1980).

Fantasy Proneness and Near-Death Experience

Wilson and Barber (1981) identified the fantasy prone personality through an intensive interview study of a group of female participants who were highly hypnotisable and reported experiencing great vividness in imagination. These participants exhibited a unique constellation of personality traits and experiences, primarily an extensive, deep and regular involvement in fantasy, psychic, and out-of-body experiences, the ability to relive past experiences, the ability to hallucinate objects or fully experience objects with their senses such as orgasming through fantasising, and the occasional difficulty in differentiating reality from fantasy (Fellows & Wright, 1989; Rhue & Lynn, 1987; Siuta, 1990).

In Ring and Rosing's (1990) Omega Project, the Childhood Experiences Inventory (CEI) was employed to measure if fantasy proneness relates to near-death experiences and unidentified flying object (UFO) encounters. It was hypothesised that NDE and UFO experiencers would score higher on the measure of fantasy proneness, via the CEI. The results did not support the hypothesis, as the scores on the CEI alone were not adequate in differentiating between control participants, those who had not experienced an NDE or UFO encounter, and either the NDE or UFO experiencers. Ring and Rosing also measured participants on other scales relating to absorption and preoccupation with fantasy with the Sensitivity to Alternative Realities Scale and Childhood Psychic Experiences Scale. The results suggested that fantasises are predisposed to believe in "nonordinary realities," such as NDEs and UFO encounters. Furthermore Ring and Rosing argued that the attraction to fantasy type beliefs is acquired in early childhood, essentially the same preposition as argued by Lynn and Rhue (1988).

Paranormal Beliefs and Near-Death Experience

As indicated at the beginning of this article, there is considerable evidence that a relationship exists between the variables of paranormal belief and fantasy proneness. This relationship between paranormal beliefs and fantasy proneness appears to exist both in the general population (e.g., Irwin, 1990) and within several specific paranormal phenomena. Irwin tested 92 psychology students on fantasy proneness and paranormal beliefs scale and discovered significant regression statistics for fantasy proneness and the total Revised Paranormal Beliefs Scale, as well as for all of the subscales of the Revised Paranormal Beliefs Scale, with the exception of the superstition subscale. Irwin argued that

these results confirm a mediation effect of paranormal belief on fantasy proneness.

Gow et al. (2001) analysed participants who reported being abducted by, making contact with, or seeing a UFO, along with people who had experienced no exposure to UFOs, to test paranormal belief and fantasy proneness. A significant correlation between scores on the ICMI (Wilson & Barber, 1983) and the total Paranormal Beliefs Scale (PBS) (Tobacyk & Milford, 1983) was found ($p < .001$). A significant correlation was also found between fantasy proneness and each of the subscales of the PBS, with the exception of traditional religious beliefs.

Although there has not been a detailed analysis of NDEs and paranormal belief, there is some evidence for an increase in paranormal beliefs following an NDE (e.g., Groth-Marnat & Summers, 1998). Furthermore, several studies have examined paranormal beliefs and several individual phenomena often experienced during NDEs, for example, out-of-body experiences (OBEs) (Tobacyk & Mitchell, 1987) and future premonitions (Tobacyk, 1991). In each study, Tobacyk and his colleagues found significant correlations between scores on the total PBS and the occurrence of the specific phenomena: OBEs and future premonitions.

Belief in paranormal phenomena also appears to be influenced by the participant's age. Tobacyk, Pritchett, and Mitchell (1988) compared scores on the PBS in elderly participants (mean age 68.3 years) with a random sample of university students. The results indicated a significantly higher paranormal belief score on the total PBS in the university student group as compared to the elderly participants; the university students also significantly outscored the elderly group on all of the PBS subscales ($p < .05$) with the exception of traditional religious beliefs. Tobacyk et al. believed that these results possibly reflected the current media time devoted to paranormal subject matter watched by the university students that were not available when the elderly participants were younger. This finding has relevance for the present study, as the majority of NDE experiencers are over the age of 25 years, and a significant number belong to the older age bracket (see Locke & Shontz, 1983; Groth-Marnat & Schumaker, 1989).

Spiritual Beliefs and Near-Death Experience

Visions of the personification of God or symbolic representations interpreted as God, such as a bright light, are frequent among Christian NDE survivors.

However, NDE visions appear to be culturally specific; that is, experiencers who belong to the Buddhist faith often describe a sense of great wisdom, compassion, and joy accompanied by bright light, an analogy often used for Buddha (Albery, Elliot, & Elliot, 1993; Berger et al., 1989) while experiencers of Hindu faith often report seeing Shiva or Krishna (Berger et al., 1989).

It is perhaps due to the spiritual elements of the NDE that experiencers often report an increase in their feelings of the importance of spirituality following the NDE. Ring (1980) used a reflective pre- and post-critical incident design to assess differences in religiousness, defined as the profound belief in the spirit existing in all human beings and belief in eternal life beyond our earthly existence and not necessarily a belief in God, in near-death experiencers and non-experiencers. Ring discovered an increase in religiousness following near-death experiences in both NDE experiencers and non-experiencers; however, this effect was significantly greater for the experiencers over the non-experiencers ($F(1, 92) = 4.65, p < .05$). Not surprisingly, Ring's experiencers reported a significantly greater increase in their belief in an afterlife, following their NDE than did non-experiencers ($F(1, 91) = 25.60, p < .001$). Furthermore, Ring (1984) and Sutherland (1992) discovered decreases in belief in organised or traditional religion following an NDE, while spirituality or new-age beliefs were found to increase in experiencers.

Ring's (1980) research displayed a relationship between spiritual belief and NDE; after experiencing an NDE, spirituality was shown to increase. One question that remains unanswered by that research is how does one's beliefs influence the chance of an NDE? It could be suggested that the trauma that leads to an NDE might trigger a religious experience in a person who is only slightly religious (Holland et al., 1998) resulting in the symbolic religious images often experienced during the NDE. If so, the greater one's religious or spiritual beliefs, the greater depth of NDE would be expected, for example, as measured by the Near-Death Experience Scale (Greyson, 1983). The evidence from past studies does not appear to support this assertion.

Ring (1980) interviewed experiencers and non-experiencers, asking them to report their pre-NDE religiousness (spirituality). The aim of the interviews was to analyse whether the strength of faith was correlated to depth of NDE. Correlations between $-.01$ and $-.08$ were discovered. These results suggest no relationship between religiousness and the potential for NDE or depth of experience. It must be pointed out that the interview design utilised by Ring

was very basic and previously untested, and therefore there are potentially validity and reliability constraints on the data.

Personality and Near-Death Experiences

In the NDE literature, there has been limited analysis of personality type and the possibility of a relationship with NDEs. One of the few studies to address this issue was conducted by Grosso (1984), who analysed NDEs within the framework of Jungian archetypes. Grosso argued that the existence of an NDE archetype, which he labelled archetype of death and enlightenment, could be exhibited in many situations with biological death being only one extreme, while other situations could be hypnosis or drug use. Others studies have discovered that the openness, diversity of interests, and innovativeness aspects of the Jackson Personality Inventory are related to the OBE, a phenomenon sometimes experienced during NDE (Myers, Austrin, Grisso, & Nickeson, 1983).

ESP belief (defined as clairvoyance, telepathy, and precognition) has been found to be significantly positively correlated with the feeling dimension and negatively correlated with the thinking dimension of the Myers-Briggs Type Indicator (Murphy & Lester, 1976). Lester, Thinschmidt, and Trautman (1987) found significant correlations between the feeling dimension of the MBTI and the psi and precognition subscales of the PBS (Tobacyk & Milford, 1983). The strongest set of correlations existed for the intuition scores on the MBTI and the psi, witchcraft, spiritualism, and precognition subscales of the PBS. In their study of UFO experience, Gow et al. (2001) found significant correlations between the feeling preference of the MBTI and the spiritualism, psi, precognition, and witchcraft subscales of the PBS. If near-death reporters are considered to be in an out-of-body state, such as suggested by Myers et al. (1983) and Grosso (1984), then these correlations, that suggested a relationship between paranormal belief and personality type, may, but do not necessarily, indicate a positive relationship between such personality characteristics and near-death reporters.

It was not the intention of this study to indicate direction or causality between the variables under study, but rather to extend the exploration of the role of fantasy proneness, paranormal belief, personality characteristics, and here in particular, spiritual beliefs, in the reporting of anomalous experiences.

HYPOTHESES

It was expected that:

1. For all subjects, scores on the ICMI would be significantly correlated with scores on the total PBS and the majority of subscales of the PBS.
2. NDE experiencers would score significantly higher on the variables of fantasy proneness and paranormal belief than believers and non-believers (controls). Furthermore, experiencers would significantly differ from controls on all subscales of the PBS with the exception of traditional religious belief.
3. Consistent with Ring's (1980) findings, NDE subjects would report significantly higher scores on the Spiritual Belief Inventory than either believers or controls.
4. The intuition preference of the MBTI would correlate with the psi, witchcraft, spiritualism, and precognition scores of the PBS as found by Gow et al (2001) and Gow and Robertson (1999). Furthermore it was predicted that, consistent with the findings of Murphy and Lester (1976), scores on the feeling dimension of the MBTI would correlate with the precognition subscale of the PBS (which includes ESP).
5. High scorers on the NDE scale would report greater religious symbolism in the qualitative accounts of their experience, than low scorers.

METHOD

Design

A between-subjects design was conducted in the present study. Participants were assigned membership to either experiencer, believer, or control groups based on their response to three questions relating to near death. Those who held a belief that an afterlife could be experienced as an NDE were categorised as a believer, but if not were classified as non-believers and became the control group, while those who reported an NDE experience (in addition to believing that this was possible) were assigned to the experiencer category. Participants were assessed on four dependant variables of fantasy proneness, paranormal beliefs, personality type, and spirituality, while their completion of the NDE scale yielded more information about the nature of the NDE for those in the experiencer group.

Participants

A sample of 239 participants, 89 males and 150 females, ($M = 44$ years, $SD = 14.43$) was drawn from the general population of Brisbane City and surrounding areas (Queensland, Australia). Survey areas were selected based on socioeconomic representativeness from the general population, and verification was sought through employment type reported on the bioinformation sheet. Consistent with NDE literature (Groth-Marnat & Schumaker, 1989; Locke & Shontz, 1983), a minimum age of 25 years was set as a requirement for participation in this study, so as to increase the potential of a significant number of participants having experienced an NDE. A further requirement for participation in this study was that the participant should not be consulting a medical practitioner or taking psychotropic medication at the time of the study or immediately prior to participating in the study.

The majority of participants reported that Australia was their country of origin (Australia 75.7%, New Zealand 0.8%, Great Britain [excluding Ireland] 6.7%, Ireland 1.7%, Italy 0.8%, mainland Europe 3.3%, China 2.5%, America 0.4%, South Africa 2.1%, Indian subcontinent 2.1%, and Africa 5.0%). Australian was also the most common nationality (Australian 86.2%, New Zealand 3.3%, Great Britain [excluding Ireland] 5.0%, Ireland 1.3%, Italy 0.4%, mainland Europe 1.7%, Chinese 0.8%, Indian subcontinent 0.8%, and American 0.4%). Education level data revealed a fairly representative distribution (primary school 1.7%; high school or equivalent, grade 8 2.5%, grade 9 2.9%, grade 10 10.0%, grade 11 4.2%, grade 12 15.9%, TAFE and vocational education 26.3%, university 25.1%, and postgraduate degree 11.3%). Occupational data was broken into seven categories (professional 40.6%, semiprofessional [including small business] 16.7%, tradesperson and service industry 7.9%, student 5.9%, unemployed 18.4%, and retiree 10.5%). Religious or philosophical beliefs held as a child were fairly representative of the population (none 13.8%, Christian 75.3%, agnostic 6.3%, atheist 0.8%, Buddhist 2.1%, alternative/new-age 0.4%, and unsure 0.4%). Current religious or philosophical beliefs were also fairly representative of the general population (none 20.9%, Christian 49.0%, agnostic 17.6%, atheist 2.9%, Buddhist 1.3%, alternative/new-age 2.9%, unsure 1.7%, and Islamic 2.5%).

Thirty participants (M age = 46.50, $SD = 15.23$) identified themselves as NDE experiencers, 120 participants (M age = 41.35, $SD = 12.59$) reported that they believed that an afterlife could be experienced through an NDE (believers), and 89 participants (M age = 46.34, $SD = 15.34$) said that they did not believe that an afterlife could be experienced as an NDE (controls).

Materials

The questionnaires, consent form, and information sheet were divided into two booklets. Booklet one consisted of an information sheet and consent form. The second booklet consisted of an instruction sheet, bioinformation sheet, the Inventory of Childhood Memories and Imagining (ICMI) (Wilson & Barber, 1983), the Paranormal Belief Scale (PBS) (Tobacyk & Milford, 1983), Spiritual Belief Inventory (SBI-15R) (Holland et al., 1998), the Myers-Briggs Type Indicator (MBTI) (Myers, 1962) and the Near-Death Experience Scale (Greyson, 1983). A quasi-Latin square design (Keppel, 1991) was utilised to control for sequencing effects by randomising the presentation order of the ICMI, PBS, SBI-15R, and the MBTI. The instruction sheet and bioinformation sheet were presented first in all booklets and the NDE scale was presented last in all test booklets.

The purpose of the bioinformation sheet was to assess the characteristics of the participants, that is, their age, sex, education level, occupation, nationality, ethnicity, and religious/spiritual beliefs both past and present. The bioinformation sheet also asked participants if they believed in an afterlife, if they believed that an afterlife could be experienced as an NDE, and if they had ever experienced an NDE. Responses to these questions were utilised to differentiate between control, NDE believer, and NDE experiencer groups.

The ICMI was designed to test the percentage of adults who remember themselves as being very imaginative as children, what types of imaginings and fantasies could be remembered from childhood, and the extent of adult functioning that would be affected by childhood imagination experiences. The 52-item, true-false, self-report questionnaire measures elements of absorption and vividness of imagination and fantasies. This is qualified by a significant correlation with the Tellegen-Atkinson Absorption Scale ($r = .81, p < .001$, Rhue & Lynn, 1987), the Creative Imaginative Scale ($r = .30, p < .001$, Rhue and Lynn, 1987) and the Bretts Vividness of Imagery Scale ($r = .31, p < .001$, Rhue & Lynn, 1987). Test-retest reliability correlations of the ICMI, at intervals of between 2 and 10 days, ranges from .87 to .97 (Lynn, Nash, Rhue, Frauman, & Sweeney, 1982).

