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Oppression Sleep Paralysis

Stacey A. McNulty

**A Thesis submitted to the Faculty of Graduate Studies and
Research in partial fulfillment of the requirements
for the degree of
Master of Arts**

**Department of Psychology
Carleton University
September, 1993**

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OPPRESSION SLEEP PARALYSIS

submitted by

Stacey Ann McNulty, B.A.

in partial fulfillment of the requirements
for the degree of Master of Arts

Thesis Supervisor

Chair, Department of Psychology

Carleton University

September 1993

Abstract

The characteristics of sleep paralysis were examined through the administration of a sleep paralysis questionnaire. Twenty-one percent of 1798 introductory psychology students reported having sleep paralysis at least once. It was found that sleep paralysis is a more complex experience than previously acknowledged. Only 3% of sleep paralysis subjects simply reported paralysis, the remainder reported a number of associated features.

Sleep paralysis subjects (N=190) and control subjects (N=229) returned for a second session and were compared on general sleep variables as well as several indexes of psychopathology and imaginal experiences. It was found that sleep paralysis subjects scored significantly higher on a night imagery factor, a nightmare/terror factor, an imaginativeness factor, a psychopathology factor, and hypnotizability than controls.

Intensity of sleep paralysis was determined by summing the number of symptoms associated with the sleep paralysis attack. A regression predicting intensity from all of the variables in the study found that 49% of the variance in the intensity scores could be accounted for.

A hypothesized continuity across day and night imagery received support. Subjects who report sleep paralysis and its imaginal features scored higher on both day and night imagery than controls.

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An Investigation of Oppression Sleep Paralysis

Nightmares are commonly defined as frightening dreams that usually awaken the dreamer from REM sleep (American Sleep Disorders Association, 1990). Historically, however, the term nightmare had a different but quite specific meaning. It referred to a distressing dream with three primary features: 1) agonizing dread; 2) sense of oppression or weight on the chest which impedes respiration and 3) the conviction of helpless paralysis (Jones, 1949). This phenomenon may occur in a dream or when a person is awake (Jones, 1949). Jones explained that the impression of wakefulness is one of the most extraordinary features of the nightmare.

The etymology of the term nightmare is described by Jones (1949, p.243): "The word Nightmare itself comes from the Anglo-Saxon neaht or nicht (= night) and mara (= incubus or succubus). The Anglo-Saxon suffix a denotes an agent, so that mara from the verb merran, literally means 'a crusher' and the connotation of a crushing weight on the breast is common to the corresponding words in allied languages...".

Liddon (1967) argues that the phenomenon that was historically labelled as a nightmare is currently subsumed under the term 'sleep paralysis'.

Sleep paralysis is defined in the International Classification of Sleep Disorders Diagnostic and Coding Manual (American Sleep Disorders Association, 1990 p. 166) as "a

period of inability to perform voluntary movements either at sleep onset (hypnagogic or predormital form) or upon awakening either during the night or in the morning (hypnopompic or postdormital form)." Other associated features such as acute anxiety, fear and hallucinations may also be present.

This manual also reports that there are two forms of sleep paralysis: isolated and familial. The isolated cases occur most frequently on awakening and occur because of predisposing factors such as irregular sleep habits, sleep deprivation and psychological stress. Familial cases are exceptionally rare and it is hypothesized that this type of sleep paralysis is transmitted genetically on the X chromosome (American Sleep Disorders Association, 1990). Familial sleep paralysis attacks occur most frequently at sleep onset. This manual reports that sleep paralysis is found in three to six percent of normal individuals with an equal sex ratio.

Unfortunately, the description of sleep paralysis in normal subjects given in this manual is based on very little research. For instance, the bibliography in the sleep paralysis section refers to only three articles and only one of these (Goode, 1962) deals with sleep paralysis in normal subjects. The other two articles discuss sleep paralysis in narcoleptic subjects. Therefore the description given in this manual of sleep paralysis, its associated features, predisposing factors and prevalence is incomplete.

Schneck (1952, 1960) was one of the first to

systematically investigate sleep paralysis. In 1952 he reported on two men who experienced sleep paralysis. One man had attacks only after napping and the other after regular nocturnal sleep. The attacks were very similar in that both men would awaken and be completely aware of their surroundings yet they were unable to move. Neither subject reported hallucinations. Schneck (1960) also reported on a woman with sleep paralysis. This woman reported that the attacks occurred both pre and post dormitally. She reported a feeling of pressure on her chest and hallucinated a man and ill-defined animals. Like Schneck's two male cases, the woman would awaken and have complete awareness of her surroundings yet was unable to move and felt intense fear.

Goode (1962) provided one of the few studies of sleep paralysis. His sample consisted of nursing and medical students, and inpatients at a hospital. Sleep paralysis was reported by 4.7% of all subjects and occurred more frequently in males than females (a ratio of four to one). None of the subjects with sleep paralysis reported cataplexy or narcolepsy. Among the subjects reporting sleep paralysis, 12% reported that they also walked in their sleep and 65% reported that they talked in their sleep. The incidence of sleepwalking and sleeptalking did not differ significantly between those with sleep paralysis and those without. Eighty-eight percent of the subjects reported that their paralysis lasted for less than sixty seconds. The other twelve percent

reported that their attack was between one and two minutes. Goode (1962) found that 41.2% of the subjects reported that sleep paralysis occurred less than five times per year. The frequency of sleep paralysis was reported as once by 29.4% and more than five times by 29.4% of subjects. The average age of onset was nineteen years old. Only two subjects reported that a family member had sleep paralysis.

Roth, Bruhova and Berkova (1968) investigated the patterns of sleep paralysis in two families. In the first family, sleep paralysis was found in fourteen out of forty-one family members over four generations. In the second family, sleep paralysis occurred in four out of nine family members over three generations. Sleep paralysis was invariably genetically transmitted to the children by the mother. The authors found no case in which sleep paralysis was transmitted genetically by a man.

Penn, Kripke and Scharff (1981) found that approximately 16% of 80 first year medical students had experienced sleep paralysis. They found no significant sex difference. Fourteen percent of the attacks occurred postdormitally, six percent predormitally and four percent experienced paralysis both pre and post dormitally. Subjects were asked if they felt anything had predisposed them to an attack. One subject believed that frightening movies caused the attacks and another reported that arguments seemed to cause the attacks. None of the subjects had a family history of sleep paralysis.

Only one participant reported visual and auditory hallucinations (ringing sounds and strands of colour). Some subjects also reported feelings of suffocation.

Sleep paralysis was examined in one hundred and sixty-four Nigerian medical students by Ohaeri, Odejide, Ikuesan and Adeyemi (1989). Overall 26% experienced sleep paralysis. This was approximately 31% of females and 20% of males. Fifty-six percent reported that this was an occasional to rare experience and 37% reported that they had only one attack. Subjects were administered a self-report questionnaire which contained a checklist for neurotic and psychotic symptoms. Subjects were also given the Eysenck Personality Questionnaire. No differences were found on these measures between subjects with sleep paralysis and those without. Forty-two percent of the subjects reported that the experience lasted about one minute and 39% claimed it lasted two to five minutes. Out of the forty-three subjects with sleep paralysis, fourteen (32.5%) had hallucinations occurring with the paralysis. Ten experienced visual hallucinations, two had auditory hallucinations and two had visual and auditory hallucinations. The contents of these hallucinations were not described.

Bell, Shakoor, Thompson, Dew, Hughley, Mays and Shorter-Gooden (1984) performed the first survey to determine the incidence of sleep paralysis in black subjects. The incidence of paralysis was as follows: 39% of controls, 50% of precare

psychiatric patients and 33% of aftercare psychiatric subjects. Sleep paralysis was experienced by 35% of the total male population and 46% of the total female population. Of the subjects who reported sleep paralysis, 27% experienced it one or more times monthly. The control and precare subjects with sleep paralysis had higher scores on the Holmes-Rahe Social Readjustment Scale which is a measure of life changes than those without. Scores on the Holmes-Rahe Scale and the Saafir Stress-Anxiety Diagnostic Scale correlated with sleep paralysis only in the precare subjects. Sleep paralysis did not correlate with any personality pattern on the Million Clinical Multiaxial Inventory.

Bell, Dixie-Bell and Thompson (1986) reported two studies on sleep paralysis in black subjects. In one study, subjects on a mental health center's mailing list were sent a questionnaire on sleep paralysis. Twenty-five subjects who had sleep paralysis responded. Fifty-two percent of these people reported that they had fewer than one episode per month. Three times as many females as males reported sleep paralysis. Twenty-eight percent of the subjects reported that at least one other family member had sleep paralysis. The second study reported by Bell et al. (1986) was a family study. It reported four generations of a family who suffered from sleep paralysis. Out of sixty-four family members interviewed, thirty-three (51.6%) reported at least one episode of sleep paralysis. Seventy-two percent of the

subjects with sleep paralysis reported having fewer than one episode per month. Twice as many females as males reported having paralysis. Overall, in both studies, the duration of the sleep paralysis attacks was less than one minute in 21% of the subjects. A duration of more than one minute was reported by 21% and the remaining 58% did not know the duration of the episode.

Hufford (1976, 1982) described a phenomena in Newfoundland referred to most commonly as the "Old Hag". This experience occurred before going to sleep or after waking up. During this experience the person feels awake and realistically perceives the environment but the person cannot move. He or she feels a presence or sees someone or something approach the bed and may feel a pressure on his or her chest. Auditory hallucinations such as hearing footsteps or their name being called may also be experienced. These vivid hallucinations along with the feeling of paralysis often lead the person to believe that an entity is in the room. There are several explanations that subjects give for the Old Hag such as indigestion or circulatory stagnation. The oldest explanations is that the attacks are a form of supernatural assault. There are two explanations of this assault (Hufford, 1982, p.8). First, "The 'Hag' or whatever the attacker is called is a supernatural creature, not a living human, sometimes acting on its own and at other times called upon by a human to carry out an attack...". The second explanation

is that "the haggling experience is directly caused by a living human who travels as a spirit...".

The Old Hag experience can be classified as sleep paralysis. The Old Hag is a period of inability to perform voluntary movements either at sleep onset or upon awakening. The associated features of sleep paralysis are also present in the Old Hag. The person feels acute anxiety and experiences hallucinations. The most common pattern of recurrence was an attack which occurred "once only or once and occasionally, with intervals of months or years". Frequent or chronic attacks were rare.

Hufford (1982) also examined the typical Old Hag experience outside of Newfoundland in areas such as Pennsylvania, Nebraska, California and Kentucky. He performed informal surveys in these areas and estimates that sleep paralysis occurs in approximately fifteen percent of the population.

Ness (1978) also examined sleep paralysis in Newfoundland. He questioned sixty-nine adults about their Old Hag experiences and found that 62% reported a sleep paralysis attack at least once in their life. Seven percent reported an attack within the last month. Eighty-three percent of males and thirty-nine percent of females reported an attack.

Ness (1978) also administered the Cornell Medical Index (CMI). Nine scales of the CMI were reported. These scales measured complaints in the cardiovascular, digestive, and

nervous systems. The CMI also measured feelings of inadequacy, depression, anxiety, sensitivity, anger and tension. Subjects were also asked whether they walked in their sleep, had nightmares or insomnia. When controlling for gender, there were no significant differences on any of these measures between those with sleep paralysis and those without.

Research on sleep paralysis has virtually ignored the accompanying symptoms of sleep paralysis which are typified in the 'Old Hag'. Sleep paralysis seems to possess a continuum of symptoms ranging from simple paralysis to paralysis accompanied by fear and hallucinations from various sense modalities. There is currently no term to differentiate simple paralysis from paralysis with symptoms such as hallucinations. For this reason, the term 'oppression sleep paralysis' will be used to describe sleep paralysis with additional symptoms such as hallucinations.

Oppression sleep paralysis has been studied in a number of diverse cultures such as Alaskan Eskimos and Japanese students. Firestone (1985) reports that the phenomenon referred to as oppression sleep paralysis in this paper is not uncommon in India and Thailand. Most of these reports emerged as isolated investigations of a phenomenon thought to be culturally specific (eg. augmangia and kanashibari). Later the phenomenon was specified as sleep paralysis, and contained the characteristics of oppression sleep paralysis.