The PBS is a 25-item self-report questionnaire designed to assess belief in paranormal phenomena. The items are distributed into seven subscales: traditional religious beliefs (e.g. "there is a devil"), psi belief (e.g., "psychokinesis does exist"), witchcraft (e.g., "witches do exist"), superstition (e.g., "the number thirteen is unlucky"), spiritualism (e.g., "reincarnation does occur"),

extraordinary life forms (e.g., “big foot exists”), and precognition (e.g., “some people have the ability to predict the future”). To test construct validity, Tobacyk and Milford (1983) found moderate but significant correlations between subscales of the PBS and similar individual tests with the exception of precognition. Tobacyk and Milford showed test–retest reliability over a four week interval for the entire scale to be .89, and for the individual subtests the correlations ranged from .60 to .87 at the same interval ranging from precognition (.60) to psi belief (.84).

Holland et al. (1998) developed the Spiritual Belief Inventory – 15 Revised to assess the religious and spiritual beliefs and practices and the social support and encouragement derived from the community that share those beliefs. The 15-item self-report questionnaire reflects two factors, beliefs (factor loadings ranged from .60 to .87) and social support (factor loadings ranged from .60 to .83). Holland et al. reported that the test–retest reliability of the SBI-15R is .95. Significant convergent validity exists between the SBI-15R and two of the dominant spirituality indexes, the Index of Core Spiritual Experiences (.82) which reflects the individual’s orientation toward spiritual belief, and the Religious Orientation Inventory (.84) which measures the intrinsic and extrinsic religious orientation. Divergent validity appears to be maintained as there was no significant relationship between the SBI-15R and the Brief Symptom Inventory (-.004), a measure used to reflect psychological symptom patterns in psychiatric and medical patients, and the Medical Outcomes Study — Short Form (-.031), used to assess health concepts such as health preoccupations, role, and social functioning.

The Myers-Briggs Type Indicator (Myers, 1962) is a widely utilised test of personality type that has been acknowledged as helping in understanding learning style, leadership style, and suitability for occupations (Lanyon & Goodstein, 1997). The participants’ scores are separated along the dimensions of introversion–extraversion, sensing–intuition, thinking–feeling, and judging–perceiving. Myers and McCaulley (1985) reported test–retest reliability for a sample of more than 9,000 cases, with alpha coefficients ranging from .76 to .84 on the four continuous scales. In a series of studies, Thorne and Gough (1991, cited in Lanyon and Goodstein, 1997) found significant correlations between self-report instruments and MBTI scores, and there were also significant correlations between observer-rated scores and scores on the MBTI. Caution should be taken in generalising Thorne and Gough’s results, as the sample was drawn from a very specific population.

The NDE scale is a 16-item paper-and-pencil self-report questionnaire designed to assess and quantify the experience of NDE. Greyson (1983) suggests that the NDE scale is effective in discriminating between experiencers and non-experiencers of NDE, as well as discriminating between participants who experience hallucinatory experience similar to an NDE in patients suffering from organic brain syndromes and non-specific stress responses, not related to a severe life threatening event. The 16 items of the NDE scale are divided into four clusters: cognitive, affective, paranormal, and transcendental. The overall internal consistency of the four clusters is .88. The test-retest reliability of the NDE scale at 2- and 6-month intervals has been reported by Greyson (1983) as .92. The content and criterion validity has been assessed by correlating scores on the NDE scale with Ring's (1980) Weighted Core Experience Index at .90 and split-half reliability coefficient of .88 (Greyson, 1983). The divergent reliability of the NDE scale has been suggested by Groth-Marnat and Summers (1998), who found no significant correlation between the NDE scale and the Life Changes Questionnaires, an unrelated scale that measures changes along a variety of personal domains following a critical incident.

RESULTS

Data from 239 participants were screened for outliers, normality, linearity, homoscedasticity, and cell sizes and analysed using SPSS 10 (for Windows). As considerable differences between cell sizes existed, suitable corrections were made to avoid creating heterogeneity of variance and increasing the chance of type I errors (Tabachnick & Fidell, 1996). No other serious violations were found.

Correlations, Means, and Standard Deviations

Before the variables were analysed, self-report belief data were examined. There was a significant correlation between reported belief in an afterlife and belief that an afterlife could be experienced as an NDE ($r = .567, p < .01$). Interestingly, a significant negative correlation was discovered between participants who reported belief in an afterlife and the participants' scores on spiritual beliefs ($r = -.565, p < .01$).

Next, correlations, means, and standard deviations were examined on the total sample ($N = 239$) for the variables of fantasy proneness, paranormal

beliefs, spiritual beliefs, and the intuition and feeling personality preferences of the MBTI, as shown in Table 1.

There was significant intercorrelation among a number of the variables. Paranormal beliefs, fantasy proneness, intuition, and feeling dimensions of the MBTI were significantly intercorrelated. Spiritual beliefs, paranormal beliefs, and the feeling dimension of the MBTI were all significantly intercorrelated, while the intuition and feeling preferences of the MBTI were significantly intercorrelated with fantasy proneness.

One-Way ANOVAs and Post Hoc Analyses

Following the analysis of correlations between the variables, differences between the three groups (experiencers, believers, and controls) on the variables of fantasy proneness, paranormal beliefs, spiritual beliefs, and the intuition and feeling dimensions of the MBTI were analysed. Initially, group means and standard deviations for the three groups were inspected, and an overall analysis of variance (ANOVA) was conducted for each variable to test for an overall significant difference between the groups. The ANOVA assumptions of homogeneity and normality were checked and revealed that fantasy proneness ($p < .003$) and paranormal belief ($p < .001$) were significant on Levene's test, thus violating the assumption of homogeneity of variances. Tabachnick and Fidell (1996) state that tests for homogeneity of variance are overly sensitive to violations and that ANOVAs are robust enough to withstand violations as long as the difference between the largest and the smallest sample size for groups is no greater than 4:1, as long as the within-cell variance is no greater than 10:1, and as long as there are no outliers. As fantasy proneness and

Table 1 Correlations, Means, and Standard Deviations of Fantasy Proneness, Paranormal Beliefs, Spiritual Beliefs, Intuition, and Feeling Preferences of the MBTI

Scale	ICMI	PBS	SBI-15R	N	F
PBS	.499***				
SBI-15R	.070	.397***			
N	.216***	.216***	.032		
F	.220***	.393***	.171**	.452***	
<i>M</i>	19.33	69.99	18.18	38.12	42.10
<i>SD</i>	8.32	15.13	13.33	8.33	9.05

Note: ICMI = Fantasy proneness, PBS = Paranormal belief, SBI-15R = Spiritual belief, N = Intuition (MBTI), F = Feeling (MBTI).

** $p < .01$, *** $p < .001$.

paranormal belief met this criterion they were included in the study. The results of the one-way ANOVA and the means and standard deviations are presented in Table 2.

The ANOVAs revealed significant differences across the three groups on all of the variables ($p < .05$). To test where the differences between the groups were, a series of pairwise comparisons utilising a Dunnett's C adjustment were conducted. The Dunnett's C test was chosen for these analyses because equal variance could not be assumed for all groups as homogeneity tests were violated (Keppel, 1991).

Experiencers reported significantly higher scores than controls on fantasy proneness, as measured by the ICMI ($p < .001$), and paranormal belief, as measured by the PBS ($p < .001$). There were no significant differences between experiencers and controls on the variables of spiritual belief, or the intuition preference of the MBTI. Believers reported significantly greater preference for the feeling dimension of the MBTI than experiencers did ($p < .05$). Believers scored significantly higher than controls on all of the variables: fantasy proneness ($p < .001$), paranormal beliefs ($p < .001$), spiritual beliefs ($p < .001$), intuition ($p < .025$), and feeling ($p < .001$) preference of the MBTI (see Figure 1).

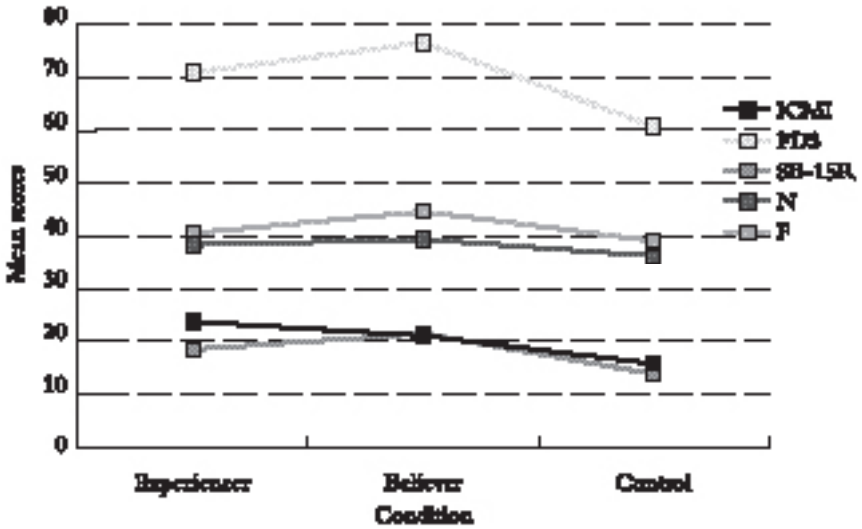
Table 2 Group Means, Standard Deviations, and ANOVA Results for the Three Groups

Variable		Group			Univariate <i>F</i>
		Experiencer (<i>n</i> = 30)	Believer (<i>n</i> = 120)	Control (<i>n</i> = 89)	
ICMI	<i>M</i>	23.66	20.97	15.70	16.682***
	<i>SD</i>	9.58	8.23	6.52	
PBS	<i>M</i>	70.90	76.55	60.79	36.096***
	<i>SD</i>	19.09	10.46	14.46	
SBI-15R	<i>M</i>	18.39	21.39	13.75	8.989***
	<i>SD</i>	13.85	12.06	13.68	
N	<i>M</i>	38.35	39.42	36.27	3.755*
	<i>SD</i>	7.25	7.81	9.07	
F	<i>M</i>	40.56	44.67	39.12	10.974***
	<i>SD</i>	7.14	8.09	9.86	

Note: ICMI = Fantasy proneness, PBS = Paranormal belief, SBI-15R = Spiritual beliefs, N = Intuition, F = Feeling.

* $p < .05$, *** $p < .001$.

Figure 1 Mean Differences for Experimenter, Believer, and Control Groups on the Variables of Fantasy Proneness, Paranormal Belief, Spiritual Belief, Intuition, and Feeling Preference of the MBTI



Subscales of the PBS

The fourth and fifth hypotheses related to the subscales of the PBS: traditional religious beliefs, psi belief, witchcraft, superstition, spiritualism, extraordinary life forms, and precognition. Scores on the ICMI were significantly correlated with all of the subscales of the PBS as follows: traditional religious beliefs ($r = .146, p < .05$), psi ($r = .362, p < .01$), witchcraft ($r = .355, p < .01$), superstition ($r = .259, p < .01$), spiritualism ($r = .594, p < .01$), extraordinary life forms ($r = .323, p < .01$), and precognition ($r = .366, p < .01$).

A series of ANOVAs were conducted to test for differences between groups on the seven subscales of the PBS. Tests for the ANOVA assumptions revealed that homogeneity of variance was violated ($p < .05$) for traditional religious beliefs, witchcraft belief, spiritual belief, and precognition, and to control for possible inflation of type I errors, Dunnett's C post hoc tests were used. Significant differences between groups were found to exist on all of the subscales of the PBS.¹ Post hoc analyses revealed that experiencers differed significantly from controls on the spirituality subscale. However, experiencers

¹ Correlation between the ICMI and total PBS can be found in Table 1.

and believers failed to differ significantly on any of the subscales. Believers scored significantly above controls on all subscales.

It was additionally hypothesised that the intuition preference of the MBTI would correlate significantly with psi, witchcraft, spiritualism, and precognition subscales of the PBS and that the feeling preference of the MBTI would correlate with the precognition subscale of the PBS. The correlations are shown in Table 3.

The correlations partially supported the hypothesis. The intuition preference of the MBTI correlated significantly with psi, witchcraft, spirituality, and precognition. The feeling preference of the MBTI correlated significantly with all of the subscales of the PBS.

NDE Experiencer Group

The final analyses examined the NDE experiencer group separately. The experiencers reported several situations that acted as a trigger for their experience. These ranged from motor vehicle accidents (6 participants) to medical operations or conditions (16 participants) and traumatic events, for example, nearly drowning or seeing a 'white-out' while skiing (6 participants); two participants did not report the trigger for their experience. Scores on the NDE scale ranged from 0 to 28, out of a maximum achievable score of 32

Table 3 Correlations Between the Subscales of the PBS and Intuition, Feeling, and Perceiving Preferences of the MBTI

	TRE belief	Psi	Witch.	Super.	Spirit.	Precog.	ELF	N	F
PSI	.303**								
Witch.	.449**	.449**							
Super.	.370**	.370**	.308**						
Spirit.	.356**	.600**	.521**	.405**					
Precog.	.300**	.487**	.426**	.322**	.551**				
ELF	.163*	.483**	.483**	.312**	.423**	.368**			
N	.060	.214**	.241**	.068	.204**	.192**	.119		
F	.250**	.325**	.338**	.210**	.323**	.272**	.152*	.452**	

Note: TRE belief = Traditional religious belief, PSI = Psi belief, Super = Superstition, Spirit = Spirituality, Precog = Precognition, ELF = Extraordinary life forms, N = Intuition preference of the MBTI, F = Feeling preference of the MBTI.

* $p < .05$, ** $p < .01$.

($M = 8.23$, $SD = 6.56$). Scores on the NDE scale were significantly correlated with paranormal beliefs ($r = .620$, $p < .01$), fantasy proneness ($r = .491$, $p < .01$), and spiritual beliefs ($r = .438$, $p < .05$). No significant correlations were found between scores on the NDE scale and the intuition and feeling preferences of the MBTI. Significant correlations were found to exist between scores on the NDE scale and the traditional religious beliefs ($r = .508$, $p < .004$), psi ($r = .622$, $p < .001$), witchcraft ($r = .519$, $p < .003$), spirituality ($r = .568$, $p < .001$), and extraordinary life forms subscales of the PBS ($r = .531$, $p < .003$).

It is important to note that the sample size for the NDE experiencer group was very small (30 participants), so caution should be exercised when interpreting these results.

Experiencer's Qualitative Data

The qualitative data collected from the NDE experiencer group appear to support the scores on the NDE scale. Sixteen participants reported vivid incidents that resemble items of the NDE scale. A feeling of intense peace and calmness was prominent in the reports of 15 of these vivid experiencers, while the other experiencer who offer a qualified account reported a feeling of "intense fear," with no additional elaboration being offered. The other experiencer who offered a qualified account reported a feeling of "intense fear," but the fear was concurrent with experiencing a severe allergic reaction. Other experiences that were reported resembled those identified by Ring (1980) as essential to the core NDE, and examples of these accounts are provided in the following sections. These accounts also appear to resemble the measured variables of fantasy proneness (such as travelling through thought), paranormal belief (such as out-of-body experiences), and spirituality (feelings of peace and the "bright light").

Reports Resembling Fantasy Proneness "In my mind I was travelling the world, I was meeting people of different races in each country I went to; it was a very happy journey," Participant 235 reminisced. "When I got better I questioned all these feelings and experiences and was told I had an over-active imagination," recalled Participant 178. "As I rise to the top of the water I feel warmer, the sun is brighter and everything is different," reported Participant 124. Participant 189 remembered, "losing awareness of my body, losing sensory awareness, and experiencing the incident calmly and almost in slow motion." "I lost track of time, day and night were the same," reported Participant 178,

“and I look back on those dreams which were very vivid — they were of places I have seen since and people I have met as an adult.”

Reports Resembling Paranormal Beliefs (Out-of-Body Experiences) Participant 18 recalled: “I remember looking down on the doctors working to save my life, then looking up at a very bright light with a tunnel inside. I experienced the presence of others ... it was definitely a wonderful experience.” “I don’t remember much except looking down at myself riding the bike into this corner,” Participant 223 reminisced. “I was standing at the head of the bed and looked down at myself lying on the bed,” Participant 100 recalled.

Reports Resembling Spiritual Beliefs Participant 156 spoke of the life change elicited by the experience: “I never spoke to anyone about it; however, I did read [about NDEs] in the *New Idea* ... I was relieved, as I thought I may have lost my mind ... I would like to say I have only been a Christian for about six and a half years.” “I know that death is not to be feared,” Participant 148 stated. “Blinding, calm, noiseless, breathless, weightless, pleasant, felt right, felt that this was happening for a reason, curiosity of what was happening,” recalled Participant 222. “I thought I was going to die — at some level — and calmly accepted my fate. This revelation seemed quite clear, calm and acceptable. I ‘saw’ how my life would end and how its existence and span fitted into time and space,” Participant 189 reminisced. “At the time I knew I was going to some better place and was not concerned,” recalled Participant 156. “I did not worry about possible loss of life but knowing there was a tiny baby who needed me and a sense of wondering who would bring her up, reluctantly fought to survive,” Participant 148 remembered.

DISCUSSION

The main aim of this study was to analyse the differences between people who have experienced an NDE (experiencers), persons who believe in the possibility of experiencing an afterlife as an NDE but have not experienced an NDE (believers), and persons who do not believe that an NDE could be experienced (controls).

Findings in Relation to the Hypotheses

The first hypothesis of the present study stated that experiencers would differ significantly from believers and controls on the variables of fantasy proneness and total paranormal belief. This hypothesis was partially supported, as the

results of pairwise comparisons between groups showed that experiencers scored significantly higher than controls on both fantasy proneness and total paranormal beliefs, and believers also scored significantly higher on fantasy proneness and total paranormal belief than controls. However, there was no significant difference between experiencers and believers on each variable.

The second hypothesis was supported. Significant correlations were discovered between the scores on ICMI and the seven subscales of the PBS, giving further evidence of the previously established relationship between fantasy proneness and paranormal beliefs.

The third hypothesis was not supported, as experiencers did not differ from either believers or controls on the SBI-15R. Believers scored significantly higher than controls on the SBI-15R. Significant and strong correlations between the SBI-15R and the Traditional Religious Beliefs subscale of the PBS and the negative correlation detected between reported belief in an afterlife and scores on the SBI-15R could suggest that the SBI-15R did not adequately assess the desired dimension of spirituality. This will be discussed further.

Correlations between the intuition and feeling preferences of the MBTI and the seven subscales of the PBS supported the fourth hypothesis. The predicted correlations between the intuition preference of the MBTI and psi belief, witchcraft belief, spiritualism, and precognition subscales of the PBS were found. The feeling preference of the MBTI significantly correlated with all the subscales of the PBS and not just the precognition subscale.

Finally, the fifth hypothesis predicted that experiencers who reported higher scores on the NDE scale would frequently report spiritual symbolism and events similar to those identified by Ring (1980) as essential to the core NDE, in qualitative accounts of their NDE. This hypothesis was partially supported as a large number of core NDE elements were reported by experiencers who reported high scores on the NDE scale. However, relatively few traditional religious elements were reported by experiencers; nevertheless, several experiencers reported sensations that could be attributed to spirituality, such as being at peace with death and the appearance of a bright light.

Fantasy Proneness

The present study showed that experiencers and believers were significantly more fantasy prone than controls. These results differed slightly from the previous findings of Gow and Robertson (1999), who discovered significant

differences across past-life experiencer, believer and non-believer groups on the variable of fantasy proneness, suggesting that experiencers engaged in fantasy activities to a significantly greater extent than did the other groups.

From a study of fantasy proneness and NDEs, Ring and Rosing (1990) concluded that NDE experiencers became absorbed in fantasy activity, and this results in the sensations that the experiencer attributes to an afterlife during the trauma of a close encounter with death. A similar argument for believers can be generated from the findings of the present study that showed that experiencers and believers did not differ significantly on fantasy proneness. One possible interpretation of this finding could be that believers are experiencers in waiting, that is, the differences between experiencers and believers are due to believers not having experienced a close encounter with death to facilitate an NDE.

Paranormal Beliefs

Consistent with the findings of Groth-Marnat and Summers (1998), experiencers scored significantly higher scores on the Paranormal Beliefs Scale (PBS) than controls, as did believers; however, experiencers and believers in this study did not significantly differ from each other. This finding adds additional support to the tentative hypothesis that minimal differences exist between experiencers and believers and that the differences that exist between the two groups are the result of situational elements. Both experiencers and believers might be predisposed to belief in paranormal phenomena which contribute to the belief that sensations experienced during close brushes with death are those of an NDE, but future research is needed to confirm this hypothesis.

The subscales of the PBS also provided interesting findings in relation to the hypotheses. Although the experiencers did not differ from controls on all of the subscales of the PBS as hypothesised, experiencers did differ significantly from controls on the psi, precognition, and spiritualism subscales of the PBS. These results suggest that these three elements optimally account for the difference between experiencers and controls on the total PBS. Believers differed significantly from controls on all of the subscales of the PBS. Interestingly, experiencers and believers differed significantly on the spirituality subscale of the PBS. This difference was such that believers scored significantly higher than experiencers, a direct contradiction to the previous findings of Ring (1980).

The results of the present study partially supported the previous findings of Gow et al. (2001), who found significant correlations between scores on the ICMI and scores on the subscales of the PBS, with the exception of traditional religious beliefs. The present study replicated these findings. However, a significant correlation between fantasy proneness and traditional religious beliefs subscale was found.

Spiritual Beliefs

The present study found no significant differences between experiencers and the other groups on the Spiritual Belief Inventory – 15 Revised (SBI-15R) despite detecting significant differences between experiencers and controls on the spiritualism subscale of the PBS. Significant differences were also found between believers and controls on the variable of spiritual beliefs. The lack of traditional religious or God references in the qualitative accounts of experiencers supports this finding.

The qualitative reports of the NDE provided interesting accounts of the spirituality of the experience. Several of the participants reported sensations of peace and acceptance of their fate and the presence of a bright light. These sensations have been classed as spiritual experiencers by Ring (1980). These results suggest that the NDEs reported in the present study were spiritual experiences, but not religious ones.

One possible reason that experiencers did not report significantly different scores from controls on traditional religious beliefs may be due to the lack of traditional religious symbols experienced during the NDE. The role expectation plays in post-NDE life-change, with respect to traditional religious belief, is still unclear, and future research could attempt to analyse this phenomenon.

The present study exposed potential methodological problems in the use of the SBI-15R for the purpose it was used here. The SBI-15R was chosen for this study for a number of reasons: first, it is a measure of religious and spiritual beliefs and practices (the behavioural manifestation of spiritual beliefs); second, it is readily available and not subject to copyright restrictions. Additionally, previous studies (e.g., Robertson & Gow, 1999) have exposed flaws in the comparable measure to the SBI-15R, the INSPIRIT, so the SBI-15R was chosen. Correlations between the SBI-15R and the traditional religious beliefs and spiritualism subscales of the PBS proved to be significant, suggesting that the SBI-15R measures both traditional religious beliefs as well as spiritualism,

a fact confirmed by Holland et al. (1998). The spiritualism subscale of the PBS proved to differentiate significantly between experiencer and control groups, while the traditional religious beliefs subscale of the PBS failed to differentiate significantly between experiencers and controls. These findings suggest that spirituality scores on the SBI-15R were possibly rendered insignificant by items relating to traditional religious belief. Furthermore, the reports of non-traditional spiritual symbolism during the NDEs suggest that the SBI-15R did not adequately assess non-traditional spiritual beliefs. Future research would benefit from utilising a spirituality measure that assesses non-traditional beliefs to a greater extent than traditional religious beliefs.

Personality

The present study investigated the relationship between NDE experiencers and certain personality typologies as measured by the Myers-Briggs Type Indicator. Experiencers did not differ significantly from believers or controls on the intuition (N) preference of the MBTI. Experiencers reported significantly less preference for the feeling (F) dimension of the MBTI. Believers were significantly more inclined towards intuition and feeling preferences of the MBTI than controls.

The subscales of the PBS add additional data to the attempt to uncover a personality profile for NDE experiencers. The intuition preference of the MBTI proved to be significantly correlated with the spiritualism, psi, precognition, and witchcraft subscales of the PBS, while the feeling preference of the MBTI correlated with all of the subscales of the PBS, and not just precognition as suggested by Murphy and Lester (1976).

NDE Experiencers

Finally the scores of the NDE scale were analysed. As hypothesised, the scores of the NDE scale were significantly correlated with those on the ICMI, total PBS, and SBI-15R.

The qualitative accounts of NDEs offered by experiencers appeared to support the findings of the NDE scale, in that experiencers who reported specific phenomena in their qualitative accounts also reported the same experience on the NDE scale. There was a considerable number of experiencers in the present study who reported experiences that resembled the spiritual elements of the core NDE, such as seeing or entering a bright light (Ring,

1980). This finding could explain the insignificant difference between experiencers and other groups on the SBI-15R, due to expectation factors of traditional and formal religious symbols that were not experienced during the NDE. This is of course conjecture, and future research might endeavor to analyse the influence of expectation on post-NDE changes.

In addition to spiritual symbolism, the other experiences in the accounts reported by NDE experiencers resembled those of previous research. The most frequently reported sensation, as in previous research, was one of peace and tranquillity (Ring, 1980). Research by Ring (1980) suggests that fewer experiencers reach the deeper levels of the NDE than the higher order elements. With relatively few experiencers in the present study, it would be expected that a very few, if any, would have experienced the deeper elements of the NDE. This was the case in the present study. For example, 6 participants (20%) reported out-of-body experiences and 2 experiencers (7%) reported being swept down a tunnel into a bright light. Only one participant reported that the experience was one of fear, noting that the NDE occurred during a severe allergic reaction. The participant also reported a score of zero on the NDE scale. As this experiencer supplied very few qualitative data, any assumptions to the cause of this negative experience would merely be speculative and could only be verified through interview.

An important point was raised by many experiencers that suggests a limitation of the present study was the difference between when the NDE occurred and when the surveys were complete. This might account for some of the variation within the NDE experiencer group.

Limitations and Implications

Several limitations were identified with the present study that could be addressed in future research. The first limitation of the present study related to the sample itself. The groups were disproportionate, due to the existence of a very small number of experiencers in the general population. Past research has targeted hospitals, outpatient clinics, and hospital records as a source of recruitment of participants, but as the present study was aimed to analyse NDE experiencers in the general population, a considerably larger sample would be required to avoid this problem.

The use of the SBI-15R in the present study has already been questioned. The SBI-15R not only assesses spirituality, but also includes traditional religious beliefs. The present study aimed to analyse the role of spirituality in

influencing the NDE, and it appears the inclusion of traditional religious beliefs potentially deflated the power of the measurement of spiritual beliefs.

A final limitation of the present study was the use of retrospective survey methods. Some experiencers reported that the passage of time had potentially weakened their recollections of the experience. This would have the effect of limiting the amount of qualitative data that the experiencer could provide and would also potentially reduce experiencers' score on the NDE scale.

Replication of the present study with a larger sample would permit more confidence about the nature of NDEs in relation to the variables of fantasy proneness, paranormal belief, spirituality, and the intuition and feeling dimensions of the MBTI.

CONCLUSION

The present study aimed to expand the current understanding of NDEs, and the role that certain belief and personality variables play in underlying differences between NDE experiencers, believers, and controls. Experiencers appeared to be fantasy prone and believed in paranormal phenomena to a greater extent than people who did not believe in NDEs and who had never experienced an NDE. Experiencers did not exhibit greater spiritual belief than controls, nor did they significantly differ from controls in their personality orientation for either intuitive or feeling preference of the MBTI. The results were interesting in that the hypotheses exploring the predicted personality typologies were supported more for the believer group than the experiencer group.

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SELF-HYPNOSIS AND IMMUNE FUNCTION, HEALTH, WELLBEING, AND PERSONALITY

John Gruzelier
Imperial College London

Our research is reviewed examining the efficacy of self-hypnosis in reducing the effects of stress on the immune system and, importantly, the consequences for health. Training included medical students before exams and patients with chronic, virulent genital herpes. Convincing changes were obtained in immune function and wellbeing. Common viral illnesses were reduced at exam time while herpes recurrences were almost halved along with increased cytotoxicity of natural killer cells for the virus. Participants with a cognitively activated personality had a better outcome, as did hypnosis that involved conjuring up a dynamic scenario of a healthy, defensive immune system.