Bloom and Gelardin (1976, p.22) described sleep paralysis

in Alaskan Eskimos called "augmangia". They reported the features of oppression sleep paralysis and in addition reported auditory hallucinations such as clanging and buzzing noises. The traditional explanation for augmangia is that the sufferer is controlled by a spirit and thus cannot move.

In Japan oppression sleep paralysis is called "kanashibari". Fukuda, Miyasita, Inugami and Ishihara (1987, p.280) explain the etymology of this word: "...the term kanashibari derives from the homonym, which means the magic of Fudoh-Myohoh, one of the gods of Buddhism. Long ago in Japan, Buddhist monks were thought to use the magic to paralyze others as if binding them with chains." Fukuda et al. (1987) administered a questionnaire to 635 college students in Japan. The authors found a significant sex difference in that 38% of men and 51% of women had experienced at least one attack of oppression sleep paralysis. Approximately 80% of subjects had this experience less than several times in their life. Approximately 45% of subjects who had sleep paralysis reported that they felt a sense of weight on their chest. Approximately 25% sensed a presence. Overall, auditory, visual and tactile hallucinations were reported by 25%, 15% and 12% of subjects respectively. The distribution for the age of onset for Kanashibari peaked at fifteen years for females and seventeen years for males (Fukuda et al., 1987)

The physical and psychological conditions immediately preceding the attack were also examined. After removing

subjects who did not remember conditions preceding the attack or believed that conditions were the same as usual, two hundred and forty-three subjects remained. The most common unusual conditions were that subjects were tired (approximately 31%), psychologically stressed (approximately 17%), had an irregular life pattern (approximately 12%) and had experienced sleep loss (approximately 10%).

Because of the paucity of research, even the most basic information on sleep paralysis is lacking. In the small number of available studies the percent of subjects with sleep paralysis ranged from three (Association of Sleep Disorders Clinics, 1990) to sixty-two percent (Ness et al., 1978). Information on sex differences is of poor quality with approximately half of the available studies not reporting whether the sex differences were significant (eg. Goode, 1962; Bell et al., 1984, 1986). Only two studies assessed the duration of the attacks (Goode, 1962; Ohaeri et al., 1989). Only three studies have included questions on whether sleep paralysis was present in other family members (Roth et al., 1968; Ohaeri et al., 1989; and Bell et al., 1986). Even less is known about oppression sleep paralysis with only three studies having been conducted (Hufford, 1982 ; Ness, 1978; Bloom et al. 1976).

The present study involved the development and administration of a sleep paralysis questionnaire. This questionnaire asked subjects about the characteristics and

symptoms of their last sleep paralysis experience.

Our study was designed to examine two issues. Our first aim was to assess the individual variables and combination of variables that differentiated between subjects who reported sleep paralysis and those who did not. Our second aim involved assessing the intensity of sleep paralysis by summing the number of symptoms associated with a sleep paralysis attack (eg. pressure on the chest, sense of a presence, visual hallucinations). Our aim was to assess the combination of variables that best predicted the intensity of sleep paralysis among the subset of subjects who reported this experience. Four general classes of variables were assessed. The first class included sleep paralysis related variables. These included assessment of specific factors thought to be associated with sleep paralysis episodes such as degree of stress and fatigue on the night of the attack.

The second class of variables were indexes of more chronic sleep disturbances such as nightmares, night terrors, sleep walking and sleep talking.

The third class of variables assessed levels of psychological distress, psychopathology such as depression, anxiety and paranoid ideation and personality patterns. Related to this class of variables were indexes of perceived abuse.

The fourth class of variables assessed what might be labelled as a propensity toward rich inner experiences and

imaginings. Included here were indexes of imagery vividness, absorption in imaginings, a tendency to develop unusual sensory-perceptual and imaginal experiences and hypnotizability.

Each class of variables will be described in more detail below. In some cases variables were selected with the expectation that they would discriminate between subjects who reported sleep paralysis and those who did not. In other cases variables were selected with the expectation that they would predict the intensity with which subjects in the sleep paralysis group experienced their sleep paralysis episodes (i.e., the number of symptoms associated with these episodes).

General Sleep Variables

Several studies have found that certain sleep disorders often occur together. Relations have been found between sleep walking, night terrors and nightmares (Thorpy and Glovinsky, 1987). Sleep talking and nightmares have been found to be related (Celucci and Lawrence, 1978). A relationship has also been found in children between nightmare, sleepwalking and sleeptalking (Fisher and Wilson, 1987). Therefore subjects in this study were asked to report the frequency with which they experienced several sleep disorders such as sleepwalking, sleeptalking, and night terrors before and after the age of 12 and nightmares.

Psychopathology and Personality Variables

Only three studies (Ness, 1978; Ohaeri et al., 1989 and

Bell et al., 1984) examined the relationship between indexes of mental health and sleep paralysis. In the present study a battery of inventories were administered in order to assess relationships between sleep paralysis and psychopathology and to determine if any personality and mental health measures are related to sleep paralysis. Along with the Eysenck Personality Questionnaire, Rosenberg's Self Esteem Scale, the Symptom Checklist-90R and the Trauma Symptom Checklist, subjects will also be asked to report past abuse.

There is a close similarity between oppression sleep paralysis and the dreams and symptoms of sexually abused individuals. Several worst dream themes are reported by Garfield (1987). One common nightmare theme is that a person senses a presence. This sensing of a presence is a main feature of oppression sleep paralysis (Hufford, 1982). Other common dream themes are of being trapped, tied down or being paralysed (eg. Garfield, 1987; and Fernandez, 1991). Again, these are primary features of oppression sleep paralysis. Sebold (1987) reported that fear of being controlled by a larger, faster and more powerful person was a symptom of sexual abuse in men. This is yet another feature of oppression sleep paralysis.

Ellenson (1985) reported a number of symptoms which purportedly are useful in detecting a history of incest. The abused women in her study reported the hallucination of feeling an evil or malevolent presence in their homes.

Frequent auditory hallucinations are experienced such as hearing their name being called or "intruder" noises such as footsteps. Recurring visual hallucinations such as seeing shadows or figures in the room are also reported. Tactile hallucinations range from being touched to being pushed down. Ellenson (1985) reports that these hallucinations usually occur while the person is in bed or at night.

All of these symptoms are identical to those which occur during oppression sleep paralysis. Haga (1989) also draws parallels between oppression sleep paralysis and symptoms of sexual trauma and concludes that sleep paralysis could be a reflection of past sexual abuse. Therefore, the Major Events Inventory (Cuddy, 1990) was used to elicit reports of sexual and physical abuse.

Imaginal Propensity

This study also examined the relationship between the vivid imagery which may occur during sleep paralysis and daytime imagery. Starker (1973, 1984) and Starker and Hasenfield, 1976) found that daytime imagery was analogous to nocturnal imagery in terms of vividness, bizarreness, emotionality and content. Starker et al. (1976, 1984) also found that types of daydream imagery are related to various sleep disturbances such as nightmares and insomnia. We hypothesized that this continuity between daytime and night imagery would apply to sleep paralysis. Because many of the symptoms of sleep paralysis are basically imaginal (eg.,

auditory and visual hallucinations), we examined the relationship between imaginal variables and intensity of sleep paralysis.

Relationships have been found between many imaginal variables. For instance, Lynn and Rhue (1986) found that subjects who scored high on fantasy proneness also had high scores on imagery vividness, absorption and hypnotizability. Lynn and Dudley (1987) found that high scores on fantasy proneness corresponded to high scores on the Perceptual Abberation and Magical Ideation scales. Also, a moderate relationship has been found between absorption and imagery vividness (McConkey and Nogrady, 1986). It is hypothesized that subjects who experience sleep paralysis will have higher scores on all of these imaginal variables than controls.

The Personal Philosophy Inventory (Persinger, 1984a) purports to measure temporal lobe signs. In the present study, however, we were not particularly interested in temporal lobe signs but in the content of this particular inventory. The Personal Philosophy Inventory contains items which focus on imagery and imaginal abilities and this was our primary interest in this scale.

Hypnotizability was of particular interest in this study. Nardi (1981) suggested that hypnosis helps to terminate sleep paralysis attacks and to decrease the frequency of these attacks. Nardi (1981) found that during their first hypnotic induction a large number of subjects spontaneously reported

that the experience of sleep paralysis is very similar to hypnosis. He provided two case reports of female subjects with a history of sleep paralysis attacks. The subjects were taught autohypnosis in order to relax during the attacks or to bring themselves out of the attack. Nardi (1981) reported that at follow-up (10-14 months later) both subjects reported that autohypnosis was successful at decreasing the fear associated with the attacks. The Carleton University Responsiveness to Suggestion Scale (Spanos, Radtke, Hodgins, Stam and Bert and, 1981) was administered to subjects with sleep paralysis and the control subjects in order to determine whether there is a relationship between sleep paralysis and hypnotic susceptibility.

Bell et al. (1984, 1986) defines sleep paralysis as a "state of consciousness experienced while waking from sleep or falling asleep". Pekala, Wenger and Levine (1985) examined the relationship between various states of consciousness (relaxation-meditation and sitting quietly with eyes closed or open) and absorption. Absorption is a measure of the predisposition to become highly involved in sensory and imaginative experience (Tellegen and Atkinson, 1974). Absorption was positively correlated with subjective reports of being in an altered state of consciousness. It is possible that sleep paralysis which has been defined as an altered state is related to absorption.

There are several unique body sensations which occur

during oppression sleep paralysis attacks. A person may feel pressure on their chest, hands, arms and legs (Hufford, 1982). It is possible that subjects with oppression sleep paralysis also experience strange sensations outside of sleep paralysis; therefore, the Perceptual Abberation Scale (Chapman, Chapman and Raulin, 1978) was administered to the subjects in this study.

Those who experience oppression sleep paralysis often interpret it as a paranormal experience (Hufford, 1982). Some subjects believed that the Old Hag experience was brought on by a curse or through witchcraft. Because of this link of oppression sleep paralysis and the supernatural, two questionnaires were given which assess mystical experiences and thinking: Hood's Mysticism Scale (Hood, 1975) and the Magical Ideation Scale (Eckblad and Chapman, 1983).

Method

Subjects

This study involved two sessions. In Phase One, 1798 Introductory Psychology students (N= 822 males; N=976 females) in the mass testing program at Carleton University were given the Sleep Paralysis Questionnaires as a means of detecting subjects who have experienced this phenomenon. In Phase Two, all 375 subjects who reported sleep paralysis were asked to participate in the second phase of the study. Seventy-five males and one hundred and fifteen females who reported sleep paralysis agreed to participate in the study. Ninety males and one hundred and thirty-nine females who did not report sleep paralysis served as controls. All subjects were given course credit for their participation.

Materials

Phase I: The Sleep Paralysis Questionnaire (Appendix A) was administered to all students attending class during the Psychology Department's Mass Testing program. This questionnaire was developed for the present study in order to determine the symptoms of sleep paralysis and asks subjects whether they have experienced various phenomena which are thought to occur during oppression sleep paralysis or which are associated with other aspects of sleep.

Phase II: All subjects who completed Phase II of the study were administered a package containing the following items: 1) An Informed Consent form (Appendix B) which

explains to subjects that their participation is completely voluntary and that they are not obliged to respond to any item that they do not want to. It is also explained that they can withdraw from the study at any time without loss of experimental credits. Subjects were informed that all information was strictly confidential and to be used for research purposes only.

2) Shor, Orne and O'Connell's (1966) revision of the Betts' Imagery Vividness Scale (Appendix C) was used to assess subjective reports of the vividness of various imagined situations. This 15-item questionnaire includes items from different sense modalities but emphasizes visual imagery. The reliability coefficients for internal consistency of the imagery variables were greater than .91 on two administrations (Shor, Orne and O'Connell, 1966). This scale has also been found to correlate in the order of .56 with hypnotizability (Shor, Orne and O'Connell, 1966).

3) The Carleton University Responsiveness to Suggestion Scale (CURSS) (Appendix D) was administered to all subjects. The CURSS is 7-item instrument designed to assess overt and subjective responses to test suggestions traditionally associated with hypnosis. Two suggestibility scores for each subject were assessed: objective (CURSS:O) and subjective (CURSS:S). Test-retest correlations are adequate (Spanos, Radtke, Hodgins, Bertrand, Stam, and Dubreuil, 1983). Scores on the CURSS were found to correlate significantly with the

Harvard Group Scale of Hypnotic Susceptibility:A and the Stanford Hypnotic Susceptibility Scale Form C (Spanos, Radtke, Hodgins, Bertrand, Stam, and Moretti, 1983).