While the main thrust of our research on hypnosis has been on the neurocognitive basis of hypnosis and hypnotic susceptibility (for review see Gruzelier, 1998, 2000; and for recent reports Croft, Williams, Haenschel, & Gruzelier 2002; Gruzelier, Gray & Horn, 2002a), we have recently extended our research to examine the efficacy of self-hypnosis training for immune function, wellbeing and health. We were encouraged in this by convincing evidence at first hand of reliable and uncommon altered states of brain functional organisation with hypnosis, changes which are inexplicable on the basis of cognitive models such as expectancy. Our particular interest was in viral illnesses, firstly in an attempt at preventing common illness such as influenza in healthy subjects exposed to stress, and subsequently to bring about improvement in chronically ill patients with a virulent form of herpes. The outcome of this applied clinical research is preliminary (for review see Gruzelier, Gray, et al, 2002; Gruzelier, Champion, et al., 2002).

Psychoneuroimmunology is a developing and controversial field. There is

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Requests for reprints should be sent to John Gruzelier, Faculty of Medicine, Imperial College London, Charing Cross Campus, St Dunstan's Road, London W6 8RF, England.

now a wealth of evidence supporting bidirectional interactions between the brain and immune system (Evans, Hucklebridge, & Clow, 2000), as well as psychological influences on immune function. Notable has been evidence of compromised immunity through depression, anxiety, and stress, but also there is growing implication of up-regulation of the immune system in association with positive personality features such as liveliness, hardiness, self-esteem, and humour. There is also evidence of benefits of psychological interventions in alleviating negative affective states such as stress and depression (Gruzelier, 2002a, 2002b).

However, because brain-immune interactions are complex, it is difficult to predict whether patterns of immune up- and down-regulation are efficacious in the absence of evidence showing improvements in health or the specificity of the immune changes for the nature of the illness under consideration. For this reason acknowledgment of the value of psychological interventions has been tempered in neuroscience. Here a review is given of preliminary steps in providing validation for self-hypnosis training in preventing and treating viral illnesses.

Exam Stress

We began by teaching medical students self-hypnosis a month before exams to see in controlled studies if there would be benefits to wellbeing, immune system up-regulation, and prevention of colds and flu around the exam period. In the first study (Gruzelier, Smith, Nagy, & Henderson, 2001), 12 control students were compared with 16 who were trained with three weeks of self-hypnosis training with tape recordings. Hypnosis involved instructions to evoke healthy immune imagery, physical relaxation, and cognitive alertness. The immune assay was repeated twice, before training and during the exams, and included natural killer cell (NKC) counts, cortisol, and counts of CD3+, CD4+ and CD8+ T-lymphocytes and the B-lymphocyte CD9+. Mood was measured with the Spielberger anxiety and Thayer activation scales. Frequency of practice was standardised in order to avoid the potential confounding variable of motivational differences in practising hypnosis.

As has been well documented by Kiecolt-Glaser, Glaser, Halvorsen and others (see Gruzelier, Smith, et al., 2001) NKC counts and CD8+ lymphocyte counts declined in controls with the stress of exams. Importantly, the decline in these measures, which can negatively affect immunocompetence, did not occur following hypnosis. This advantage in self-hypnosis training was

independent of lifestyle changes at exam time. Additional benefits from hypnosis included higher energy levels at exam time, which correlated positively with NKC counts for the group as a whole, which in turn correlated negatively with self-reported anxiety. Increases in calmness following hypnosis correlated positively with increases in CD4+ counts. The robust health of the students prevented investigation of illness prevention.

The following year a replication study was begun (Gruzelier, Levy, Williams, & Henderson, 2001). That winter influenza was prevalent. We also put to the test the importance of the content of hypnotic imagery. Was the immune system scenario in the hypnotic induction, which is also a feature of visualisation procedures, critical for hypothesised health benefits and immune up-regulation? One group received the hypnotic instruction of the first study, which included immune imagery. With a second group, the immune imagery was replaced with imagery of deep relaxation. There was also a third control group.

There were some benefits for hypnosis per se and again hypnosis buffered the decline in CD8+ cells and the CD8+ ratio relative to CD4+ cells, but importantly this was particular to the group with the immune imagery, confirming results found by Olness, Culbert, and Den (1989) with S-IgA in children.

On this occasion sufficient students did succumb to illness at exam time, and the advantages found in the immune imagery group did transfer to health. Fewer illnesses occurred in the group with the immune imagery, compared to the relaxation imagery and control groups. Furthermore, in the students who reported illnesses around the exam period there was a highly significant decline in CD4+ counts, not found in the well group. Furthermore fewer students in the immune imagery group fell ill — 2 out of 11 (18%) compared with 6 out of 9 (67%) of the controls and 5 out of 11 (56%) in the relaxation imagery group. Accordingly we could satisfy one of the criteria of immunological science for unravelling ambiguity surrounding the significance of the various measures of up- and down-regulation of the immune system — immune up-regulation was indeed associated with benefits for health.

Chronic, Virulent Herpes (HSV-2)

A third study extended self-hypnosis training to patients with a chronic and severe viral illness, herpes simplex virus-2 (HSV-2), or genital herpes. Importantly we had an opportunity to test both criteria by examining not

only the benefits for health through reduction in herpes recurrence rate, but also cytotoxicity of functional NKC activity for herpes infected cells. HSV-2 is a distressing condition in which the psychological impact of the disorder may overshadow the physical morbidity. The disease is accompanied by persistently elevated levels of anxiety, often profound psychosexual morbidity, and compromised psychological wellbeing and quality of life. Reduced resistance to HSV-2 has been found in depressed patients, in association with negative affect in medical students at exam time, and in spouses about to divorce. The results on viral recurrence and immunity were first published in a virology journal (Fox et al., 1999) and the psychological effects in *Contemporary Hypnosis* (Gruzelier, Champion, et al., 2002).

The 20 patients were due to discontinue prophylactic antiviral medication for a trial period or were reluctant to take the medication. They were examined at baseline and after a 6-week self-hypnosis training programme, that was delayed by six weeks for half of the group. Hypnosis involved instructions for relaxation, immune imagery, cognitive alertness, and ego-strengthening, as in the student study. A wide range of immune measures was incorporated including plasma cortisol, CD3, CD4, CD8 +ve T-lymphocyte populations, CD19+ B cells, and CD16+ NK cells. Functional NK cell activity was assessed including peripheral blood mononuclear cell (PBMC) non-specific NK cell cytotoxic activity, HSV specific NK cell cytotoxic activity of PBMCs infected with HSV-1, HSV specific cytotoxicity following stimulation with interleukin-2 (termed LAK cell activity), as well as HSV specific antigen dependent cellular cytotoxicity (ADCC). Psychometric measures included the Thayer activation-deactivation checklist, the Hospital Anxiety and Depression Scale (HADS), and activated and withdrawn personality dimensions of the Personality Syndrome Questionnaire (PSQ).

The intervention had beneficial effects on the occurrence of genital herpes, reducing recurrences by a remarkable 40%, and reaching 48% with the exclusion of two patients who experienced stressful life events in the course of the six week intervention. Thirteen patients (65%) showed a reduction in recurrences. The results could not be explained away on the basis of demographic or clinical factors, hypnotic susceptibility, or frequency of practice. Unsurprisingly the visible benefits for health coincided with enhanced wellbeing. Importantly this was not restricted to clinical responders. In participants as a whole there was a reduction in HADS anxiety and depression ratings. In other words participation in the study had a beneficial effect on anxiety and depression, whether or not there was clinical improvement.

The first validity criterion was satisfied in support of the student study. Here the second criterion was also satisfied for, along with the clinical benefits, there were demonstrable effects on natural killer cell function in the direction of immune up-regulation. In the case of NK cell numbers, whereas non-responders on average showed a fall, there was a significant increase in responders. The functional NK cell activity of responders showed significant changes in HSV specific NK cell cytotoxicity and HSV specific cytotoxicity following stimulation with interleukin-2. On the other hand, lymphocytes tended to increase for the group as a whole.

Furthermore there was a tendency for frequency of practice to be correlated positively with immune up-regulation, notably with increases in NK cell numbers, CD8 cells, HSV specific NK cell cytotoxicity, and HSV specific LAK activity.

In conclusion, the clinical outcome was promising and in the year following the study some patients remained off medication and experienced very little recurrence of HSV. The study provided convincing evidence of the salience of self-hypnosis training through the improvement in the chronic illness and through the enhanced cytotoxicity of NKC for the herpes virus, aside from substantive benefits for wellbeing. While the clinical benefits require confirmation in a controlled clinical trial, advantages of self-hypnosis with directed immune imagery training for immunity, wellbeing, and health found in this study replicated the student studies.

Personality Predictors

We have also explored personality influences on immune function. There has been a variety of evidence, especially in animals, of lateralised influences on the immune system. The left hemisphere is associated with immune up-regulation and the right hemisphere with down-regulation (Gruzelier, Champion, et al., 2002). One source of human evidence was afforded by longitudinal assessment of asymptomatic men with HIV infection (Gruzelier et al., 1996). EEG and neuropsychological asymmetry patterns assessed at study onset were found to predict CD4 counts two to three years later. Patients with a left hemispheric functional preference on first assessment had higher counts than those with a right hemisphere functional preference, and vice versa.

Earlier I had been struck by the affinity between the nature of the hemispheric imbalance on immune function and the nature of hemispheric

influences on positive and negative affect, the left hemisphere being associated with the expression of positive emotion and the right hemisphere with the expression of negative emotion (Gruzelier, 1989). Positive affect is good for the immune system and negative affect is bad for it. In research on schizophrenia we have shown with a range of lateralised neuropsychological and psychophysiological measures (Gruzelier, 1999, for review) that opposite asymmetries coincided with, and originally delineated, activated versus withdrawn syndromes. Later these syndromes were found to apply to personality dimensions in the normal population alone, with opposite cognitive functional asymmetry patterns. Accordingly a left-lateralised, active, action-orientated, and cognitively alert personality may be associated with immune up-regulation, while a right-lateralised, withdrawn personality may be associated with down-regulation.

We tested the personality predictions in the first student study and in the patients with herpes. Personality was measured with the activated and withdrawn scales of our PSQ. In the students, compelling relations were found between personality and T- and B-lymphocyte up-regulation (Gruzelier, Champion, et al., 2002). Cognitive activation correlated positively with the full range of lymphocytes assayed: CD3+, CD4+, CD8+, CD 19+, as well as with all the lymphocyte counts at exam time. This was despite the fact that, by elevating lymphocyte numbers, the hypnotic intervention might mask this relation. No correlations were found with NKC number or cortisol.

In the patient group, cognitive activation correlated positively with clinical improvement, such that the higher the personality score the fewer the herpes recurrences during the six weeks of hypnosis training. In view of the absence of correlations with baseline herpes frequencies, frequency of tape use, and any difference in tape use between responders and non-responders, this relation could be interpreted as independent of motivation and other extraneous factors, and a demonstration that cognitive activation predicted a better clinical response to hypnotherapy. Cognitive activation also correlated with the change in functional NKC cytotoxicity including a decrease following hypnotherapy in HSV specific cytotoxicity and in HSV specific LAK activity and a positive correlation with post-hypnosis levels of HSV specific cytotoxicity. There was also a positive correlation with some baseline levels, namely HSV specific cytotoxicity and HSV specific LAK activity. Conversely, the withdrawn syndrome correlated negatively with NK cell activity at baseline, that is, the opposite direction to cognitive activation (Gruzelier, Champion, et al., 2002).

In sum, cognitive activation correlated with both validity criteria from

immunological theory — clinical response and viral specificity of NKC cytotoxicity. Clear links can also be drawn between the activated personality dimension and fighting spirit, laughter, and exercise, all of which have demonstrable advantages for immune function.

Aside from its predictive validity, the activated versus withdrawn personality dimensions provide insights into the neurophysiological basis of mechanisms mediating psycho-neuro-immunological influences. It follows that the activated personality dimensions with its neurophysiological validation may help in clarifying individual differences in psycho-neuro-immunological mechanisms. Guidance for individual differences in patient response and compliance may follow the predictive ability of the personality trait. Hypnosis training may succeed better in a depressed patient with the active syndrome trait (showing the potential for modification), in contrast to a depressed patient with a withdrawn personality trait.

Sense is also made of why directed imagery of the immune system, with its active, cognitive requirement, compared with the more passive imagery of relaxation training appears the more successful form of intervention.

Self-Hypnosis and Johrei Healing

We are pursuing these various implications currently in larger scale controlled studies. Comparisons are being made between self-hypnosis training and a Japanese healing method termed Johrei, which has agential qualities, along with a relaxation control. With Johrei the participant learns to be both practitioner and recipient.

We are specifically investigating the ability to buffer the effects of exam stress in students, to help patients with advanced stage breast cancer, and to maintain lymphocyte counts in early-stage HIV infection.

The student study ($N = 48$) is in final stages of analysis. Participants were examined on mood, personality, immune, and electrocortical measures prior to the study, after four weeks of training, and again after up to four further weeks of practice. Exams occurred either close to the post-training session or to the follow-up session. The mood results have suggested hypnosis and Johrei to be equally successful in buffering the effects of exam stress in comparison with the control group on ratings of vigour, depression, confusion, and total distress on the Profile of Mood States (Laidlaw et al., 2003). Johrei had preferential effects at exam time in reducing state anxiety measured with the Spielberger scale, and in elevating NKC counts and functional activity (Naito et al., in

preparation). We are hopeful that this comprehensive three-year programme will take the field forward and help establish the importance of psychological interventions, not only for health, but also for cognitive neuroscience.

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HYPNOSIS WITH CHILDREN AND ADOLESCENTS: SOME DEVELOPMENTAL CONSIDERATIONS

Lachlan J. Lipsett
Medical Practitioner in Private Practice

This paper, a summary of a workshop presented by the author in Alice Springs, is inspired by a chapter by Valerie Wall in Wester and O’Grady (1991). The development of cognitive processes through childhood and adolescence is examined, integrating the views of Piaget on cognitive development and Erikson’s views on psychosocial development. The aim of the paper is to examine how the child’s or adolescent’s psychological and cognitive status influence the selection of hypnotic induction techniques and the use of language, imagery, and metaphor in hypnotherapeutic work. The point is reinforced constantly that inductions and therapy processes, which do not take into account the client’s age and cognitive and psychological development, may often fail.

It is, of course, a truism that any practitioner using hypnosis must first be a therapist and if hypnosis is employed in the treatment of children and adolescents then the therapist must be competent to assess, diagnose, and treat patients and clients in these age groups. It is obvious that a child is not an adult and this must not be overlooked when using hypnosis in any type of therapy. The words, ideas, and images used by the therapist must be chosen to match the child’s vocabulary and must be comprehensible to the child. If a child is seen over a period of time, what was appropriate once may no longer suit him as he matures further (I will use “him” to refer to both males and females).

The aim of this paper is not so much to discuss the applications of hypnosis to childhood and adolescent problems — these are discussed in detail by Wester and O’Grady (1991) and Olness and Kohen (1996). Rather, my

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Requests for reprints should be sent to Lachlan J. Lipsett, The Cottage, 22 Rous Road, Goonellabah, N.S.W. 2480.

intention is to discuss some developmental, cognitive, and psychological considerations which may assist the practitioner working with children and adolescents, to match their intention to each client's capacity for thought. In the light of these factors, the range of hypnotic induction strategies applicable across the early lifespan can then be enumerated.

HYPNOTISABILITY

Olness and Gardner (1988) note that most normative studies have concluded that hypnotic ability is limited in children below the age of three years, is greatest between the ages of seven years and 14 years, and decreases slightly in adolescence. It then remains stable through midlife before decreasing again in the elderly. Hilgard noted that: "hypnosis reaches its height in the pre-adolescent period because, by that time, language and experience have stimulated imagination and given it content, so that those characteristics, described as child-likeness, have had a full opportunity to bloom ... [in late adolescence] reality orientations conflict with the enjoyment of a life of fantasy and adventure, and for many people, this means a reduction in their hypnotisability" (Hilgard, 1971, quoted in Olness & Kohen, 1996, p. 41).

DEVELOPMENT

The most prominent theorist in cognitive development is Jean Piaget, whose theoretical model is used here to introduce some of the developmental issues relevant when using hypnosis with children. His work can be integrated with that of Erik H. Erikson, who described children's emotional development as occurring in stages, and who linked his model with that of Piaget, likening their two approaches to "weaving with different strands the same cloth of development" (Wall, 1991, p. 5).

Piaget in particular developed an extensive vocabulary in the development of his theory. I use his terms sparingly and do so in an attempt to define and explain the cognitive processes operating at each stage of childhood development.

Hypnosis as an adjunct to therapy is practised in the context of the child's cognitive and emotional capacities. Each child client's cognitive abilities and emotional needs change over time and the work of therapy is assisted by an understanding of child development. This is true, not only for the therapist employing hypnosis in the treatment of children, but also for those treating adults, as these clients once were children and they bring the legacy of their

past with them. First experiences have great impact and, unless something happens to change them, those experiences will be the individual's reference for the future. Watkins and Watkins make this point strongly when talking about clients with dissociative identity disorder. The authors describe the thought processes of alters (overt ego-states not requiring hypnosis for their activation, whose origin is often in severe child abuse) as being frozen in time. They write: "When we recognise that alters are usually children whose reasoning has been frozen at the time they originated, their puzzling actions can be better understood ... Clinicians often fail to realise this when confronted with an adult body. We have usually forgotten how we thought (concretely) when we were children ... Since alters think concretely, they frequently are not aware of the consequences of their behaviour. One alter attempted to get the patient to drink poison, reasoning, 'When she's gone, then I'll come out all the time and be in charge'" (Watkins & Watkins, 1997, p. 52).

ERIKSON'S STAGES OF SOCIAL DEVELOPMENT

Before examining Piaget's theory of cognitive development, I wish to briefly introduce the stages of psychosocial development across the lifespan developed by Erikson (1950, 1978). According to Erikson, individuals pass through eight developmental stages on the way to maturity. Each stage is characterised by its own type of interpersonal and social crisis, which ultimately are the great tests of the ego's character.

Typically, there are two opposing tendencies operating at the time of each crisis. The crisis of each stage is resolved when the relative balance between the two tendencies is settled. Out of each crisis grow the "ego strengths" that each individual needs to mature and survive in an emotionally healthy manner.

In this paper, I will be integrating the first five of Erikson's stages with Piaget's theory of cognitive development.

It is important that the child achieves some measure of success with the tasks identified by Erikson. As he himself said: "the strength acquired at any stage is tested by the necessity to transcend it in such a way that the individual can take chances in the next stage with what was most vulnerably precious in the previous one" (cited in Wall, 1991, p. 5).

Table 1: Psychosocial Stages of Development (Erikson)

Stage	Age	Psychosocial task	Related ego strength
1	0–1 year	Trust vs Mistrust <i>Basic needs must be met reliably</i>	Hope
2	1–3 years	Autonomy vs Shame and doubt <i>Learning independence and self-confidence</i>	Will
3	3–6 years	Initiative vs Guilt <i>Initiating activities and learning self-control</i>	Purpose
4	6–puberty	Industry vs Inferiority <i>Developing physical, cognitive, and social skills</i>	Competence
5	adolescence 12–19 years	Identity vs Identity confusion <i>Trying out roles and forming an integrated identity</i>	Fidelity
6	20–24 years	Intimacy vs Isolation <i>Forming close, lasting commitments</i>	Love
7	25–40 years	Generativity vs Stagnation <i>Contributing to the world through family</i>	Care
8	41 on	Integrity vs Despair <i>Thinking back on life with either satisfaction or disappointment</i>	Wisdom

The development of thought is a gradual progression from a situation where the environment is overwhelmingly in control, as in infancy, to eventual autonomy of thought. Mature thought processes respond to the logic of the situation and judgments are made on the logical relationships between objects, and not in terms of what appears to be, as occurs at earlier levels of development. People who have psychological problems seem to be at the mercy of their ideas about the world rather than being in a position where their ideas are the result of their own logical thinking. Both cognitive structures (schemas) and processing strategies — the ultimate being those that form a logical system — become more sophisticated over time.

PIAGET'S DEVELOPMENTAL MODEL

Piaget described three main stages of early cognitive development (each with a number of sub-stages), each being qualitatively different from the others (Beard, 1969; McNally, 1973):

1. Sensorimotor intelligence from birth until the appearance of language (0–18 Months)
 - Reflex reactions
 - Primary circular reactions – Chance Learning
 - Secondary circular reactions
 - Coordination of secondary schemas
 - Tertiary circular reactions
 - The invention of new means through mental combinations
2. Preparation and realisation of concrete operations of classes, relations, and numbers (18 months to 11–12 years)
 - Pre-operational stage:
 - Preconceptual stage 18 months to 4 years
 - Intuitive stage 4 years to 7 years
 - Concrete operations: 7 years to 11–12 years
3. Formal operations start about 12 years and achieve full development about three years later

Most of a child's thinking in any one stage or period has a characteristic structure. As children develop, the structures built at a younger age gradually evolve into an integral part of the structures of the following stage by a process Piaget called "accommodation." The accommodation of existing schemas occurs as a consequence of interaction with the environment. Accommodation to each new situation results in the differentiation of a previous structure into a new one. What form this accommodation takes is determined by the state of the child's current intellectual structures.

The sequence of periods of development is constant, but the age at which a stage is realised cannot be absolutely fixed. The environment may encourage, impede, or even prevent cognitive development. In addition, one stage may appear fairly early with one kind of situation or material but later with another — so-called "horizontal displacement" (e.g., conservation of substance with change of shape at age six with conservation of volume at age 10 or 11 years). A second type of displacement — called "vertical displacement" — is described by Piaget as a situation where a structure is reconstructed by means of different operations (e.g., orientation in the environment is done by a baby physically — in time this operation is internalised and such orientation can be done mentally).

Piaget believed that the mind has structures in the same way that the body has structures to deal with the world. These mental structures or constructs

Piaget called schemas (singular, schema). A schema is a well-defined sequence of physical or mental actions. (Piaget later distinguished between schema/s for organisation of action and schema/s for organisation of images.)

Individuals adapt to, and organise, their environment through the cognitive structures available to them. A two-month-old child, when given a rattle, applies the schemas available — probably his “grasp-suck” schema — and will be seen to grasp the rattle, place it in his mouth, and suck it. A nine-month-old child who receives a rattle has more schemas available, and thus a wider range of behaviours may be observed (e.g., put the rattle in his mouth and/or suck, shake, roll, hit, or throw it).

The developing infant adapts his schemas through the interaction of maturation and experience. For Piaget, adaptation has two complementary aspects: (a) assimilation and (b) accommodation. Assimilation is the intellectual process whereby the individual deals with the environment in terms of his current understandings (schemas) – relating this new experience to something which has already been experienced. At the same time as the individual is seeing the environment in familiar terms, any discrepancies present demand some adjustment of the old schemas — “accommodation” is the label applied to this process of change.

A child with a “four-legged-animal” schema called “horse” may mistakenly call a cow, on first sight, a horse. This is the process of assimilation — forcing experience into an existing schema. At the same time, they may add to their knowledge that four-legged animals may have horns — accommodation: experience forcing refinement of an existing schema or schemas. The process of balancing accommodation and assimilation Piaget called equilibration which, he argued, results in a desired state of equilibrium.

Piaget noted that motivation to learn is highest when the individual is exposed to a moderately novel situation — neither too familiar nor too novel to correspond to existing schemas. It is not the object which interests the child but how the object or experience relates to his previous experiences and to his current cognitive structures. What relevance has Einstein’s theory of relativity to a five-year-old child? The child simply ignores any feature of the environment which is outside their accommodative grasp because the task is too difficult or too far removed from the current state of his schemas for it to have any significance. Similarly, if a task is so easy that the individual can assimilate it easily, he becomes bored and quickly loses interest — just what happens if an adult is given a baby’s dummy. In both excessively complex or overly simple tasks, a balance of accommodation and assimilation is lacking

— a state of equilibrium cannot be achieved and the individual loses interest.

The individual can only respond to experiences for which he is ready. This is relevant to schoolteachers who ideally present children with problems specifically designed for their state of development. It is equally vital for the therapist to present child patients and clients with experiences which allow them to change their problem schemas which cause pain or emotional upset into new schemas with finer distinctions which avoid these painful outcomes. This therapeutic transformation of schemas is achieved through the process of accommodation.

SENSORIMOTOR STAGE (BIRTH–24 MONTHS)

In Piagetian terms, the sensorimotor stage extends from birth to 18–24 months. Although the newborn child cannot think at birth, it has been clearly demonstrated that a child's earliest behaviour can change as the result of experience. Even the unborn child can learn. At birth, Piaget describes the child as having certain structures (i.e., reflexes) which they can modify. It is the progressive modification of these primitive reflexive schemas that sees the developing individual come to possess schemas of increasing complexity, which allow more sophisticated thought.

The sensorimotor stage sees the child progress from reflexive reactions to the stage where he starts to talk and, therefore, use symbols. By the age of two years, the schemas available to the child are more sophisticated, complete, and efficient than the rudimentary reflexive schemas available at birth. Nonetheless, the two-year-old's cognition is still very limited.

The development of the concept that objects have permanence and have an existence in their own right eventually leads to the child's ability to see himself as a separate part of the environment. In time, the child will be able to relinquish his egocentric view of the world — to be able to see the world from any perspective other than his own — that is, put himself mentally in the position of another person.

The second important gain of the sensorimotor period is the beginning of awareness of cause–effect relationships. The child experiences the world as a place of magic — a place where it seems as if things happen because of the child's existence — and, if there are bad effects, the unsophisticated child sees himself as the cause of the bad outcome. The child has no real concept of time.

During the child's first year, he moves from primitive imitative ability toward independent behaviour. This equates with Erikson's first stage of "trust vs mistrust" (0–1 years) during which the child's social and emotional development move towards a reciprocally trusting relationship with his primary caregiver which, hopefully, results in a sense of hope and faith in those more powerful than oneself. The child is constantly assessing the amount of trust he is willing to place in his world.

The commencement of Erikson's second stage of autonomy vs shame and doubt (1–3 years) corresponds with Piaget's sub-stages of coordination of secondary schemas and tertiary circular reactions (described below), which mark the beginning of the child's ability to create totally new patterns of behaviour.

General Assimilation and Reflex Reactions (0–1 month)

The newborn child possesses the basic reflexes of sucking, grasping, and crying and is able to move the various parts of his body. Initially the child will suck anything, regardless of what it is, and will grasp anything that touches the palm of his hand. Piaget asserted the infant is exercising already existing schemas. During the first month, the infant gradually modifies his schema which helps distinguish between satisfying and non-satisfying suckable objects and his behaviour begins to show the first signs of direction — but not intentionality. By the end of this stage the child can distinguish in a rudimentary way between objects.

Primary Circular Reaction (2–4 months)

During these months, the infant's schemas are further integrated with coordination of such behaviours as thumb sucking and moving the head in the direction of sounds. These schemas were not present at birth but draw on those that were. A circular reaction is one in which the sequence is repeated once completed. These circular reactions are called primary as they are centred on the infant's body (e.g., if the infant moves his hand across his field of vision and finds this pleasing, this action will be repeated later on). The child's attention is starting to turn out to the environment but when an object disappears from view, as far as the infant is concerned, it ceases to exist.

Secondary Circular Reactions (4–8 months)

The next developmental sub-stage sees circular reactions incorporating objects in the child's environment. These are called secondary, as they involve the coordination of actions which are no longer reflexive. The reaching, pushing, and pulling behaviours of primary circular reactions are coordinated into a higher order of schema (e.g., pulling a ribbon on a toy attached to the cot so the toy will move). The infant begins to develop the concept of object permanence — when an object is removed from a child's gaze, he will briefly look for the absent object but gives up quickly. As the infant becomes more adept at moving objects around, he develops an interest in the relation of objects with one another — the beginnings of schemas applying to space. Nonetheless, the child remains egocentric and is still a long way from seeing himself as a self.

Coordination of Secondary Schemas (8–12 months)

Towards the end of the child's first year, the infant comes to see objects other than himself as causes of effects, starts to anticipate outcomes and clearly shows directed behaviour. The child selects the means before initiating behaviour. He will remove a barrier to get to an object. The child's dexterity increases and he examines objects more effectively, realising that objects remain the same no matter what position they are in. A child given a bottle the wrong way round will quickly turn the bottle around.

The first months of life are a time of "magic," when the infant mistakenly believes that cause-effect relations result from his own internal psychological processes. During this period, the child also believes that two events occurring close together in time must be causally linked. As the first 12 months draw to an end, the infant begins to develop a dual system of causality and the appearance of secondary circular reactions allows the child to begin to separate physical and psychological causality.

Tertiary Circular Reactions (12–18 months)

Secondary circular reactions are characterised by the rigid application of simple schemas, whereas tertiary reactions are so labelled because, by age one, the child begins actively experimenting with schemas, acting as if interested in the outcomes. By trying different actions he "experimentally" learns new ways to reach goals. When a child at this stage comes upon a problem for which he

has no pre-existing schema, he will experiment and develop new means for the solution of the problem. Piaget claimed this to be an indication of intelligent behaviour, not yet the ability to think — something Piaget reserved to the application of logical structures.