4) Tellegen and Atkinson's (1974) Absorption Scale (Appendix E) is a 34-item questionnaire which measures the predisposition of subjects to become highly involved in sensory and imaginative experiences (Tellegen and Atkinson, 1974). As Spanos and Chaves (1989) report, this scale has been found to have a moderate association with scales measuring daydreaming and fantasy proneness. It has failed to correlate significantly with personality and psychopathology variables thus demonstrating divergent validity (Spanos and Moretti, 1988).

5) Hood's Mysticism Scale (Hood, 1975) (Appendix F) is a measure of reported mystical experiences. Mystical experience is defined as a perceptual experience characterized by unity and transcendence (Hood, 1975). Transcendence implies perceptual experiences which go beyond the normal or ordinary perceptual experiences. Unity is oneness with the environment. This scale has been found to correlate with measures of openness to experience and absorption (Hood, 1975 and Spanos and Moretti, 1988).

6) A combined Perceptual Abberation (Chapman, Chapman and Raulin, 1978) -- Magical Ideation Scale (Eckblad and Chapman, 1983) (Appendix G) was administered to all subjects. The Perceptual Abberation Scale (PAS) is a 35-item true-false self

report measure of disturbances and distortions in perception of bodily image and objects. It identifies distortions reportedly found in schizophrenics and borderline schizophrenics (Meehl, 1964). The scale has successfully identified individuals displaying these psychotic-like symptoms in college students (Allen, Chapman, Vuchetich and Frost, 1987) and in a non-psychotic psychiatric sample (Lenzenwegger and Loranger, 1989). The PAS has an internal consistency alpha coefficient of about .90 and test-retest stability of .75 (Chapman and Chapman, 1985).

The Magical Ideation Scale (Eckblad and Chapman, 1983) measures belief in forms of causation that by conventional standards are invalid. Eckblad and Chapman (1983) found that subjects who displayed magical ideation have more psychotic-like and schizotypal symptoms than control subjects. It has been found to correlate with the PAS (.70) another measure which is used to predict future psychosis (Eckblad and Chapman, 1983).

7) The Personal Philosophy Inventory (PPI) (Persinger, 1984a) (Appendix H) contains items which are directly or indirectly involved with the measurement of temporal lobe signs in normal subjects. Persinger (1984a) reported that all of the affective and spatial-temporal alterations characteristic of spontaneous telepathy/clairvoyancy, out-of-body and precognition reports are found in people diagnosed with temporal lobe epilepsy or occur when subjects are

stimulated electrically in various temporal lobe regions. Persinger (1984a) hypothesized that mystical/religious experiences in general and paranormal experiences in particular are symptoms which reflect a continuum of temporal lobe activity. Persinger (1984a) found a correlation between paranormal experience and temporal lobe signs ($r=.60$ and $.72$, $p<.001$ in two samples of university students). The PPI was found to have a test-retest reliability of $.90$ after ten days and $.65$ to $.75$ after 100 days. The test has also been found to have internal and external validity. Correlations ($p<.01$) occurred between the number of spikes per minute within electroencephalographic recordings from the temporal lobe and the scores on religious beliefs ($.76$), a paranormal or mystical cluster ($.52$) and a feeling of presence cluster ($.50$). A correlation ($r=.50$, $p<.001$) was found between subjects' reports of paranormal experiences and temporal lobe clusters (Makarec and Persinger, 1985).

8) The Wilson-Barber Inventory of Childhood Memories and Imaginings (ICMI) (1981) (see Appendix I) purports to measure fantasy proneness. Rhue and Lynn (1989) report that the ICMI has adequate reliability. They also report that the ICMI correlated significantly with absorption and imagery vividness.

9) The Eysenck Personality Questionnaire (EPQ) (Appendix J) contains three personality scales (extraversion, neuroticism and psychoticism) and a lie scale which measures

the tendency of subjects to "fake good" (Eysenck and Eysenck, 1975). The EPQ has been found to be related to other personality measures such as the Maudsley Medical Questionnaire, the Maudsley Personality Inventory and the Eysenck Personality Inventory (Eysenck and Eysenck, 1975). The various scales of the EPQ have a test-retest reliability in the .80 to .90 region (Eysenck and Eysenck, 1975).

10) Rosenberg's Self-Esteem Questionnaire (Rosenberg, 1965) (Appendix K) measures global self-esteem which is predictive of behaviour across a number of situations (O'Brien, 1985). Self esteem is a mental health variable in which low scores predict vulnerability to psychiatric disorders such as depression and schizophrenia (Beck, Steer, Epstein and Brown, 1990). Rosenberg (1979) reported test-retest reliability in the order of .92 and a coefficient alpha of .72.

11) The Symptom Checklist (SCL-90R) (Appendix L) is an inventory of self-reported symptoms. There are multidimensional measures of psychological symptom patterns and psychopathology such as somatization, interpersonal sensitivity, anxiety, hostility, psychoticism, dissociation, depression, paranoid ideation, and obsessivity-compulsivity (Derogatis, 1977). Derogatis (1977) reports that concurrent validity has been demonstrated through significant correlations with Minnesota Multiphasic Personality Inventory (MMPI) subscales ranging from .50 to .75. Each dimension of

the SCL-90R had its highest correlation with the like construct from the MMPI. The scales of the SCL-90R have also been found to correlate with the Middlesex Hospital Questionnaire which also contains symptom dimensions. The correlations ranged from .36 to .92 between like dimensions (Derogatis, 1977).

12) The Major Events Inventory (Cuddy, 1990) (Appendix M) provides subjects with a list of positive and negative life events and subjects are asked to indicate which events they had experienced. This instrument was used to elicit information regarding unwanted sexual activity and physical abuse.

13) The Trauma Symptom Checklist (TSC-40) (Briere and Runtz, 1989) (Appendix N) is an instrument used to assess the impact of child abuse on later functioning (Briere and Runtz, 1987). The TSC-40 consists of 5 subscales; sleep disturbance, anxiety, depression, post sexual abuse trauma-hypothesized and dissociation. Briere and Runtz (1989) found that the TSC had a correct classification rate of 79% ($p < .0001$) of subjects who had been abused as children and has a reliability coefficient of .89 (Briere and Runtz, 1987). There are no significant sex differences on measures of abuse on either the scales or the total score.

14) A Debriefing (Appendix O) was given to all subjects. This explained the purpose of the study and also provided a list of services for victims of abuse.

Procedure

Phase I: All Introductory psychology students at Carleton University were asked to complete the Sleep Paralysis Questionnaire as part of the mass testing program.

Phase II: Subjects were tested in groups of up to ten people. Sleep paralysis subjects and controls were tested together. After completing the informed consent, the subjects were administered the Betts' Imagery Vividness Scale and then completed the CURSS. Subjects were then asked to complete the remainder of the questionnaires at their own pace. One of two female experimenters were available to answer questions.

Results

The Characteristics of Sleep Paralysis

The characteristics of the sleep paralysis experience will be described for all subjects who reported sleep paralysis.

The sleep paralysis questionnaire was completed by 1798 subjects in mass testing. Overall, 375 or 21% of the subjects reported sleep paralysis. Out of the 822 males, 19% ($n=156$) reported sleep paralysis. Of the 976 females, 22% ($n=219$) reported sleep paralysis. There was no significant difference in the incidence of sleep paralysis in males and females, $\chi^2(1, N=1798) = .53$.

Thirty-three percent ($n=126$) of the subjects reported that they had experienced sleep paralysis only once. Forty-six percent ($n=178$) had experienced it 2 to 5 times and 20% ($n=78$) had sleep paralysis more than 5 times. One percent of subjects indicated that they did experience sleep paralysis but did not indicate the number of times that they had the experience.

Table 1 presents the percentage of sleep paralysis sufferers who report each of the sleep paralysis symptoms. As can be seen, the symptoms with the highest reported percentages were feeling afraid (67%), sensing a presence (63%) and the ending of the experience when they succeeded in moving an extremity (58%). The time between the sleep paralysis and the testing was calculated. The median time was

Table 1

Percent of Subjects Reporting Various Sleep Paralysis Symptoms

Symptom	Percent		
	Yes (n)	No (n)	Missing (n)
Presence	63.0 (244)	36.2 (140)	0.8 (3)
See person or being	33.3 (129)	66.4 (257)	0.3 (1)
See someone pushing			
on chest	5.9 (23)	93.5 (362)	0.6 (2)
Hear footsteps	24.5 (95)	75.2 (291)	0.3 (1)
Hear name	18.3 (71)	81.4 (315)	0.3 (1)
Pressure on chest	35.7 (138)	62.8 (243)	1.5 (6)
Touched	32.3 (125)	67.2 (260)	0.5 (2)
Float	27.1 (105)	72.4 (280)	0.5 (2)
Afraid	66.7 (258)	33.3 (129)	0.0 (0)
Other unusual noises	30.0 (116)	68.5 (265)	1.5 (6)
Other unusual sights	22.7 (88)	75.7 (293)	1.6 (6)
Unusual body sensations	56.1 (217)	41.3 (160)	2.6 (10)
End of experience when			
an extremity was moved	58.4 (226)	38.0 (147)	3.6 (14)

one year. The most frequent sleep position during the sleep paralysis attack was sleeping on the back (72%), followed by side (13%) and stomach (11%). Only two subjects reported being in a chair.

Most of the subjects reported that sleep paralysis occurred before falling asleep (62%). Sleep paralysis occurred in 36% of subjects after waking up. If subjects were falling asleep, the median time in bed before the experience was 30 minutes. If subjects were waking up, they had been asleep for a median time of 5 hours. The duration of the sleep paralysis attack ranged from 10 seconds to 70 minutes with a median duration of 3 minutes.

Subjects were also asked whether they felt stressed, overworked or tired before the experience. Most subjects reported that they felt stressed, tired or overworked before the paralysis (see Table 2).

Subjects were asked the age of their first sleep paralysis experience. Ages ranged from 3 years to 36 years with a mean of 14 years.

An overall intensity variable was created for the sleep paralysis subjects. For each of the following questions subjects were given a score of 0 for answering 'no' and 1 for answering 'yes': sensing a presence, seeing a person or being, feeling a pressure on their chest, seeing someone push on their chest, hearing footsteps, hearing their name being called, feeling that someone touched them, feeling that they

Table 2

Reports of Feeling Stressed, Overworked and Tired before Sleep
Paralysis

Symptom	N	Percent
Stressed		
Not at all	132	34.1
Slightly	126	32.6
Somewhat	79	20.4
Severely	32	8.3
Missing	18	4.7
Overworked		
Not at all	174	45.0
Slightly	102	26.4
Somewhat	68	17.6
Severely	22	5.6
Missing	21	5.4
Tired		
Not at all	62	16.0
Slightly	122	31.5
Somewhat	130	33.6
Severely	53	13.7
Missing	20	5.2

floated, seeing or hearing something unusual or feeling other unusual body sensations. The new variable called 'intensity' could range from 0 to 11. Intensity scores had a range of 0 to 9. Only 13 out of 387 subjects experienced sleep paralysis without any other symptoms. The average intensity score was 3.5. That is, most subjects showed an average of 3.5 symptoms beyond sleep paralysis.

Subjects were asked to report whether other family members had also experienced sleep paralysis. The following family members were reported: no other member (74.9%), mother (7.8%), father (1.8%), sister (3.6%), brother (2.6%), grandmother (1.6%), aunt (1.6%) and mother, brother and sister (1.3%). The rest of the percentage for family members were less than 1%.