Object permanence is becoming more strongly established. Children at this age can cope with “sequential displacements,” looking for hidden objects. Formerly children would look where the object was usually hidden, but they are not yet ready to search for objects which have not been seen hidden — this comes in the next stage of their development.

The child may look to another to help him when required (e.g., placing the hand of an adult on a box which the infant is unable to open). Cognitive developments at this age allow the child to develop awareness of events occurring totally separate from the child and his control and wishes.

Beginnings of Thought (18–24 months)

At this age, the child is able to create internal representations of objects mentally and to use these representations for the solution of problems. Previously, he had to actively experiment to find solutions to problems, but now the child can develop solutions without active experimentation (e.g., when confronted with a box, instead of trying every schema he has available — his previous strategy — he now examines the box critically and then suddenly slips his finger into the crack and opens it). “Thought” at the tertiary circular reaction sub-stage is characterised by the experimental combination of schemas in the physical world — “thought” in sub-stage six is representational — now the child can represent and combine actions internally, which is a much more efficient and rapid way of dealing with the environment.

The concept of object permanence becomes more developed, with the child able to initiate a search for an object which he does not see — indicating that he can “keep in mind” an image of an object and realise that, no matter where the object is, it has permanence.

Cause and effect reasoning is more highly developed. A child pushing a box around the room who gets it stuck between the wall and a chair will, at this stage, if unable to pull it back because of lack of room for both the box and himself, likely go around the chair and push the box back the way it went in.

During the child’s second year, he begins to develop concepts of time and object permanence. The development of the construct of causality is also

occurring. By this, Piaget means the relatively simple capacity to anticipate what consequences follow from a certain cause. In adults, psychological causality refers to will (volition) and physical causality refers to more objective cause-and-effect relations.

Summary

When working with pre-verbal children in their first year of life, it is important for the therapist to bear in mind the patient or client is prey to magical thinking (Piaget) and in the process of developing a sense of trust (Erikson). Thus, a therapist utilising self-controlling techniques beyond the child's understanding may find that, rather than being of assistance, these could be mistaken as the cause of their distress. Simple distractional techniques are probably most appropriate at this age range, in their similarity to the comforting actions of an adult. These issues are also revisited when working with children, adolescents, and adults who have sustained damage at a very young age, as they often retain beliefs that they are the cause of the event. They are unable to distinguish internal feeling, external events, and proximity.

Wall (1991) recommends hypnotic interventions such as rocking, patting, stroking, repetitious auditory input (singing/rhyming), visual distraction with toys, or presentation of a familiar toy to hold — all of which serve to hold the child's attention outside of him/herself rather than trying to promote a sense of internal control over an event — something the child is not yet capable of exercising.

Olness and Kohen (1996) present a list of induction techniques suitable for children at this age (see Table 2). This table will be referred to in relation to induction techniques for children of each age.

A 14-month-old boy (A.K.) with a middle ear ventilating tube (grommet) was troubled by a painful ear infection with accompanying purulent aural discharge. I cleaned his ear by repeated "mopping" with pieces of cottonwool twisted onto a wire wool-carrier. The boy was sitting quietly on his mother's lap while she soothed him kinaesthetically by stroking his hair. The boy was watching his mother intently, as if to find out from her how he should interpret his new experience. He was relaxed and the discharge was easily cleared away before the application of antibiotic eardrops.

PREOPERATIONAL STAGE (2–7 YEARS)

The preoperational period extends from approximately two to seven years. This period is often subdivided into two shorter periods: (a) preconceptual or symbolic, and (b) intuitive or perceptual. The styles of thinking encountered in both sub-stages are not mutually exclusive, however.

Preconceptual/Symbolic Period of the Preoperational Stage (2–4 years)

Cognitive processes in the preconceptual or symbolic sub-stage can be further categorised into five specific types:

- Mental symbols
- Symbolic play
- Drawing
- Language
- Reasoning

Mental Symbols The most important cognitive advance in this period is the ability of the child to represent something (object, event, or conceptual schema) by a “signifier” (language, mental image, or symbolic gesture). Children can represent (think about) something that is not physically present. They can think about familiar objects and events, together with the memories of past experiences with those objects or events. Thus, not only has the child the ability (from the sensorimotor period) to internalise actions to solve sensorimotor problems without direct action — but can now form internal representations of objects and events (e.g., a 16-month-old child who witnessed a playmate become angry, scream, and stamp her foot was seen to imitate the scene a couple of hours later, laughing). This deferred imitation constitutes the beginning of representation — a sequence of behaviour is witnessed, represented in some way, and later accessed and imitated. To Piaget, overt imitation (sensorimotor imitation) gradually becomes internalised until it becomes possible to speak of internalised imitation as a mental symbol. Internal imitation eventually becomes so efficient that it is very difficult to detect overt behaviour at all. Practitioners of neurolinguistic programming describe the importance of attending to “minimal cues,” which are subtle overt behaviours related to the client’s internal thoughts and feelings.

Piaget considered the act of producing a visual image as a form of internal imitation of the original visual perception. A visual image is thus a mental

Table 2: Induction Techniques by Age

Preverbal (0 – 2 years)	Middle childhood (7 – 11 years)
Tactile stimulation, stroking, patting	Favourite place
Kinaesthetic stimulation: rocking, moving an arm back and forth	Favourite activity
Auditory stimulation: music or any whirring sound such as a hairdryer, electric shaver, vacuum cleaner placed out of reach of the child	Cloud gazing
Visual stimulation — mobiles or other objects that change shape, colour, or position	Flying blanket
Holding a doll or stuffed animal	Videogames (actual or imagined)
Early verbal (2 – 4 years)	Riding a bike
Blowing bubbles	Arm lowering
Pop-up books	Blowing breath out
Storytelling	Favourite music
Stereoscopic viewer	Listening to self on tape
Favourite activity	Coin watching
Speaking to the child through a doll or stuffed animal	Fixation at point on hand
Floppy Raggedy Ann or Andy	Hands (fingers) moving together
Teddy bear	Arm rigidity
Watching induction of self on videotape	Adolescence (12 – 18 years)
Preschool and early school (4 – 6 years)	Favourite place/activity
Blowing breath out	Sports activity
Favourite place	Arm catalepsy
Multiple animals	Following breathing
Flower garden	Videogames (actual or imagined)
Storytelling (alone or in a group)	Computer games (actual or imagined)
Mighty oak tree	Eye fixation on hand
Coin watching	Driving a car
Letter watching	Playing or hearing music
Pop-up books	Hand levitation
Television fantasy	Fingers/hands together as magnets
Stereoscopic viewer	Fantasy games (e.g., dungeons and dragons)
Bouncing ball	
Thermal (and other) biofeedback	
Finger lowering	

Table derived from Olness and Kohen (1996), p. 77

symbol and, like other symbols, is a personal construct. Imitation, no matter the modality in which it occurs, involves accommodation — modification of the schemas (structures) so they will parallel the behaviour of another person or the characteristic of an object. These symbols are created by the individual. Piaget calls words signs. Words are arbitrary, conventional, and are transmitted culturally. When a child adds a word to his vocabulary, it is through imitation and this represents the acquisition of an external model. A very important aspect of the formation of mental symbols is the meaning attached to them. As the child matures, the symbolic function involves both symbol (what the object means to the child himself) and sign (word — the culturally accepted label). What is signified is not the real object — it is always an intellectual or mental construction of the real object. For example, what does a child's mental symbol of a "dog" refer to? It depends on the child and his experiences with dogs. Different children assign "dog" to different schemas — one may love dogs, another may fear them. "Dog" thus refers to the particular understanding that, through assimilation, each child constructs. The schemas which provide the meaning (the thing signified) have been formed as the result of the interaction with the environment. The resultant meaning comes about through accommodation (updated meaning in response to environmental pressures) and assimilation (existing schemas define the meaning).

"Internal imitation" is the same as "accommodation," as the child is forced to create structures to represent an aspect of his environment. This leads to the formation of symbols which are developed as meanings through assimilation into the existing personal mental schemas of the individual. Words (signs) are acquired through imitations that are external to the child. The meanings of words are largely decided by the culture or sub-culture to which the child belongs. Words derive their usefulness in communication because of their common or shared signification — even if there are individual differences in the content of the schemas the words activate.

Symbolic Play It is impossible for a young child to adapt to reality as an adult would because he lacks both the breadth of schemas and the sophistication of cognitive structures required. Much of what happens around a child just washes over him. In order to match his experience to his level of cognitive development, a child engages in symbolic play. In this he can match his present needs with his present ability. Play largely consists of assimilation of incoming stimuli into already existing schemas — a process of consolidation while imitation is more a process of accommodation with modification of schemas.

Between two and four years of age, symbolic play forms a large part of the child's activities. Play helps the child handle the frustrations and the conflicts which the child experiences when forced to conform to social rules and to obey commands. The child often does not understand the purpose of rules and commands which frequently cut across his needs and desires. Much of the child's symbolic play involves affective conflicts. The child can compensate for unmet needs, can resolve conflicts, and can mentally reverse the roles of obedience and authority (e.g., a young girl can make her doll eat all her vegetables). Symbolic play allows the child to interpret the environment in his own terms and helps maintain emotional stability. The two- to three-year-old child is able to produce and comprehend metaphors tied to visual input (e.g., fireworks might be described as flowers).

Drawing Drawing allows the child to imitate reality and involves both imitation and accommodation. Children of about two and a half years scribble and this, for them, is pure play. Drawing can be said to have begun when the child starts to represent forms. Until eight or nine years of age, the child's intent is realistic but the performance is one of drawing the schemas, not what is seen. This early phase, when the child scribbles and then sees a schema in the scribble, is known as "fortuitous realism." The next stage is "failed realism" — a time when the child includes some of the required elements but fails to coordinate them into a total picture — the time of heads with legs coming out of them!

Next comes "intellectual realism," when the child includes all that should be there but does not allow for perspective (e.g., a man behind a fence still has his legs drawn). Around eight or nine years of age, the child reaches "visual realism" when he draws what he can see — perspective is evident and there is clear evidence of a sense of proportion. Children about seven years of age develop the ability to appreciate the permanence of spatial relationships in two and three dimensions and develop the ability to see things from the physical position of another.

Language The use of words in the sensorimotor period is not symbolic — the meaning of words to very young children is not constant and, under two years of age, children respond in a way which suggests that meaning is personal and not representative of a shared social meaning. In the sensorimotor period the child uses single words, advancing to two-word sentences by the end of their second year. During the third and fourth years the child's use of language

expands rapidly — gradually mastering the rules of syntax and gradually attaining the ability to use words to stand for absent objects or events as well as for actions and wishes that are immediately present.

Language lets the child represent a long chain of actions very rapidly, unlike sensorimotor patterns which occur in “real” time. Thought, through language, can represent simultaneously all the elements of an organised structure.

Reasoning Children of two or three do not reason inductively or deductively — they reason transductively. In transductive reasoning, the child moves from specific to specific without any particular logical connection (e.g., Piaget’s daughter advised her father, “I haven’t had my nap so it isn’t afternoon”). The child’s desires can distort their thinking — in a sense the child’s reasoning is aimed at achieving a personal goal. At this age, children are unable to form true concepts as they cannot cope with general classes — they cannot distinguish between “all” and “some.” Piaget described walking with a young child who, on encountering a number of slugs, was not sure whether they were a class of individual slugs, or a single slug which kept on appearing. Preconcepts are schemas which remain midway between the generality of the concept and the individuality of the elements composing them without arriving at either one or other — not true logical concepts. Children cope with “because” statements of causality better than “if” statements, which come next. Transductive reasoning seems to have some of the elements of trance logic.

Summary

Preoperational children are seeking to establish a sense of control and mastery. Much of their mental functioning is perceptually based, so children prefer to keep their eyes open. They generally respond well when spoken to through a toy or a puppet. They enjoy being told stories and shown new approaches or pretending to do a favourite activity or seeing something that they like on a TV screen. These techniques enable them to represent (think about) the needed intervention externally.

Ruth Beard (1974) postulated that some restriction on adult behaviour can come from early habitual behaviour which does not become accessible to verbal directions and discussion (i.e., unconscious). Ruth suggested this may mean that therapists should provide verbal explanations or verbal instruction to clients and offer the chance to discuss therapy demands, rather than insisting on blind obedience.

Table 2 contains a list of appropriate induction techniques for children in the preoperational stage of preconceptual or symbolic thought — called the early verbal stage by Olness and Kohen (1996).

I used the story of Androcles and the lion while treating a three-year-old boy (R.S.) who needed painful daily removal of dead skin from the sole of one foot after the blood supply was damaged by an infection. In this story, an escaped slave in Egypt encounters a lion with a thorn in his foot. The slave removes the thorn, a procedure which hurts the lion a bit, and then the lion gets better. Both lion and slave are subsequently captured and taken to Rome, where they meet again in the Colosseum. Just as the lion is about to eat the slave, he recognises his old friend and spares him. Both lion and slave are released and given the freedom of the city.

After the painful initial work had been done on R.S.'s foot with chemical anaesthesia, I found that the usually painful daily debridement could be done while telling this story, with no chemical analgesia. I saw R.S. six months later and I asked if he remembered the story about Androcles and the lion. He hit me and said nothing!

Intuitive/Perceptual Period of the Preoperational Stage (4–7 Years)

The intuitive/perceptual period sees further development in the child's cognitive progress. Children are now able to give reasons for their actions and beliefs and are able to sort at a "higher" level — by colour or by shape (not initially by colour and shape together). Language development progresses rapidly and assists in the internalisation of behaviour through representation. Thought, however, is still restricted in quality and effectiveness because it is dominated by immediate perceptions and by the child's inability to keep more than one relation in mind at a time. The child is egocentric, having trouble distinguishing what "I" think or feel from what "you" think or feel.

These children are unable to keep in mind more than one thing at a time. Children at this stage seem to contradict themselves over time without real concern for the facts because they do not attend to what went before and they are unable to attend to both differences and similarities at the same time. They focus on only one aspect of the situation at the expense of the other. They either ignore the whole in favour of the parts (juxtaposition) or ignore the parts in favour of the whole (syncretism). In syncretism, children's reasoning leads them to group a surprising range of ideas into a confused whole —

focusing on their idea of the whole and totally ignoring the differences. In juxtaposition, the child presents a number of related ideas which they are unable to relate to the whole in any meaningful way. For example, a child in the intuitive period through the course of a day answered the question, “What makes a car go?” with the following answers: “The wheels,” “The motor,” “The petrol,” “The steering wheel.” Another example of juxtaposition is seen with these successive statements by a child explaining why certain objects float: “A large boat floats because it is heavy,” “A small boat floats because it is light,” “A raft floats because it is flat,” “A needle floats because it is thin.”

These children can only concentrate on one aspect of the situation at a time in the intuitive period. This, Piaget called “centration.” The classic example of the consequence of attending to only the height or width of an object, not both simultaneously, is seen in children’s difficulty with conservation of volume when fluid is poured from one shaped container to a differently shaped one.

Children in the intuitive period do not attend to the “transformation” of, say, a plasticine ball to a rolled-out shape — they experience two separate perceptual events (i.e., “ball” and “snake”) and ignore the transformation. Furthermore, these children in the intuitive thinking stage are not able to mentally return to the starting point. The development of “reversibility” is a characteristic ability of the “concrete thinking” child which allows the child to exhibit “conservation” — the logical structures of transformation and of reversibility compensate for the biasing distortions of perception.

Three- to five-year-old children are calm before watching an exciting visual presentation and exhibit high arousal during the event — which contrasts with, say, nine-year-old (concrete operational) children, who generally express more anticipatory arousal and lower arousal during the actual performance.

Five- to seven-year-old children are entering the age of high hypnotisability. They are developing the capacity for internal representation without the constraints imposed by a highly developed critical factor.

Table 2 shows induction techniques suitable for children aged four to seven years, called pre-school and early school children by Olness and Kohen (1996).

I freely try different techniques as I have not set myself the impossible goal of achieving 100% successful results on all tasks at first presentation.

Five-year-old C.W. had a mastoidectomy for acute mastoiditis (osteomyelitis of the skull immediately behind the ear). Two days after I had drilled away the infected bone (general anaesthetic employed for the surgery), I had to start to remove a wound drain of plastic tubing. C.W. had complained of “pins and needles” in her foot where the intravenous drip for her antibiotics was situated. I induced hypnosis with an arm lowering induction and she reported the successful transfer of the pins and needles feeling into her hand when she rested it on her foot but she did not follow the suggestions to touch her ear to transfer the pins and needles feeling there — declining with a decisive, “I don’t want to!” Nonetheless, she sat still and let me cut the retaining suture and withdraw the tube a few millimetres as I had wanted. About 15 seconds later C.W. complained of some mild discomfort and requested some paracetamol.

THE CONCRETE OPERATIONAL PERIOD (7–8 TO 12 YEARS)

Piaget regarded the concrete operational period as by far the most important in the child’s overall cognitive development. It is the last of the transitional periods before mature operational intelligence emerges. Concrete operations constitute the first true logical thought. At this level, the child uses operational thought but the content is tied to concrete reality. The clearest indication that a child has reached the concrete level of reasoning is the presence of “conservation.” Intuitive children can only reason successfully along a single dimension, while the concrete operational period child has a general logical structure which coordinates all the relations of the intuitive period into a reversible system which can compensate internally for the intuitive bias our perceptions can produce (e.g., plasticine ball test in which a child is asked which is bigger — a ball of plasticine or the same plasticine rolled into a snake; water in the jar test — water is poured into differently shaped containers and the child is asked which holds more). Conservation does not come all of a sudden and apply to all conceptual areas. It is typical to find a child able to conserve in one area and not in another. Progress towards conservation is gradual and the underlying logical structure is the same. Conservation of quantity generally precedes conservation of weight. Conservation of volume is realised towards the end of the concrete operational period. Piaget called this the concrete operational period because these children’s thinking relates directly to objects and not yet to verbally stated hypotheses. The concrete operational child is concerned with organising and interpreting that which is

immediately present and lacks a unified logical system which would allow him to systematically explore abstract relations, independent of content, concerned with the non-present or with hypothetical relationships.

The concrete operations period encompasses Erikson's stage IV: Industry vs Inferiority. It is a latency period before puberty. The child at this stage possesses the internal mental operations and the external physical performance skills to interact successfully — to develop mastery over the environment. The successful child learns to win recognition by producing things — going beyond pleasure at the function of limbs and developing a sense of industry. At this age the child is receiving some form of systematised instruction and, as they become more adept at learning, competency becomes a virtue. The successful child masters many skills valued in society. The danger is that the child may identify too strongly with work and come to see his worth in terms of his performance. During this period the therapist can tap the desire for mastery in these children.

In hypnosis, the aim is to give the child an experience of increased mastery using descriptions of concrete processes or images. These children can enter hypnosis with imaginative inductions but their metaphors should avoid abstractions lest they “go over the child's head.” The imagery should be concrete, with clear linkage to the desired effect. Induction techniques include arm rigidity, eye fixation, arm lowering, special places, listening to music, favourite activities, magic carpet, cloud car, etc. ...

Table 2 shows hypnotic induction strategies for children aged seven to 12 years (called the middle childhood years by Olness & Kohen, 1996).

A 10-year-old girl (P.L.), who requires regular removal of wax from her ears, was so frightened that the first treatment was done with a general anaesthetic. Now she is happy to have the wax removed while she distracts herself by reading without interruption. P.L. thought of this distraction approach herself — bringing a comic the first time she used this approach and the novel she was currently reading on subsequent occasions.

A 10-year-old boy (C.L.) was taught self-hypnosis in his father's presence. An arm lowering induction, linked to feelings of increasingly greater relaxation, was employed. C.L. responded very well and was clearly pleased by the recognition both his father and I gave him for his responsiveness. I believe that the sense of mastery C.L. experienced increased his motivation to practise his self-hypnosis at home.

THE FORMAL OPERATIONS STAGE (12–15 YEARS)

The formal operations stage deals with the possible, not just the real. Adolescents set up hypotheses which they subsequently test for either confirmation or denial. Thinking is propositional — the adolescent manipulates the assertions about data — not the actual data itself. These thinkers can follow the form an argument takes, independent of the concrete content. Thinking is combinatorial, in that the child is able to isolate all the variables inherent in a problem with all their possible combinations. This is also characteristic of hypothetico-deductive reasoning.

There are two major or categories of concrete operations:

1. Logico-arithmetic/digital/discrete — which includes conservation, relations or ordering and classification.
2. Spatial/analogue/continuous — which includes Euclidean geometry, projection (location and dimension), and topology.

Children in this age range comprehend the concepts of consequence and order, attributional and relational metaphors, and voice intonation to determine emphasis and meaning — but still in a concrete domain.

Formal operations provide for truly abstract reasoning — the formal operations adolescent is able to think about thought and identity. Hypnotic techniques for this group are similar to those used with adults. Metaphors can be employed freely in which many of the indirect techniques become feasible (see Table 2).

Sixteen-year-old B.G. came into my consulting room to have some plastic splints removed from inside her nose after some nasal surgery several days earlier. She had worked herself up into a real state and was crying at the imagined pain she was experiencing before I had even started. In fact, the removal of the splints is generally easy. Part of her seemed embarrassed by her behaviour but she felt she could not help it. I believe that B.G. was already in a state of self-hypnosis. I offered her two alternatives — to go on feeling the pain that I was not causing or to get things done easily. She requested the latter. I asked her what her favourite activity was — she loved surfing. I suggested she imagine she was down at the beach. Frightened, she said she couldn't. I had to insist, very convincingly, that she could take each of my suggestions and, in less than a couple of minutes, she was vividly imagining surfing at Byron Bay, involving all of her senses, which I had nominated one at a time, in her imagined experience. While I generally use a permissive “maternal” approach,

a more directive “paternal” approach was chosen here. While B.G. was “surfing,” I told her I had to get ready to remove the splints. I then cut the securing nylon tie and removed the splints.

I included some post-hypnotic suggestions for continued rapid healing before asking her to return to normal awareness at the end of the wave she was on (because the splints were already out) and that she could be very proud of herself for concentrating so well. This intervention took all of three or four minutes after BG requested the “easy way” to have the splints come out. She was very pleased with herself, and what could have been a very unpleasant experience was turned around.

To help me to understand a child’s perception of their problem — conscious and unconscious — I often get them to draw a picture explaining what’s going on. In children whose capacity for abstract verbal expression is not yet fully developed, the symbolic communication represented by drawing is a valuable addition to the child’s verbal account. With this knowledge, I select both the content and the level of my intervention, so that there is in the child an acceptable balance of assimilation of my ideas into the child’s pre-existing schemas and (hopefully therapeutic) accommodation of some of their existing schemas. The child’s interest is maintained if this balance of accommodation and assimilation is acceptable — I aim to allow the child to experience a state of equilibrium as defined by Piaget.

For an individual to experience a chronic problem, he assimilates the relevant day-to-day experiences into one or more old established schemas which generate an undesirable experience. For some reason accommodation of the “problem” schema/s does not occur. Sometimes overwhelming emotion linked to a problem schema prevents adaptive accommodation (better the devil you know than the devil you don’t in the case of fear). Sometimes simple education is sufficient to obtain adaptive accommodation. Therapy aims to free the individual from this habitual assimilation, and hypnosis is a state in which modification of the problem schema/s to yield a different outcome is greatly facilitated. In hypnosis, the “critical factor” is bypassed. The “critical factor” seems to me to have a vested interest in maintaining the status quo — encouraging the individual to assimilate — rather than to accommodate to changed circumstances. The child’s situation is improved if appropriate accommodative changes are realised in his formerly problem generating schemas.

CONCLUSION

Cognitive development follows the course outlined above at slightly different rates and to a slightly different extent in each of us. When confronted by a patient or client requesting help to change, the unique interplay of capacity (cognitive, physical, emotional) and experience requires the therapist to customise the intervention to help the individual achieve the desired outcome.

An increased awareness of cognitive developmental issues has increased my efficacy and my confidence in offering hypnotic interventions to my patients. Similarly, knowledge of emotional developmental stages such as are proposed by Erikson is valuable. An understanding of developmental issues is not only especially important for practitioners working with children and adolescents, but also when working with adults. Some problems affecting adults arise from beliefs/schemas/ego states laid down when the full power of adult thinking was simply not there to be brought to bear on the problem. Here, an understanding of the cognitive capacities and emotional needs and resources available to children helps the therapist to formulate their intervention.

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CASE NOTES

The aim of Case Notes is to enable readers to contribute brief items and case material drawn from their own experience. These may be case situations in which hypnosis has been used in treatment or a description of specific hypnotherapeutic techniques used within treatment contexts. The contributor is asked to supply as much information as is needed to ensure the reader has an understanding of the situation, the therapeutic aims of the hypnosis, and outcomes. It may also be appropriate for the contributor to review the relevant research and clinical literature to justify and explain their use of hypnosis. While the standard criteria for publications in the journal will not apply to Case Notes, a clear exposition of the ethical professional practice of hypnosis will be required if the material is to be published.

A POST-PARTUM COMPLICATION OF HYPNOSIS FOR ANALGESIA DURING LABOUR

Allan M. Cyna

Women's and Children's Hospital, Adelaide

A 32-year-old primagravida woman presented to the child health clinic with severe post-partum anxiety and an inability to “stop counting when stressed or not concentrating.” She was assessed at this time as being extremely anxious with an Edinburgh Postnatal Depression Scale Score (Cox, Holden, & Sagovsky, 1987) of 15.

She had no previous psychiatric history and had had an uneventful pregnancy. Four weeks previously, labour had been induced with prostaglandins

* I am grateful to Dr Graham Wicks at Adelaide Women's and Children's Hospital for his helpful advice on the hypnosis script for cancelling the counting suggestions, and to Dr Marion Andrew for reviewing the manuscript.

Allan M. Cyna, Department of Women's Anaesthesia, Women's and Children's Hospital, Adelaide, S.A. 5006. cynaa@wch.sa.gov.au

for a post-term pregnancy and the woman had not slept well for several days prior to established labour. She was reluctant to have epidural analgesia and requested to try hypnosis when this was offered as a possible analgesia adjunct for her labour. The cervix at this time was assessed as 4 cm dilated by a labour ward midwife. Following a modified Chiasson's induction, eye closure had failed to occur after five minutes and an instruction was given to close them, following which a progressive relaxation induction technique was used. After breathing pattern changes were noted, she was asked to use head nods as a means of communicating in hypnosis as ideomotor finger signals could not be elicited. Suggestions were given to facilitate relaxation and comfort during labour, as previously recommended (Bjenke, 1996; Goldman, 1990; McCarthy, 2001; Waxman, 1990). These included the following suggestions: "Each contraction is one contraction closer to your baby and once it has finished you can forget about it as the contraction has allowed you to get nearer to your baby ... you can now look forward to the next contraction getting you closer to holding your baby." Trance logic was used by suggesting that the stronger the contraction the more effective it was and that the more effective the contraction the nearer she was to seeing her baby and therefore the stronger and more comfortable she would feel.

The suggestion was also given that when counting breaths during a contraction the woman would become more relaxed and comfortable with each count, knowing that soon her rest period would be there. She was instructed to find herself looking forward to the peak of each uterine contraction as the rest period would soon follow. It was also suggested that when using the counting of breaths during each contraction she would become less and less bothered by them, becoming increasingly more comfortable and relaxed as labour progressed.

Although the suggestions initially appeared to be helpful the woman requested epidural analgesia after three and a half hours when the cervix was noted to be 7 cm. Following epidural catheter insertion, analgesia was found to be ineffective and the epidural catheter was subsequently replaced two hours later. This second epidural was only effective for a short time as the woman gave birth per vagina without assistance within two hours.

After the birth, she remembered being excessively tired and noted that she was counting inadvertently to herself every time the baby cried. However, not much attention was paid to this initially as the counting was not too bothersome and it was believed that things would settle down on going home.

At home the counting continued whenever she rocked the baby in the crib or when carrying the baby. During the second week post partum the baby had colic and was crying frequently. The woman noticed that the counting occurred whenever she felt stressed, and the increasing distress was associated with inadvertently counting for up to six hours every time the baby cried. In addition she noted that counting was inadvertently occurring in bed at night while trying to go to sleep. On one occasion, while in her car she found herself counting the movement of the windscreen wipers.

The woman initially refrained from telling anybody about the counting as she thought that she “was going mad.” After two weeks she eventually confided in her husband. This prompted a visit to her GP who advised listening to some music and other distraction methods. However, this was found to be of no value and she became increasingly anxious and embarrassed as some friends that she told thought this was quite amusing. The more she tried to stop these thoughts, the more she found herself inadvertently counting. The next two weeks were increasingly difficult and by the time the baby was having a four-week review the woman was noted by health care staff to be miserable and extremely anxious, prompting her referral on the chance that this could be related to the hypnosis during labour.