Chi-Square on Intensity Symptoms

Chi-square analyses were performed to determine whether certain intensity symptoms were dependent upon each other. See Table 3 for the results of these analyses. Sensing a presence and seeing a person were associated with a number of symptoms. Sensing a presence was associated with hearing noises such as footsteps, your name and other unusual noises. It was also associated with seeing something unusual, and the sensations of being touched, floating and a pressure on the chest. Seeing a person was associated with hearing unusual noises, seeing unusual things, feeling a pressure on the chest and sensing a presence. Table 4 displays the contingency

Table 3a

Significant Chi-square Analyses for Intensity Symptoms

Variables	Chi-square	Significance
See a person by see other unusual things	57.06	.000
See a person by feeling a pressure on the chest	41.42	.000
See a person by hearing unusual noises	5.47	.019
See a person by sense a presence	53.98	.000
Sense a presence by feel pressure on the chest	11.09	.001
Sense a presence by hear footsteps	10.34	.000
Sense a presence by hear name	9.74	.002
Sense a presence by being touched	23.01	.000
Sense a presence by hear unusual noises	15.28	.000
Sense a presence by float	5.56	.018
Sense a presence by see something unusual	15.36	.000
Hear a name by hear unusual noises	17.29	.000
Feel pressure by hear footsteps	6.28	.012
Feel pressure by feel touched	9.56	.002
Feel pressure by seeing someone pushing on chest	18.62	.000

Note. DF=1 for all analyses

Table 3b

Significant Chi-square Analyses for Intensity Symptoms

Variables	Chi-square	Significance
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Feel pressure by unusual body sensations	6.12	.013
Hear footsteps by hear unusual noises	25.60	.000
Feel touched by hear unusual noises	12.78	.000
Float by unusual body sensations	14.11	.000
Hear unusual noises by see something unusual	12.52	.000

Note. DF=1 for all analyses

Table 4a

Contingency Tables for the Significant Chi-Square Analyses

Sense a Presence			
		No	Yes
Feel Pressure on Chest	No	73	65
	Yes	168	72
Hear Footsteps	No	119	21
	Yes	171	72
Feel Touched	No	115	24
	Yes	143	100
Hear Other Unusual Noises	No	111	24
	Yes	153	90
Float	No	92	48
	Yes	186	56
See Other Unusual Things	No	119	16
	Yes	171	72

Table 4b

Contingency Tables for the Significant Chi-Square Analyses

See A Person		No	Yes
See Other Unusual Things	No	223	29
	Yes	69	59
Feel Pressure on the Chest	No	145	109
	Yes	97	29
Hear Other Unusual Noises	No	185	67
	Yes	79	49
Sense a Presence	No	126	14
	Yes	130	114
Hear Your Name	No	220	94
	Yes	36	35

Floating Sensation		No	Yes
Other Unusual Body Sensations	No	131	140
	Yes	28	73

Table 4c

Contingency Tables for the Significant Chi-Square Analyses

Feel Pressure on Chest			
		No	Yes
Hear Footsteps	No	172	70
	Yes	114	24
Felt Touched	No	177	65
	Yes	79	58
See Someone Pushing On Chest	No	237	5
	Yes	120	18
Other Unusual Body Sensations	No	112	125
	Yes	46	89

Hear Other Unusual Things			
		No	Yes
Hear Name	No	230	79
	Yes	35	36
Hear Footsteps	No	219	67
	Yes	46	48
Feel Touched	No	192	63
	Yes	71	53
See Other Unusual Things	No	217	48
	Yes	75	40

tables for the significant chi-square analyses.

Content Analyses of Unusual Sights, Noises or Sensations and Hypothesized Causes of the Sleep Paralysis

Content analyses were performed on subjects responses to questions which asked whether they saw anything unusual, heard anything unusual or felt any unusual body sensations. A content analysis was also performed on subject's responses to the question asking them to hypothesize about the cause of their last sleep paralysis experience. The responses to the questions were analyzed by two independent raters. Reliability was above .97 for all of the questions. Responses to these questions varied greatly. The most commonly reported unusual sounds were wind (11%, $n=10$), voices (10%, $n=9$) and ringing or buzzing (7%, $n=7$). The most common unusual sights were shadows (27%, $n=15$), lights or a glow (20%, $n=11$), floating or moving objects (9%, $n=5$) and seeing isolated body parts (such as a face or hands) (9%, $n=5$). The most common unusual body sensations were tingling (27%, $n=35$), numbness (9%, $n=14$), heaviness or a weight (8%, $n=13$) and trouble breathing (4%, $n=7$).

Two-hundred and thirty-one subjects (62%) provided hypotheses for their sleep paralysis and all percentages given will be from this total. Five general causes emerged from this analysis: psychological, biological, sleep, paranormal and the death of someone. Psychological explanations were provided by 39% ($n=90$) of subjects. The most common of these

were stress (9%, $n=20$) and imagination (6%, $n=14$). Biological explanations were given by 20% ($n=47$) of subjects. The most common was that the subject was tired (14%, $n=32$) or had taken drugs (2%, $n=6$). Subjects also provided sleep explanations for their paralysis (11%, $n=26$). Six percent ($n=13$) believed that a nightmare or dream before the sleep paralysis was the cause. Two percent ($n=6$) believed that it was caused by waking up in the middle of a certain sleep stage. Paranormal explanations such as ghosts or spirits were given by 6% ($n=13$) of subjects. The most unusual explanation was that the paralysis was caused by the death of a friend or family member (7%, $n=17$). None of these subjects, however, revealed why this would cause the sleep paralysis. There were also responses which combined the above categories. Of these, biological/psychological explanations were the most common with 9% ($n=20$) of subjects providing this explanation.

General Sleep Questions

An exploratory Factor Analysis was performed on the 11 general sleep questions. All of the general sleep questions were scored from 0 to 3. Zero indicates that the subject has not experienced the sleep phenomena. One to three indicated experiencing the sleep variable increasingly often. For example, one of the questions asked "Before the age of 12, how often did you walk in you sleep?": 0=Never, 1= Less than once per month, 2= more than once per month but not nightly, 3= almost nightly. Using Principle Components Analysis, five

factors emerged. Based on scree criteria and the eigenvalue 1 rule, three factors were subsequently forced into the analysis using Principle Axis Factoring and Varimax rotation. Table 5 presents the 3 factors and their loadings. Approximately 44% of the variance was accounted for. Items which loaded .25 or above were retained. The first factor included four items: sleep talking before and after 12 and sleep walking before and after 12. This factor was labelled the sleep walking/talking factor. The second factor included four items: ability to remember dreams, vividness of dreams and hypnagogic and hypnapompic vivid images. This factor was labelled the night vividness factor. The third factor included three items: night-terrors before and after 12 years and nightmares. This was labelled the nightmare/terror factor. Within each scale, items were standardized and summed to yield a score for each factor. Cronbach's alpha reliability coefficients computed for the factors indicated that they were reliable (Factor 1, Alpha= .74; Factor 2, Alpha= .70 and Factor 3, Alpha= .68).

Sleep paralysis in test sample versus nontest sample on
Sleep variables

In order to insure that there were no significant differences between sleep paralysis subjects agreeing to participate in the study (test sample) and those who did not agree (nontest sample), a 2 (sleep paralysis in study/sleep paralysis not in study) X2 (gender) Multivariate Analysis of

Table 5
Factor Loadings for General Sleep Variables

<u>Variables</u>	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>
Sleep talking after 12	.83	.09	.03
Sleep talking before 12	.81	.09	.08
Sleep walking before 12	.44	.07	.24
Sleep walking after 12	.41	.07	.26
Vivid dreams	.10	.71	.10
Hypnagogic vivid images	.09	.66	.09
Memory of dreams	.00	.56	.07
Hypnapompic vivid images	.08	.48	.06
Night terrors before 12	.17	.13	.76
Night terrors after 12	.16	.08	.68
Nightmares	.11	.36	.38

Variance (MANOVA) was performed on the three sleep factors, reports of lucid dreams and the amount of sleep per night. None of the main effects or interactions attained significance (see Table 6).

Sleep paralysis versus controls on sleep variables

A 2 (Sleep paralysis in study/controls) X2 (gender) MANOVA was conducted on the three sleep factors, reports of lucid dreams and the amount of sleep per night (see Table 7). The multivariate effect of condition was significant, $F(5,402)=6.74$, $p < .01$. The univariate effects indicated that sleep paralysis subjects scored significantly higher on the night vividness factor ($M=.50$, $SD=2.73$, $n=168$) than the controls ($M=-.77$, $SD=2.98$, $n=242$), $F(1,406)=17.92$, $p < .001$. The univariate effect of the nightmare/terror factor was significant, $F(1,406)=24.09$, $p < .001$. Sleep paralysis subjects scored significantly higher ($M=.44$, $SD=2.47$, $n=168$) than the controls ($M=-.65$, $SD=2.06$, $n=242$). See Table 8 for the means and standard deviations.

The multivariate effect for gender was significant, $F(5,402)=3.99$, $p < .01$. The univariate statistics indicate that males scored significantly lower ($M=-.82$, $SD=3.09$, $n=163$) than females ($M=.12$, $SD=2.79$, $n=247$) on the night vividness factor, $F(1,406)=11.13$, $p < .01$. Also, the univariate effect for gender was significant on the nightmare/terror factor. Males scored significantly lower ($M=-.63$, $SD=1.96$, $n=163$) than females ($M=.08$, $SD=2.46$, $n=247$), $F(1,406)=9.26$, $p < .01$. See

Table 6

MANOVA on General Sleep Questions by Condition (Sleep Paralysis in the Study and Sleep Paralysis Subjects Not in the Study) and Gender

Multivariate Tests of Significance (Pillais)					
Multivariate F	Value	F	Hypothesized DF	Error DF	p
Condition	.01	.65	5	347	.660
Gender	.02	1.79	5	347	.114
Condition X Gender	.03	1.83	5	347	.106

Table 7

MANOVA on General Sleep Questions by Condition (Sleep Paralysis Subjects and Controls) and Gender

Multivariate Tests of Significance (Pillais)					
Multivariate F	Value	F	Hypothesized DF	Error DF	p
Condition	.08	6.75	5	402	.000*
Gender	.05	3.99	5	402	.002*
Condition X Gender	.02	1.75	5	402	.122
Univariate F-Tests for Condition					
Variable	SS	DF	MS	F	p
Sleep walk/talk	14.73	1	14.73	1.76	.185
Night vividness	145.47	1	145.47	17.92	.000*
Nightmare/terror	118.37	1	118.37	24.09	.000*
Lucid Dreams	.40	1	.40	1.98	.160
Hours of Sleep	.63	1	.63	.36	.551
Univariate F-Tests for Gender					
Variable	SS	DF	MS	F	p
Sleep walk/talk	4.41	1	4.41	.53	.468
Night Vividness	90.31	1	90.31	11.13	.001*
Nightmare/terror	45.50	1	45.50	9.26	.002*
Lucid Dreams	.39	1	.39	1.93	.156
Hours of Sleep	4.93	1	4.93	2.78	.096

Note. * Indicate significant effects

Table 8

Means and Standard Deviations of General Sleep Variables by Condition

Variable	Condition	
	Sleep Paralysis n=168	Controls n=242
Night Imagery Factor <u>M</u> (<u>SD</u>)	.50 (2.73)	-.77 (2.98)***
Nightmare/terror Factor	.44 (2.47)	-.65 (2.06)***
Sleep Talking/walking Factor	.03 (2.98)	-.27 (2.84)
Lucid Dreams	.74 (.44)	.66 (.46)
Hours Sleep per Night	7.63 (1.17)	7.56 (1.44)

Note. Asterisks indicate significance levels * $p < .05$, ** $p < .01$, *** $p < .001$. Standard deviations are in parentheses.

Table 9 for the means and standard deviations.

The interaction between condition and gender did not reach significance, $F(5,402) = 1.75$, $p = .12$. The multivariate main effect of condition was followed up with a Discriminant Function Analysis (DA). The step-wise DA indicated that two variables were significant in discriminating between the two groups: the night vividness factor (Structure Coefficient = .76) and the nightmare/terror factor (Structure Coefficient = .83). The DA was able to correctly predict group membership 65% of the time with correct group membership predicted 80% of the time for controls and 45% of the time for sleep paralysis subjects.

Only six subjects reported being diagnosed with narcolepsy. All of these subjects were in the sleep paralysis group.

Psychopathology and Imaginativeness Questionnaires

An exploratory Factor Analysis was performed on the 30 psychopathology and imaginativeness questionnaires. Seven factors emerged through Principle Components Analysis. Based on scree criteria and the eigenvalue 1 rule, 3 factors were subsequently forced into the analysis using Principle Axis Factoring and Varimax rotation. Approximately 42% of the variance was accounted for. Items which loaded .25 or above on a factor were retained. The first factor included 15 scales: Rosenberg's Self Esteem, Eysenck Personality Questionnaire-Neuroticism Scale, all 9 of the Symptom

Table 9

Means and Standard Deviations of General Sleep Variables by Gender

Variable	Gender	
	Males n=161	Females n=246
Night Vividness Factor <u>M</u> (<u>SD</u>)	-.82 (3.09)	.12 (2.79)**
Nightmare/terror Factor	-.63 (1.96)	.08 (2.46)**
Sleep Talking/walking Factor	-.33 (2.89)	-.03 (2.90)
Lucid Dreams	.66 (.47)	.74 (.44)
Hours Sleep per Night	7.72 (1.23)	7.50 (1.39)

Note. Asterisks indicate significance levels * $p < .05$, ** $p < .01$, *** $p < .001$. Standard deviations are in parentheses.

Checklist scales and all four of the Trauma Symptom Checklist scales. This factor was called the psychopathology factor. The second factor included nine scales: Mystical Thinking, Absorption, Perceptual Abberation, Fantasy Proneness, Mysticism, Betts' Imagery Vividness and the three subscales of the Personal Philosophy Inventory. This factor was called the waking imaginativeness factor. The third factor included two variables: reports of severe headaches and a medical diagnosis of migraine headaches and was called the headache factor. Panic attacks failed to load on any factor and was therefore forced into the psychopathology factor. Table 10 presents the 3 factors and their loadings. Within each scale items were standardized and summed for each of the factors. Cronbach's alpha reliability coefficients were computed for each of the factors and indicated that each of the factors were reliable (Factor 1, Alpha =.95; Factor 2, Alpha =.86 and Factor 3, Alpha =.66).

A 2 (sleep paralysis/ controls) X2 (gender) MANOVA was conducted on the psychopathology factor, imaginativeness factor, headache factor, reports of physical sexual and emotional abuse, reports of seeing unidentified flying objects (UFOs) and out of body experiences(OBEs), the Eysenck Personality Questionnaire- Extraversion, Psychoticism and Lie subscales and the CURSS:O and CURSS:S. The multivariate effect for condition was significant, $F(13,391) = 4.85$. $p < .001$. The univariate statistics indicated significant differences

Table 10
Factor Loadings for Psychopathology and Imaginativeness Variables

<u>Variables</u>	<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>
SCL-Depression	.87	.17	.09
SCL-Interpersonal Sensitivity	.82	.14	.02
SCL-Anxiety	.82	.32	.08
SCL-Psychoticism	.77	.28	-.05
SCL-Obsessive Compulsive	.76	.27	.07
SCL-Paranoid Ideation	.75	.25	-.01
TSC-Dissociation	.73	.31	.06
TSC-Anxiety	.71	.30	.12
TSC-Hypothesized Sexual Abuse	.71	.26	.13
SCL-Somatization	.66	.32	.30
EPQ-Neuroticism	.65	.18	.16
SCL-Phobic Anxiety	.64	.13	.10
SCL-Hostility	.64	.18	.09
TSC-Depression	.60	.23	.29
Rosenberg's Self Esteem	.58	.00	-.01
Panic Attacks	.25	.26	.05
Magical Thinking	.26	.77	-.04
Absorption	.22	.75	.01
PPI-Temporal Lobe	.29	.71	.10
Perceptual Abberation	.29	.71	.10
Fantasy Proneness	.27	.68	.06
Mysticism	.13	.64	-.22
PPI-Paranormal Beliefs	.15	.53	.13
PPI-Liberal Beliefs	.12	.48	.08
Betts' Imagery Vividness	.01	.28	.06
Severe Headaches	.22	.14	.76
Migraine Headaches	.08	-.02	.60

between the groups on reports of emotional abuse, OBEs, scores on the CURSS:O and CURSS:S, the psychopathology factor and the imaginativeness factor all differed (see Table 11). The sleep paralysis subjects scored significantly higher on all of these measures (see Table 12).

The multivariate effect for gender was also significant, $F(13,391) = 9.84$, $p < .001$. There were significant univariate effects for reports of sexual and emotional abuse, the psychopathology and headache factor, The Eysenck Personality Questionnaire- Psychoticism and Lie scales and the CURSS:O and CURSS:S. Females scored significantly higher on all of these scales except for the Eysenck Personality Questionnaire- Psychoticism scale (see Table 13). The multivariate effect for the condition-gender interaction was nonsignificant.

The multivariate effect for condition was followed by a step-wise DA which revealed that the imaginativeness factor (structure coefficient = .90), the psychopathology factor (structure coefficient = .62), CURSS:S (structure coefficient = .44), OBEs (structure coefficient = .43), and emotional abuse (structure coefficient = .37) were significant in discriminating between the two groups. The DA was able to correctly predict group membership 66% of the time with correct group membership predicted 80% of the time for controls and 50% of the time for sleep paralysis subjects.

Intensity Regression

Recall that an intensity score was calculated for the

Table 11a

MANOVA on Psychopathology and Imaginativeness Variables by Condition (Sleep Paralysis Subjects and Controls) and Gender

Multivariate Tests of Significance (Pillais)					
Multivariate F	Value	F	Hypothesized DF	Error DF	p
Condition	.14	4.85	13	391	.000*
Gender	.25	9.84	13	391	.000*
Condition X Gender	.02	0.73	13	391	.731
Univariate F-Tests for Condition					
Variable	SS	DF	MS	F	p
Abuse: Physical	.05	1	.05	.23	.634
Sexual	.51	1	.51	2.79	.096
Emotional	1.32	1	1.32	6.78	.010*
Psych. Factor	2793.98	1	2793.98	23.08	.000*
Imaginat. Factor	1660.78	1	1660.78	49.92	.000*
Headache Factor	9.51	1	9.51	3.47	.063
UFO	.09	1	.09	2.00	.158
OBE	1.30	1	1.30	12.03	.001*
EPQ: Lie	20.65	1	20.65	1.74	.188
Psychoticism	.20	1	.20	.02	.870
Extraversion	1.20	1	1.20	.06	.807
CURSS:O	17.94	1	17.94	4.54	.034*
CURSS:S	202.06	1	202.06	10.27	.001*

Note. * indicates significant effects

Table 11b

MANOVA on Psychopathology and Imaginativeness Variables by Condition (Sleep Paralysis Subjects and Controls) and Gender

Univariate F-tests for Gender					
Variable	SS	DF	MS	F	p
Abuse: Physical	.17	1	.17	.81	.368
Sexual	3.01	1	3.01	16.53	.000*
Emotional	.85	1	.85	4.35	.038*
Psych. Factor	2283.24	1	2283.24	18.86	.000*
Imaginat. Factor	95.40	1	95.40	2.87	.091
Headache Factor	105.62	1	105.62	38.48	.000*
UFO	.01	1	.01	.22	.641
OBE	.30	1	.30	2.73	.099
EPQ: Lie	56.82	1	56.82	4.79	.029*
Psychoticism	340.59	1	340.59	45.15	.000*
Extraversion	13.34	1	13.34	.66	.416
CURSS:O	31.88	1	31.88	8.06	.005*
CURSS:S	285.78	1	285.78	14.53	.000*

Note. * indicates significant effects

Table 12

Means and Standard Deviations of Psychopathology and Imaginativeness Variables by Condition

Variable	Condition	
	Sleep Paralysis n=178	Controls n=229
Abuse: Physical M (SD)	.320 (.47)	.284 (.45)
Sexual	.298 (.46)	.218 (.41)
Emotional	.348 (.48)	.218 (.41)*
Psych. Factor	2.912 (12.63)	-2.601 (10.35)***
Imaginat. Factor	2.122 (6.17)	-1.979 (5.45)***
Headache Factor	.182 (1.75)	-0.129 (1.72)
UFO	.067 (.25)	.035 (.18)
OBE	.191 (.39)	.079 (.27)**
EPQ: Lie	5.691 (3.55)	6.144 (3.38)
Psychoticism	4.236 (2.30)	4.231 (2.96)
Extraversion	14.534 (4.32)	14.590 (4.60)
CURSS:O	3.124 (1.94)	2.659 (2.04)*
CURSS:S	8.163 (4.48)	6.585 (4.53)**

Note. Asterisks indicate significance levels * $p < .05$, ** $p < .01$, *** $p < .001$. Standard Deviations are in parentheses.

Table 13

Means and Standard Deviations of Psychopathology and Imaginativeness Variables by Gender

Variable	Gender	
	Male n=161	Female n=246
Abuse: Physical M (SD)	.280 (.45)	.313 (.46)
Sexual	.149 (.36)	.321 (.47)***
Emotional	.224 (.42)	.309 (.46)*
Psych. Factor	-3.069 (10.61)	1.694 (11.76)***
Imaginat. Factor	-0.793 (6.16)	.212 (6.07)
Headache Factor	-0.626 (1.30)	.421 (1.86)***
UFO	.056 (.23)	.045 (.21)
OBE	.093 (.29)	.150 (.36)
EPQ: Lie	5.484 (3.03)	6.248 (3.69)*
Psychoticism	5.354 (2.93)	3.500 (2.61)***
Extraversion	14.360 (4.69)	14.699 (4.34)
CURSS:O	2.528 (1.95)	3.081 (2.03)**
CURSS:S	6.286 (4.38)	7.923 (4.59)***

Note. Asterisks indicate significance levels * $p < .05$, ** $p < .01$, *** $p < .001$. Standard Deviations are in parentheses.

sleep paralysis subjects. A regression analysis was carried out on intensity. The first and second steps were hierarchical. The first block consisted of variables associated with the sleep paralysis episode. The variables were entered in the following order: feeling overworked before the paralysis, the number of similar experiences, the age of the first sleep paralysis attack, whether the attack occurred before or after sleep, have other family members experienced sleep paralysis, did you feel stressed before the paralysis, did you feel tired before the paralysis, sleep position, were you afraid during the experience, duration, date and time of the experience and did the experience end when you could move an extremity. The second block consisted of general sleep variables. The variables were entered in the following order: the nightmare/terror factor, the night vividness factor, the sleep talking/walking factor, reports of lucid dreams and hour of sleep per night. Variables in block one and two were entered stepwise within each block. The R-square change was significant for each of the blocks. The last block was a step-wise regression. The 13 variables were; reports of physical, sexual and emotional abuse, OBEs, UFO sightings, the psychopathology, imaginativeness and headache factors, the Eysenck Personality Questionnaire- Psychoticism, Extraversion and Lie scales and the CURSS:O and CURSS:S. The only variable that was entered was the imaginativeness factor. The total variance accounted for was 49% ($p < .001$). Table 14 displays

Table 14

Regression on Sleep Paralysis Intensity Using All Variables as Predictors

Block and Variable	R-square Change	F Change	Sig. of F Change
1. Sleep Paralysis Variables	.28	2.36	.01
2. General Sleep Variables	.17	4.64	.001
3. Imaginativeness Factor	.04	5.60	.02

the R-square change, F-change and the significance of the F change for each of the blocks. The zero-order correlations are given in Appendix P.

Correlations

The comparison of significant correlations (above $|.25|$) between sleep paralysis subjects and control subjects for the psychopathology, imaginativeness and sleep variables is shown in Table 15. The most interesting difference between these subjects is with the headache factor. For sleep paralysis subjects, the headache factor was not correlated with the nightmare/terror ($r=.11$, ns) but it was correlated in the control subjects ($r=.33$, $p<.01$). Also, the headache factor does correlate with hour of sleep in the sleep paralysis subjects ($r=.26$, $p<.01$) but not in the control subjects ($r=.06$, ns). All correlations comparing sleep paralysis and control subjects can be seen in Appendix Q.

Correlations were also computed for the sleep paralysis intensity scores and the sleep paralysis specific variables. It was found that intensity correlates with the sleep talking/walking factor ($r=.30$, $p<.01$), the psychopathology factor ($r=.28$, $p<.01$), the imaginativeness factor ($r=.41$, $p<.01$) and the age of the first sleep paralysis experience ($r=-.26$, $p<.01$).