The author was informed of this woman’s predicament four weeks after the birth, and agreed to see her as an outpatient that afternoon, having sought advice from an experienced hypnotherapist (Dr G. Wicks).

A history of the problem was taken. An explanation of the reasons behind this inadvertent counting was given as possibly being due to a miscommunication between the subconscious and conscious part of her mind. The suggestion of counting that she had found of some help during labour had not cancelled, as is usually the case, following the cessation of uterine contractions. It was also explained that further hypnosis to cancel the counting suggestion would allow her to rapidly resolve this issue. There seemed to be some relief from the woman and her partner that she was not “going mad” and that someone understood what had happened and could offer treatment. The woman readily agreed to further hypnosis, which was induced in the presence of a midwife and the woman’s partner. Once again there was no eye closure on using a Chiasson’s induction but the progressive relaxation technique, as before, appeared to induce a relaxed state during which the woman could communicate with head nods. Ideomotor finger signals once again could not be elicited.

Hypnosis Suggestions

On confirming that she was as relaxed as she could be. The following script was used:

You remember how helpful counting was to you during the birth of your baby. It allowed you to improve your ability to cope, relax, and become increasingly comfortable when having a uterine contraction during your labour. In addition it assisted you during the placement of your epidural catheter later on in labour. You know that you are now no longer in labour, having successfully given birth four weeks ago. Now that the uterine contractions have ceased, all unnecessary or inadvertent counting can now stop also. Any counting that you may wish to do or need to do will from now on be entirely appropriate. You will lose all desire to count unnecessarily or inappropriately. You now know that you can clear the mind of any suggestions of counting that you used so effectively during your labour. Now that the uterine contractions have finished such counting is no longer necessary. As all unnecessary, inappropriate counting ceases you will feel increasingly well in yourself. You will find yourself counting only when you consciously need to do so and only when it is entirely appropriate. You will find that all inadvertent counting will now stop. You will be able to let me know how well you are feeling in a week's time.

Within one hour of the hypnosis the Edinburgh Postnatal Depression Scale (Cox et al., 1987) was noted to have reduced from 15 to 11 at the health clinic later on that afternoon. She expressed relief that not only was there an explanation of her symptoms but she had an almost immediate perceived benefit. Telephone follow-up three days later confirmed that the episodes of counting were much less frequent and were only lasting a minute or two. Awake suggestions over the phone were given that this progress was likely to continue and that each day she would notice continued improvement in her sense of wellbeing as the inadvertent counting dissipated. All inadvertent or inappropriate counting would cease over the next few days. Further telephone follow-up, one week after the hypnosis cancelling the inadvertent counting suggestion, confirmed the woman's progress. She was now almost back to normal, counting inadvertently only three or four times a day but lasting only 2–3 seconds. She said that she felt well in herself and was sure that the counting "would now stop on it's own." She also stated that further treatment or visits to the hospital would be unnecessary.

Discussion

Anxiety is common in the post-natal period with stresses related to the new baby with new family dynamics. Postnatal depression (PND) of the mother is evident within the first 12 months of childbirth in approximately 10% of mothers (Watson, Elliott, Ross, & Brough, 1984) and can be difficult to identify. Although the incidence of PND may be reduced following the use of hypnotherapeutic techniques in pregnancy and childbirth (McCarthy, 2001), hard data are lacking.

This woman interestingly did not appear to go into a very deep level of hypnosis at all, with a requirement for a direct suggestion for eye closure during a Chiasson's induction and the inability to elicit ideomotor finger signals. Indeed the analgesic response in labour was only marginal and epidural analgesia was subsequently required. Despite this, the suggestions for counting breaths during uterine contractions appear to have persisted into the postnatal period. A series of factors appear to have combined to result in the continuing expression of the counting suggestion. Excessive tiredness following a prolonged period without sleep, a long labour, and less than perfect epidural analgesia all may have contributed to the woman remaining in the trance state. The lack of a rational explanation of her symptoms became increasingly stressful to both her and her partner over the next few weeks, compounding the situation and the feelings of loss of control. The increased stress led to further subconscious counting in an attempt to relieve the stress and this destructive cycle was progressively re-enforced.

This appears to be the first report of this complication occurring in the childbirth setting in a woman who has no previous psychiatric history and no evidence of obsessional behaviour before or during pregnancy. In view of the severity of the symptoms on seeing this woman, it was surprising that an explanation of the likely course of events followed by only one brief session of hypnosis was enough to return her to normal functioning. On follow-up testing the Edinburgh PND Scale was repeated after hypnosis to cancel the counting suggestion and her score had dropped from 15 (outside the normal range) to 11, which is back in the normal range (Cox et al., 1987).

The author now actively ensures that all suggestions used as part of antenatal or "in labour" hypnotherapeutic training are cancelled when they are no longer required following the birth.

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BOOK REVIEWS

Handbook of Therapeutic Imagery Techniques

Anees A. Sheikh (Ed.)

Imagery and Human Development Series
Amityville, N.Y.: Baywood Publishing Company.

A\$49.95

Like a patchwork quilt, the unity of this book comes as much from the concept of the designer, Anees Sheikh, as from the nature of the individual contributions. As well as co-authoring/authoring chapters 4, 5, 11, 12, 22, and 25, Dr Sheikh also contributed to the first and final (chapter 29) chapters of the book providing the border or frame to the ideas about the therapeutic use of imagery contained therein.

Dr Sheikh was founding editor of *The Journal of Mental Imagery*. In his career as professor of psychology and of psychiatry, as well as trainer of health professionals and editor and author of numerous journal articles and books, he has been a major contributor to the field of therapeutic imagery. Some of his books, complementary to the current volume, include *Healing East and West: Ancient Wisdom and Modern Psychology* (with Katharina S. Sheikh, 1996), *The Psychophysiology of Mental Imagery: Theory, Research and Application* (edited with Robert Kunzendorf, 1990), *Imagery: Current Theory, Research, and Applications* (1989), and *The Potential of Fantasy and Imagination*, (with J. T. Shaffer, 1979).

In this most recent book, the range of imagery techniques covers what Dr Sheikh describes in the contents as hypnobehavioural (chapters 2–5), cognitive behavioral (chapters 6–10), psychodynamic/humanistic (chapters 11–20) and humanistic/transpersonal (chapters 21–27) approaches. The penultimate chapter (chapter 28, Ramaswami) is devoted to techniques from such sources as Silva, Miller, Gawain, Siegel, and Lazarus, and focuses on time projection or *time tripping*. Contributors to the hypnobehavioural section include Kroger and Fezler, Korn, Karen Jacobsen, and a review of imagery techniques related to neuro-linguistic programming. Epstein (imagery exercises for health) and Lueger (imagery with anxiety and trauma) are representative of the cognitive

behavioural approaches. Oneirotherapy, Eidetic techniques, Gendlin's focusing, Ira Progoff's depth psychology and Chakra system imagery are some of the techniques reviewed in the psychodynamic/ humanistic section. Of the humanistic/transpersonal approaches, brief reviews of Jung's active imagination, Assagioli's psychosynthesis and the work of Jean Houston are indicative of the types of therapeutic approaches covered in this section. The introductory chapter (McMahon & Sheikh) reviews the contributions of imagery to healing processes from the holistic practices of Ancient and Renaissance times, through its relegation to a merely mental function in the Cartesian dualistic system, via its rejection mid-century by behaviourism, to its more recent return to favour as a therapeutic tool in mind-body healing. Techniques which have been advocated by clinicians, or which research has indicated have been useful in enhancing an individual's ability to engage in mental imagery, are covered in the final chapter (Sheikh, Sheikh, & Moleski). Unfortunately, at no stage does the editor profile the various contributors to this compilation, an addition which many readers would find useful.

The patchwork quilt analogy is once more recalled. As some quilt squares have more visual appeal than others to individual viewers, so chapters in this book will demand differential attention from readers. There is much of interest to clinicians, especially those whose practice includes hypnosis. Many of the exercises presented in the various chapters deserve personal trial, and to do this the book is one which needs to be read when time constraints are not paramount, a situation rare for most busy clinicians.

Similar time limitations, often economically or client-priority based, result in the practice of brief or time-limited therapies. According to Miller, Duncan, and Hubble (1997), the average client attends about 10 sessions. Has this been at the expense of the kind of personal growth for clients which might be promoted by the kinds of imagery techniques advocated in these chapters? Duncan and Miller (2000) further point out that research indicates that 60–65 percent of people experience significant symptomatic relief within one to seven visits, with increases to 70–75 percent after six months, and to 85 percent at one year. Can these possible deficits be remedied in part by the use of self-help books such as those published by Mike and Nancy Samuels, and described by Kruck in chapter 14. Duncan and Miller (2000), quoting meta-analyses by Scogin, Bynum, Stephens, and Calhoun (1990) and by Gould and Clum (1993), noted that self-help books *were as effective as therapy for a wide range of problems*. Perhaps some of the chapters of the book could be used in this manner with clients.

Some of the imagery techniques described herein are those employed in a time when therapy sessions averaged far more than the previously cited 10 per person (e.g., Morrison, chapter 16) while others require less time (Achterbeurg, Dossey, & Kolkmeier, chapter 8). Although this volume was published in 2002, a numbers of its chapters (2, 8, 13, 18, 19, 26, and 27) are reprinted, mostly from work published in the 1980s. Therefore about one-quarter of the book may already be familiar to some readers who have been in practice for a couple of decades. Much of the literature to which the authors refer likewise has its genesis in the 1970s and 1980s. While many of the reports are illustrated with case studies demonstrating successful application of the strategies described, what little research support is proffered by authors is likewise several decades old (e.g., chapters 6, 29). As Sheikh's most recent offering citing research-based evidence was published in 1990, this is an area in which both researchers and clinicians would be most grateful to observe some updating.

While the book may cover familiar territory for some, and the research evidence for the utility of many of the techniques is sparse and somewhat elderly, many readers may find these techniques a source of ideas for working with clients/patients. Because each offering is of necessity a brief coverage, reading/re-reading of some of the original works cited herein may be a next step for some who take the time to dip into this smorgasbord of ideas.

As Shirley Bankier (chapter 23) asserts in relation to imagery, "one way of knowing is limiting, and development of multiple modes of knowing can lead to understanding and creativity." The use of imagery which can evoke concomitant emotional and physiological responses can be an effective complement to more customary cognitive therapeutic approaches. This theme is reiterated throughout the book. "Imagination integrates sensation, emotion, cognition and intuition," according to Moleski, Ishii, and Sheikh (chapter 22). "Feelings," asserts Eligio Stephen Gallegos (chapter 18), "are much closer to images than they are to words or descriptions." Therefore these strategies have, as well as wider application, a place in the clinician's armamentarium for use with those for whom verbal expression is a poor therapeutic option. There is a strong emphasis throughout the book on the ownership of the image by its maker, and an emphasis on the collaborative role of the therapist, which many readers will find congenial.

This is a book which impresses as somewhat "old-fashioned," just like the handmade patchwork quilt. As with such a quilt, ultimate appreciation of the totality derives from study of individual squares and noting the many occasions on which its usefulness can be relied.

SUE HUTCHINSON-PHILLIPS,
Psychologist, Brisbane

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Time Distortion in Hypnosis: An Experimental and Clinical Investigation (second edition)

L. F. Cooper and M. H. Erickson

Carmarthen, U.K., Crown House Publishing, 2002. 224.

£18.99

When I first realised that the book I had requested to review was first published in 1954, that this second edition was in 1959, and that the bulk of it was on a series of studies using a sample of 15 subjects, I was not very motivated to really commit to its study. How pleased I was to find that it was an historical treat. Here is a pioneering study into time distortion with hypnosis with the masters — Cooper and Erickson. Their academic heads were on the chopping block because the medical use and teaching of hypnosis were not formally approved by the British Medical Association until 1955 and in America until 1958!

The first edition presented research on the lengthening of perceived time and this second edition added material on the shortening or condensation of subjective time experience.

Part 1 provides 160 pages of experiments by Cooper on time distortion in situations which include counting, creative mental activity, motor and nonmotor learning, mathematical mental activity, and polygraph studies. It was concluded that:

1. Time distortion can be demonstrated in the majority of subjects in whom a moderately deep trance can be produced.
2. Thought, under time distortion, can take place with extreme rapidity

relative to world time. Such thought may be superior, in certain respects, to waking thought.

3. There was some, but not substantial, evidence that creative thought and nonmotor learning can be facilitated. There is little evidence that motor learning can be facilitated.

The real juice in the book is in Parts 2 and 3, where Erickson and his wife provide fascinating examples of real-life cases which they worked with in hypnosis.

Part 2 examples include lengthening time: an artist with a painting block who was able to complete a circus painting that should have taken 70 hours, in one day; a woman who overcame recurring amnesia due to a rape; a young man who “practised” hypnotically and improved his guitar playing; a young woman who overcame a phobia of blood; a young woman who was becoming psychotic and who regained her sense of self in the real world; and a man who was unable to look at a woman without seeing her as a skeleton!

Part 3 presents a case of labour for a woman who was pleased to find that the procedure of having a baby was so accelerated that she hardly had time to notice it!

So it is for the case studies that I would heartily recommend this book. It provided me with a suspended moment in time which captured my attention and which I really enjoyed!

JANET HALL,
Clinical Psychologist, Melbourne

BOOKS AVAILABLE FOR REVIEW

Full members of the Australian Society of Hypnosis interested in reviewing books should apply to the editor. Reviews are subject to editorial review prior to publication. Reviewers are required to return books to the Board of Education of the Society, for use as part of the Distance Education Program.

- Rubin Battino *Metaphoria: Metaphor and Guided Metaphor
for Psychotherapy and Healing.*
Carmarthen, Wales: Crown House
Publishing, 2002.
- Joseph Covino *Terror Tales of the City.*
Berkeley, CA: New Humanity Press, 2002.
- Roger Hambleton *Practising Safe Hypnosis.*
Carmarthen, Wales: Crown House
Publishing, 2002.
- Clark L. Hull *Hypnosis and Suggestibility.*
Carmarthen, Wales: Crown House
Publishing, 2002.
- Moshe Lang &
Peter McCallum *The Answer Within.* Camberwell, Vic.:
Australian Council for
Educational Research, 2000.
- Igor Ledochowski *The Deep Trance Training Manual, Vol. 1.*
Carmarthen, Wales: Crown House
Publishing, 2002.
- Tracie O'Keefe *Self-Hypnosis for Life.*
London: Extraordinary Peoples Press, 2000.