Table 15a

Comparisons of Correlations Above |.25| for Either Sleep Paralysis
Subjects or Control Subjects

Variables	Condition	
	Sleep paralysis	Controls
Sleep walk/talk factor and nightmare/terror factor	.32**	.47**
Night vividness factor and lucid dreams	.17*	.27**
Night vividness factor and nightmare/terror factor	.27**	.29**
Night vividness factor and imaginativeness factor	.28**	.34**
Night vividness factor and CURSS:S	.13ns	.26**
Nightmare/terror factor and psychopathology factor	.26**	.28**
Nightmare/terror factor and imaginativeness factor	.28**	.28**
Nightmare/terror factor and headache factor	.11ns	.33**
Hours of sleep and headache factor	.26**	.06ns
Physical abuse and sexual abuse	.35**	.28**
Physical abuse and emotional abuse	.37**	.44**
Sexual abuse and emotional abuse	.30**	.25**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, ns= not significant.

Table 15b

Comparisons of Correlations Above .25! for Either Sleep
Paralysis Subjects or Control Subjects

Variables	Condition	
	Sleep paralysis	Controls
Psychopathology factor and imaginativeness factor	.53**	.42**
Psychopathology factor and headache factor	.23**	.28**
Imaginativeness factor and CURSS:O	.25**	.26**
Imaginativeness factor and CURSS:S	.35**	.34**
Imaginativeness factor and sexual abuse	.19**	.14*
EPQ Lie scale and EPQ psychoticism scale	-.21**	-.28**
CURSS:O and CURSS:S	.77**	.72**

Note. *p<.05, **p<.01, ***p<.001, ns= not significant.

Discussion

Incidence

Sleep paralysis was reported at least once by 21% of the 1798 subjects. This is similar to the 15% estimate of Hufford (1982), the 16% found by Penn et al. (1981) and the 26% reported by Ohaeri et al. (1989) but is much larger than the 4.7% reported by Goode (1962).

The literature to date has been mixed with respect to gender differences in the occurrence of sleep paralysis. Several studies reported that sleep paralysis occurred more frequently in males (eg. Goode, 1962 and Ness, 1978) while others found that it occurred more frequently in females (eg. Fukuda et al., 1987; Ohaeri et al., 1989 and Bell et al., 1984, 1986). The present study found no significant gender differences. Hufford (1982) and Penn et al. (1981) also failed to find gender differences.

Differences in incidence rates may be due to the manner in which subjects are asked whether they have experienced sleep paralysis. Studies which report higher rates (eg. Hufford, 1982) often provide a fairly detailed description of sleep paralysis. Since knowledge of sleep paralysis is not prevalent in the general population (Hufford, 1982), this description is probably necessary to obtain an accurate incidence rate.

Characteristics

Among subjects who reported sleep paralysis, 33%

experienced it only once. This is consistent with Ohaeri et al.'s 1989 finding that 37% of subjects had only one attack. The present findings indicate that the majority of subjects experience only a few sleep paralysis attacks. Subjects were asked whether they had experienced sleep paralysis once, two to five times or more than five times. This did not allow us to determine the average nor the range of sleep paralysis experiences. This information should be obtained in future studies.

The average age of onset was 14 years. This is consistent with the three other studies which have reported age of onset. Goode (1962), Penn et al. (1981) and Fukuda et al. (1987) reported the average age of onset to be 19, 16 and 16 years respectively. All of these studies however have used medical, nursing or college students as subjects. It is probable that these studies are missing a number of subjects who experience sleep paralysis later on in life. Since the current study has found a significant negative correlation ($r = -.26$) between age of onset and intensity of sleep paralysis, experiments which include a wide range of ages are needed in order to determine the extent to which age of onset is related to intensity.

A couple of findings regarding the characteristics of sleep paralysis were quite different from the results of previous studies. One is that sleep paralysis occurred in 62% of the cases before falling asleep while past studies (eg.

Penn et al. 1981) have reported that it usually occurs upon waking up. Also, the durations of the attacks were longer than expected. The duration of the attacks ranged from 10 seconds to 70 minutes with a median duration of 3 minutes. In past studies (Goode, 1962 and Ohaeri et al., 1989) 42-65% of subjects reported that the duration of the sleep paralysis was less than 1 minute. Only 22% of subjects in the present study reported that the duration of their last sleep paralysis attack was one minute or less. In fact 22% of subjects reported attacks of 10 minutes or more. The durations reported in the current study are longer than any reported in the literature to date.

Sleep Paralysis Symptoms

The symptoms reported in this study are very similar to those described previously. Ninety-seven percent of subjects reported symptoms in addition to paralysis. The majority of subjects were afraid (67%) and felt a presence in the room during the attack (63%). Another common feature was feeling a pressure on the chest (36%). These features have also been reported as common occurrences by Hufford (1973) and Bloom and Gelardin (1976). Visual and auditory hallucinations during sleep paralysis have been reported by Fukuda et al. (1987), Ohaeri et al. (1989), Hufford (1973) and Bloom and Gelardin (1976) and Penn et al. (1981). Visual hallucinations such as seeing a person or 'thing', shadows, lights, floating or moving objects and auditory hallucinations such as hearing

your name, footsteps or other unusual noises were reported in this and the previously mentioned studies.

Unusual body sensations during sleep paralysis have also been reported in the literature. Hufford found that a floating sensation was occasionally reported by subjects. This sensations was reported by 27% of our subjects. Other unusual sensations reported in the present were tingling (27%) and numbness (9%).

It is interesting that the hallucinations and unusual sensations associated with sleep paralysis have been largely overlooked in the medical literature of this topic given that the large majority of sleep paralysis sufferers report at least one accompanying symptom. Future research on the symptoms of sleep paralysis should contain an interview to examine the entire content of the sleep paralysis experience. Also, in subjects who report multiple attacks, the features of the attacks can be compared to see if they are consistent across attacks.

General Sleep Variables

The discriminant function analysis on the general sleep variables indicated that sleep paralysis subjects scored significantly higher than control subjects on the night vividness factor and the nightmare/terror factor. The night vividness factor includes hypnagogic and hypnapompic imagery, vivid dreams and the ability to remember dreams. The nightmare/terror factor was also significant. This included

nightmares and night terrors before and after the age of 12. In other words, both of these factors which assessed vivid phenomenological experiences during sleep were important in discriminating between subjects who report sleep paralysis and those who do not. Similar to Goode (1962) the sleep talking/walking factor did not differ between sleep paralysis subjects and controls. The relationship of sleep paralysis to other sleep disorders was not an unexpected finding. Numerous studies have found that sleep disorders often occur together (eg. Thorpy and Glovinsky, 1987; Celucci and Lawrence, 1978 and Fisher and Wilson, 1987).

Psychopathology and Imaginativeness Variables

The MANOVA on the psychopathology and imaginativeness questionnaires was significant and the discriminant function analysis revealed that the imaginativeness factor, the CURSS:S, OBES and emotional abuse were important in discriminating between subjects who reported sleep paralysis and control subjects. The imaginativeness factor was the most important variable in discriminating between the two groups. The imaginativeness factor included the following scales: Betts' Imagery Vividness, Absorption, Perceptual Abberation, Magical Thinking, Fantasy Proneness and the Personal Philosophy Inventory. This supported our hypothesis that the night imagery contained in sleep paralysis would be related to daytime imagery. Our hypothesis was supported by a significant correlation in both sleep paralysis subjects and

controls between the imaginativeness factor which contained questionnaires that assessed imagery while awake and the night vividness factor which assesses imagery at night. It follows that subjects reporting the vivid and bizarre night imagery of the sleep paralysis experience would be likely to report more vivid and bizarre daytime imagery than control subjects. This was found in the present study. Sleep paralysis subjects scored significantly higher on the factor involving night imagery and on the factor involving day imagery than controls.

Subjects who reported sleep paralysis also reported another alterations in body perception and control. Out-of-body experiences were reported significantly more frequently in sleep paralysis subjects than controls. While only 8% of control subjects reported that they had experienced an OBE, 22% of sleep paralysis subjects reported this experience. This is the first study to find a relationship between sleep paralysis and OBEs. Out-of-body experiences were also reported during the sleep paralysis attack. Hufford (1973) reported that OBEs are infrequently though inconsistently reported during sleep paralysis. In the present study, OBEs during sleep paralysis occurred quite frequently with 27% of subjects reporting this occurrence.

The hypothesis that sleep paralysis would be related to reports of sexual abuse was not supported in the current study. Although sleep paralysis subjects reported more sexual abuse (30%) than controls (22%), this difference did not reach

significance. There was however a significant difference in reports of emotional abuse. Thirty-five percent of sleep paralysis subjects reported emotional abuse compared to only twenty-four percent of controls.

As hypothesized, there was a significant difference between sleep paralysis and control subjects on the CURSS:O and the CURSS:S. Sleep paralysis subjects scored significantly higher on each of these hypnotizability scores. This supports Nardi's (1981) hypothesis of a relationship between sleep paralysis and hypnosis. The imaginativeness factor created in the present study contains several scales (eg. Absorption, Betts' Imagery Vividness, and the mysticism scale) which have been found to be related to hypnotic responding (Spanos and Chaves, 1989). Since this imaginativeness factor was found to be the most important variable in discriminating between sleep paralysis subjects and controls, it is not surprising that sleep paralysis is also related to hypnotizability. There may be variables which influence hypnotic responding and also play a role in sleep paralysis; for instance, imaginative involvement. Spanos and Chaves (1989, p. 47) define imaginative involvement as 'the process of elaborating upon 'make believe' situations, while reinterpreting or failing to reflect upon the information that contradicts the reality status of the make believe situation'. It is possible that paralysis is not actually occurring. Perhaps people who experience sleep paralysis are failing to

reflect upon information that would cause them to realize that the paralysis is not actually occurring. For instance, 38% of sleep paralysis subjects reported that the experience ended when they moved an extremity. Is it possible that these subjects realize that they are able to move an extremity and this ceased their imaginative involvement thus ending the sleep paralysis? The relationship between sleep paralysis, hypnosis and imaginative involvement should be investigated in future research.

Intensity

A regression was performed predicting intensity from all of the variables in the study. The sleep paralysis specific variables were forced first into the regression because it was hypothesized that these would be the most important to intensity. This was followed by the general sleep variables followed by all of the psychopathology and imaginativeness variables. Overall, 49% of the variance in the intensity scores could be accounted for. Further studies should include an interview in order to determine precipitating variables and characteristics of sleep paralysis which could affect intensity.

Overall, sleep paralysis is a much more complex experience than previously recognized and studies which have only focused on the paralysis aspect have neglected important features of this experience. Oppression sleep paralysis seems to be a common form of sleep paralysis and much more research

needs to be performed on this type of paralysis.

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Appendix A

Name _____ Student Number _____

Phone Number _____

Male _____ Female _____ Age _____

The following questions ask about experiences that occur while people are falling asleep or waking up. All of these experiences occur in normal individuals and none, in and of themselves, are symptoms of psychopathology. Please read each question carefully before answering.

Have you had an experience similar to the one described below?

I was falling asleep, but was still awake when I discovered that I felt paralysed and could not move. However, I could open my eyes and look around the room. I was not dreaming because I could see the actual room that I was in from the perspective where I was lying.

During the core experience described above one or more of the following may have occurred. Not everyone has all of the following experiences.

1) I felt the presence of someone in the room with me even though I could not see anybody.

2) I saw someone or something in the room with me. What I saw appeared to be a formed being (the characteristics of this being differ from person to person; some have seen a person, others have seen an animal, demon, "monster" or a blob).

3) I felt a pressure on my chest as if someone was pushing me down or sitting on my chest.

4) I felt like my body floated upwards into the air.

In answering the following question remember that you need not have all of the experiences listed above in order to answer affirmatively.

I have had an experience similar to this:

- 1) Never; If you have never had an experience like this go to question #27 and answer this question and all of the questions following it.
- 2) Once
- 3) Two to five times
- 4) More than five times

If you answered #2, #3 or #4 to the above question, please answer all of this questionnaire. If you have had an experience like this one or more times, which of the following characterized your last experience?

- 2) Were you awake? Could you actually see the room from the perspective where you were lying?
Yes _____ No _____
- 3) Did you feel a presence of someone in the room?
Yes _____ No _____
- 4) Did you see a person or thing in the room?
Yes _____ No _____
- 5) Did you feel a pressure on your chest?
Yes _____ No _____
- 6) Did you hear a sound something like footsteps?
Yes _____ No _____
- 7) Did you hear your name being called?
Yes _____ No _____
- 8) Did you feel like someone or something touched you?
Yes _____ No _____
- 9) Did you see someone or something pushing or sitting on your chest?
Yes _____ No _____
- 10) Were you afraid during this experience?
Yes _____ No _____
- 11) Did you feel your body floating upward into the air?
Yes _____ No _____
- 12) Which position were you lying in when this occurred?
a) On my back
b) On my stomach
c) On my side
d) Sitting in a chair
- 13) Did this experience occur when you were:
Falling asleep _____ Waking up _____
- 14) What was the approximate date of your most recent experience? _____ month _____ date _____ year
- 15) If you were just falling asleep, how long were you in bed before the experience occurred?

- 16) If you were just waking up, how long had you been asleep? _____
- 17) At what time did this experience occur? _____
- 18) How long did the experience last in minutes?

- 19) The night before this experience, did you feel:
- Stressed
- a) Not at all b) Slightly c) Somewhat d) Severely
- Overworked
- a) Not at all b) Slightly c) Somewhat d) Severely
- Tired
- a) Not at all b) Slightly c) Somewhat d) Severely
- 20) How old were you when you first had this experience? _____
- 21) Did the experience end when you were able to move a finger or other extremity?
Yes _____ No _____
- 22) Did you hear any unusual sounds?
Yes _____ No _____
Explain _____

- 23) Did you see anything unusual?
Yes _____ No _____
Explain _____

- 24) Did you have any unusual body sensations?
Yes _____ No _____
Explain _____

- 25) Do you know of any other family members who have had an experience like the core experience described above?
Yes _____ No _____
What relation are they to you (for example; mother, sister etc.) _____

- 26) What do you think caused you to have an experience like the core experience described above?
-
- 27) Before and including the age of 12, how often did you talk in your sleep?
- a) Never
 - b) Once per week or less
 - c) More than once per week but not nightly
 - d) Nightly
- 28) After the age of 12, how often did you talk in your sleep?
- a) Never
 - b) Once per week or less
 - c) More than once per week but not nightly
 - d) Nightly
- 29) Before the age of 12, how often did you walk in your sleep?
- a) Never
 - b) Less than once per month
 - c) More than once per month but not than nightly
 - d) Almost nightly
- 30) After the age of 12, how often did you walk in your sleep?
- a) Never
 - b) Less than once per month
 - c) More than once per month but not than nightly
 - d) Almost nightly
- 31) Have you ever had nightmares that awoke you suddenly from sleep and you could remember the nightmare?
- a) Never
 - b) Once per week or less
 - c) More than once per week but not nightly
 - d) Nightly
- 32) Before and including the age of 12 did you ever sit up in bed screaming even though you were asleep (night terrors):
- a) Never
 - b) Once per month or less
 - c) More than once per month but not nightly
 - d) Almost nightly

33) After the age of 12 did you ever sit up in bed screaming even though you were asleep (night terrors):

- a) Never
- b) Once per month or less
- c) More than once per month but not nightly
- d) Almost nightly

34) Have you ever been diagnosed with narcolepsy?

Yes _____ No _____

35) Have you ever had the experience of being asleep and during the dream realize that you are dreaming?

Yes _____ No _____

36) Have you ever had the experience of being paralysed either while falling asleep or while waking up?

Yes _____ No _____

37) Have you ever had the experience of leaving your body and floating upwards so when you look down you can see your body below you?

Yes _____ No _____

38) How vivid are your dreams?

- a) Not vivid
- b) Slightly vivid
- c) Somewhat vivid
- d) Extremely vivid

39) While falling asleep, do you have vivid dreamlike imagery?

- a) Never
- b) Rarely
- c) Sometimes
- d) Frequently

40) While waking up from sleep, do you have vivid dreamlike imagery?

- a) Never
- b) Rarely
- c) Sometimes
- d) Frequently

41) How well do you remember your dreams the next day?

- a) Not at all
- b) Poorly
- c) Fairly well
- d) Very well

42) Have you ever seen a U.F.O?

Yes _____ No _____

43) How long do you usually sleep per night?

44) Have you ever experienced sudden intense fear of dying and a feeling of impending doom along with one or more of these symptoms: dizziness, choking, trembling, palpitations, chest pain, sweating? (In other words a panic attack.)

- a) Never
- b) Once
- c) 2-5 times
- d) More than five times

45) Do you have severe headaches?

- a) Never
- b) Once per month or less
- c) More than once per month but less than once per week
- d) More than once per week

46) Have you ever been diagnosed as having migraine headaches?

Yes _____ No _____

47) If yes, how often do you have migraine headaches?

- a) Once per year
- b) More than once per year but less than once per month
- c) More than once per month but less than once per week
- d) More than once per week

Appendix B

Informed Consent

The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.

The purpose of this study is to examine the relationship between sleep phenomena and various psychological measures.

You will be asked to complete a series of questionnaires that assess facets of personality, ability and preference. One questionnaire will ask whether you have been a victim of abuse. Some of the questions on potential abuse are quite personal and sensitive. You will also be asked to participate in a session designed to assess your level of hypnotizability.

Your participation is completely voluntary and you have the freedom and right to withdraw from this study at any time without question or reprimand by the investigator or the university and without loss of experimental credits. You may also refuse to answer any questions that you do not wish to answer.

All information will be strictly confidential and will be used for research purposes only. Data will be coded such that your name is not associated with the data and this coded data will be made available only to researchers associated with this project.

I have read the above description and understand the conditions of my participation. My signature indicates that I agree to participate in this experiment.

Signature of participant _____

Date _____

Signature of investigator _____

Research personnel: The following people are involved in this research project and may be contacted at any time: Stacey McNulty and Martha Pires (Principal Investigators) 788-2600 x2684 or Dr. N.P. Spanos (Faculty Advisor) 788-2600 x2683.

Should you have any ethical concerns about this research please contact Dr. L. Paquet, Chair, Dept. of Psychology Ethics Committee 788-2600 x2692 or Dr. W. Jones, Chair, Dept. of Psychology 788-2600 x2648.

Appendix C

Directions: This questionnaire involves imagining certain situations. For each of the following questions, please indicate which of the responses in the key below best applies.

- a) perfectly clear, and as vivid as the actual experience
- b) very clear, and comparable in vividness to the actual experience
- c) moderately clear and vivid
- d) not clear or vivid but recognizable
- e) vague and dim
- f) so vague and dim as to be hardly discernible
- g) no image present at all; you only know that you are thinking of it

Please circle one response for each question.

1. When you close your eyes and try to imagine a specific automobile which you have seen many times, how vividly can you imagine it?

a b c d e f g

2. When you keep your eyes open and try to imagine the automobile, how vividly can you imagine it?

a b c d e f g

3. When you close your eyes and try to imagine a color, such as bright blue, how vividly can you imagine it?

a b c d e f g

4. When you keep your eyes open and try to imagine a patch of the wall becoming a different colour, how vividly can you imagine the changed colour?

a b c d e f g

5. When you close your eyes and try to imagine your name and address written on a paper before you, how vividly can you imagine seeing the words?

a b c d e f g

6. When you try to imagine hearing a tune, how vividly can you imagine it?

a b c d e f g

7. When you try to imagine yourself running, how vividly can you imagine yourself actually moving? (This refers to feeling of your muscles in motion, not to visually seeing yourself running.)

a b c d e f g

8. When you try to imagine your arms as being especially heavy, how vividly can you imagine it?

a b c d e f g

9. When you try to imagine a common odour, such as a fragrant cup of hot coffee, how vividly can you imagine it?

a b c d e f g

10. When you try to imagine a common taste, such as the sweetness of sugar, how vividly can you imagine it?

a b c d e f g

11. When you try to imagine the room as becoming especially warm, how vividly can you imagine it?

a b c d e f g

12. When you try to imagine the room as becoming especially cold, how vividly can you imagine it?

a b c d e f g

13. When you imagine yourself stroking fur, how vividly can you imagine the fur? (This refers to the feeling of touching, not visually trying to see it.)

a b c d e f g

14. When you try to imagine how it feels when you have a stomach ache how vividly can you imagine it?

a b c d e f g

15. When you try to imagine the room spinning, how vividly can you imagine it?

a b c d e f g

Appendix D
THE CARLETON UNIVERSITY
RESPONSIVENESS TO SUGGESTION SCALE

Name _____ Date _____
Age _____ Sex _____ Occupation _____
Telephone _____

PLEASE DO NOT OPEN this booklet until specifically instructed to do so.

2 of/de 2

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

Now, in your own words please list all of the suggestions you can remember. You have two minutes to do this.

PLEASE DO NOT TURN THIS PAGE until you are specifically instructed to do so.

PLEASE DO NOT RETURN TO PAGE 2.

PLEASE DO NOT TURN THIS PAGE until you are specifically instructed to do so.

PLEASE DO NOT RETURN TO EARLIER PAGES

Now, in your own words please list all of the suggestions you can remember. You have two minutes to do this.

PLEASE DO NOT TURN THIS PAGE until you are specifically instructed to do so.

PLEASE DO NOT RETURN TO EARLIER PAGES

Now, in your own words, please list all of the suggestions you can remember. You have two minutes to do this.

PLEASE DO NOT TURN THIS PAGE until you are specifically instructed to do so.

SECTION ON OBJECTIVE, OUTWARD RESPONSES

Listed below in chronological order are the specific suggestions you were administered following the standard hypnotic induction procedure. We wish you to estimate whether or not you objectively responded to these suggestions, that is, whether or not an onlooker would have observed that you did or did not make certain definite responses by certain specific, predefined criteria. Thus, in this section we are interested in your estimates of your outward behaviour and not in what your inner, subjective experience of it was like. Later on you will be given an opportunity to describe your inner, subjective experience, but in this section refer only to the outward behavioral responses irrespective of what the experience may have been like subjectively.

It is understood that in some cases your estimates may not be as accurate as you might wish them to be and that you might even have to guess. But we want you to make whatever you feel to be your best estimates.

Beneath is a description of each of the six suggestions and are sets of two responses, labelled A and B. Please circle either A or B for each question, whichever you judge to be the more accurate. Please answer every question. Make sure that you do not skip any question. Please answer every one.

1. Arm Rising (Right Arm)

You were asked to extend your right arm straight out in front of you, and were told that your arm was rising into the air. Would you estimate that an onlooker would have observed that your arm had risen at least six inches (before the time you were asked to replace the arm in your lap)?

Circle one: A. My arm rose at least six inches

B. My arm rose less than six inches

11. Arms Moving Apart

You were asked to extend your arms straight out in front of you with the fingers of one hand touching the fingers of the other. You were then told that your arms were moving apart. Would you estimate that an onlooker would have observed that your hands had moved apart by at least six inches (before the time you were asked to replace them in your lap)?

Circle one: A. My hands had moved apart at least six inches

B. My hands had moved apart less than six inches

111. Arm Rigidity (Left Arm)

You were asked to hold your left arm straight out in front of you, and were told that the arm was becoming stiff and rigid and that it would not bend. Would you estimate that an onlooker would have observed that there was less than two inches of arm bending (before you were told that your arm was

no longer stiff and to replace it in your lap)?

Circle one: A. My arm was bent less than two inches by
then

B. My arm was bent two or more inches by then

IV. Arm Heaviness (Right Arm)

You were asked to place your right forearm on the table with your hand facing down. You were then told how heavy your arm and hand felt and asked to try to lift them from the table. Would you estimate that an onlooker would have observed that you did not lift your hand and arm at least one inch up from the table (before being told that your arm was no longer heavy)?

Circle one: A. I did not lift my arm and hand at least one
inch by then

B. I did lift my arm and hand an inch or more
by then

V. Experiencing Music

You were told that a record player had been brought into the room, that you would hear it playing Jingle Bells, and that you would move your head to keep time to the tune. Would you estimate that an onlooker would have observed you to make recognizable movements of the head (before you were told that the record player had been turned off)?

Circle one: A. I did recognizably move my head to the tune

B. I did not recognizably move my head to the
tune

V1. Experiencing a Kitten

You were told that a kitten was sitting in your lap. Then you were asked to look at the kitten and to pet it with your hand. Would you estimate that an onlooker would have observed you to make a petting movement with your hand?

Circle one: A. I did make a petting movement with my hand

B. I did not make a petting movement with my hand

PLEASE DO NOT RETURN TO EARLIER PAGES

SECTION ON SUBJECTIVE, INNER EXPERIENCE 1

In this section we are interested in your inner subjective experiences instead of your outward behaviour. We want to find out about what you experienced during each of the suggestions you were given. Please read each question carefully and answer it honestly. The outward response people make to a suggestion may or may not correspond to their inner experience. For example, take a person who's outward behaviour is arm rising when given the suggestion that their arm is light and moving upward. In some cases, a person may have experienced his or her arm as feeling light. In other cases, however, the person's arm may have moved upward even though it did not feel the least bit light. The important thing to keep in mind is that one type of experience is no better or no worse than the other. This is a scientific study, and all we are interested in is getting at the truth of what people experience. Please answer every question. Make sure that you do not skip any questions.

For each question, choose the one alternative that best describes your experience.

1. Arm Rising (Right Arm)

You were told that your arm was feeling lighter and lighter and was rising in the air. You were asked to imagine that it was like a balloon and was being filled with air.

During this suggestion my arm felt light:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

11. Arms Moving Apart

You were told that your outstretched arms were moving apart, and that they felt like a force was repelling them and pushing them apart.

During this suggestion, my arms felt like a force was pushing them apart:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

111. Arm Rigidity (Left Arm)

You were told that your outstretched left arm was becoming stiff, rigid, and unable to bend. You were asked to imagine the arm in a splint.

During this suggestion, my arm felt stiff and rigid:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Arm Heaviness (Right Arm)

You were told that your arm and hand were very heavy, so heavy that you couldn't lift them from the table. You were asked to imagine heavy weights placed on your hand and arm.

During this suggestion my arm and hand felt heavy:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

V. Experiencing Music

You were told that you would hear the song Jingle Bells and that you would move your head in time with the music.

During this suggestion, I felt like I was hearing the tune Jingle Bells:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

VI. Experiencing a Kitten

You were told that you would see a kitten in your lap and that you would pet the kitten.

During this suggestion, I felt like I was seeing a kitten:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

VII. Forgetting the Suggestion

You were told that you would be unable to remember any of the suggestions you had been given until you heard a tap and the words "Now you can remember everything". You were told that you would be unable to remember the suggestions even when you were asked to try to remember.

During this suggestion, I forgot the suggestions:

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

PLEASE DO NOT RETURN TO EARLIER PAGES

SECTION ON SUBJECTIVE, INNER EXPERIENCES 11

In this section we are interested in a particular class of subjective, inner experiences. We want to find out about the extent to which you experienced your outward behaviour to each suggestion as happening automatically and without a feeling of effort. For example, take a person whose outward behaviour is to not bend their arm when they are told that the arm is stiff and unable to bend. Such a person may have felt that his or her arm was unable to bend. For this person it may have felt like the arm became stiff and unable to bend all by itself. In other cases, however, a person may not bend their arm even though they know that they could have bent it if they chose to. This person would have had the feeling of voluntarily choosing not to bend the arm. Remember, one type of experience is no better and no worse than the other. We are equally interested in finding out about experiences that feel automatic and also about those that feel voluntary. All we are interested in is getting at the truth about what people experience. So, please be honest in answering each of the following questions. Please answer every question. Make sure you do not skip any questions.

For each question choose the one answer that best describes your experience.

1. Arm Rising (Right Arm)

You were told that your arm was light and rising in the

air.

During this suggestion, my arm felt like it rose in the air by itself. I experienced that

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: if you chose to lift your arm voluntarily, or if your arm did not feel like it rose by itself, you should choose alternative (a)

11. Arms Moving Apart

You were told that your outstretched arms were moving apart.

During this suggestion, my arms felt like they were moving apart by themselves. I experienced this

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: If you chose to move your arm voluntarily, or if your arms did not feel like they moved by themselves, you should choose alternative (a).

111. Arm Rigidity (Left Arm)

You were told that your outstretched arm was becoming stiff and unable to bend.

During this suggestion my arm felt like it was unable to bend. I experienced this

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: If you chose voluntarily to not bend your arm, or if your arm did not feel unable to bend you should choose alternative (a).

1V. Arm Heaviness (Right Arm)

You were told that your arm and hand were too heavy to lift from the table.

During this suggestion, my arm felt unable to be lifted. I experienced this

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: If you chose voluntarily to not lift your arm, or if your arm did not feel unable to lift you should choose alternative (a).

V. Experiencing Music

You were told that you would hear the song Jingle Bells.

During this suggestion the tune Jingle Bells seemed to occur automatically, without any effort on my part. I experienced that

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: If experiencing the tune seemed to take a good deal of effort on your part, or if you did not experience the tune choose alternative (a).

VI. Experiencing a Kitten

You were told that you would see a kitten in your lap.

During this suggestion the image of a kitten seemed to occur automatically, without any effort on my part. I experienced this

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: If getting an image of a kitten seemed to take a good deal of effort, or if you did not get an image at all choose alternative (a).

VII. Forgetting the suggestion

You were told that you would be unable to remember the suggestion you have been given.

During this time the suggestions seemed to disappear

automatically from my memory. They seemed to just go away by themselves. I experienced this

- (a) Not at all
- (b) To a slight degree
- (c) To a moderate degree
- (d) To a great degree

Remember: If forgetting the suggestions seemed to require effort on your part, if you had to "try and forget", or if you felt that you did not forget anything, you should choose alternative (a).

Appendix E

Please circle the appropriate number (1 = Never; 4 = Very Frequently)

1. Sometimes I feel and experience things as I did when I was a child.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------
2. I can be greatly moved by eloquent or poetic language.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------
3. While watching a movie, a T.V. show, or a play, I may become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------
4. If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------
5. Sometimes I feel as if my mind could envelop the whole world.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------
6. I like to watch cloud shapes change in the sky.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------
7. If I wish, I can image (or daydream) some things so vividly that they hold my attention as a good movie or story does.

Never	1	2	3	4	Very Frequently
-------	---	---	---	---	--------------------

8. I think I really know what some people mean when they talk about mystical experiences.

Never 1 2 3 4 Very
Frequently

9. I sometimes "step outside" my usual self and experience an entirely different state of being.

Never 1 2 3 4 Very
Frequently

10. Textures - such as wool, sand, wood - sometimes remind me of colours or music.

Never 1 2 3 4 Very
Frequently

11. Sometimes I experience things as if they were doubly real.

Never 1 2 3 4 Very
Frequently

12. When I listen to music, I can get so caught up in it that I don't notice anything else.

Never 1 2 3 4 Very
Frequently

13. If I wish, I can imagine that my body is so heavy that I could not move it if I wanted to.

Never 1 2 3 4 Very
Frequently

14. I can often somehow sense the presence of another person before I actually see or hear her/him.

Never 1 2 3 4 Very
Frequently

15. The crackle and flames of a wood fire stimulate my imagination.

Never 1 2 3 4 Very
Frequently

Appendix F

This booklet contains a brief description of a number of experiences. Some descriptions refer to phenomena that you may have experienced. In each case note the description carefully and then place a mark in the right margin according to how much the description applies to your own experience. Circle -2, -1, +1, or +2, depending on how you feel in each case.

- 2 This description is definitely not true of my own experience or experiences.
- 1 This description is probably not true of my own experience or experiences.
- ? I cannot decide
- +1 This description is probably true of my own experience or experiences.
- +2 This description is definitely true of my own experience or experiences.

Please mark each item. In responding to each item, please understand that the items may be considered as applying to one experience or as applying to many different experiences. After completing the booklet, please be sure that all items have been marked. LEAVE NO ITEMS UNANSWERED.

1. I have had an experience which was both timeless and spaceless	-2	-1	?	+1	+2
2. I have never had an experience which was incapable of being expressed in words	-2	-1	?	+1	+2
3. I have had an experience in which something greater than myself seemed to absorb me.	-2	-1	?	+1	+2
4. I have had an experience in which everything seemed to disappear from my mind until I was conscious only of a void.	-2	-1	?	+1	+2
5. I have experienced profound joy.	-2	-1	?	+1	+2

6. I have never had an experience in which I felt myself to be absorbed in one with all things.	-2	-1	?	+1	+2
7. I have never experienced a perfectly peaceful state.	-2	-1	?	+1	+2
8. I have never had an experience in which I felt as if all things were alive.	-2	-1	?	+1	+2
9. I have never had an experience which seemed holy to me.	-2	-1	?	+1	+2
10. I have never had an experience in which all things seemed aware.	-2	-1	?	+1	+2
11. I have had an experience in which I had no sense of time or space.	-2	-1	?	+1	+2
12. I have had an experience in which I realized the oneness of myself with all things.	-2	-1	?	+1	+2
13. I have had an experience in which a new view of reality was revealed to me.	-2	-1	?	+1	+2
14. I have never experienced anything to be divine.	-2	-1	?	+1	+2
15. I have never had an experience in which time and space were non-existent.	-2	-1	?	+1	+2
16. I have never experienced anything that I could call ultimate reality.	-2	-1	?	+1	+2
17. I have had an experience in which ultimate reality was revealed to me.	-2	-1	?	+1	+2
18. I have had an experience in which I felt that all was perfection at that time.	-2	-1	?	+1	+2
19. I have had an experience in which I felt everything in the world to be part of the same whole.	-2	-1	?	+1	+2
20. I have had an experience which I knew to be sacred.	-2	-1	?	+1	+2

21.	I have never had an experience which I was unable to express adequately through language.	-2	-1	?	+1	+2
22.	I have had an experience which has left me with a feeling of awe.	-2	-1	?	+1	+2
23.	I have had an experience that is impossible to communicate.	-2	-1	?	+1	+2
24.	I have never had an experience in which my own self seemed to merge into something greater.	-2	-1	?	+1	+2
25.	I have never had an experience which left me with a feeling of wonder.	-2	-1	?	+1	+2
26.	I have never had an experience in which deeper aspects of reality were revealed to me.	-2	-1	?	+1	+2
27.	I have never had an experience in which time, place, and distance were meaning-less.	-2	-1	?	+1	+2
28.	I have never had an experience in which I became more aware of a unity to all things.	-2	-1	?	+1	+2
29.	I have had an experience in which all things seemed to be conscious.	-2	-1	?	+1	+2
30.	I have never had an experience in which all things seemed to be unified into a single whole.	-2	-1	?	+1	+2
31.	I have had an experience in which I felt nothing is ever really dead.	-2	-1	?	+1	+2
32.	I have had an experience that cannot be expressed in words.	-2	-1	?	+1	+2

Appendix G

Please circle whether each statement is true (T) or False (F) for you.

1. T F Sometimes I have had feelings that I am united with an object near me.
2. T F I have sometimes had the feeling that one of my arms or legs is disconnected from the rest of my body.
3. T F Some people can make me aware of them just by thinking about me.
4. T F I sometimes have to touch myself to make sure I'm still there.
5. T F I have had the momentary feeling that I might not be human.
6. T F Sometimes I have had the feeling that a part of my body is larger than it usually is.
7. T F I have sometimes been fearful of stepping on sidewalk cracks.
8. T F At times I have wondered if my body was really my own.
9. T F I think I could learn to read others' minds if I wanted to.
10. T F Parts of my body occasionally seem dead or unreal.
11. T F Horoscopes are right too often for it to be a coincidence.
12. T F Things sometimes seem to be in different places when I get home, even though no one has been there.
13. T F Sometimes I have had a passing thought that some part of my body was rotting away.
14. T F Numbers like 13 and 7 have no special powers.
15. T F Occasionally I have felt as though my body did not exist.

16. T F Sometimes I have felt that I could not distinguish my body from other objects around me.
17. T F I have occasionally had the silly feeling that a TV or radio broadcaster knew I was listening to him.
18. T F It has seemed at times as if my body was melting into my surroundings.
19. T F I have never felt that my arms or legs have momentarily grown in size.
20. T F I have worried that people on other planets may be influencing what happens on earth.
21. T F The boundaries of my body always seem clear.
22. T F The government refuses to tell us the truth about flying saucers.
23. T F I can remember when it seemed as though one of my limbs took on an unusual shape.
24. T F I have felt that there were messages for me in the way things were arranged, like in a store window.
25. T F I sometimes have had the feeling that my body is abnormal.
26. T F I have never doubted that my dreams are the products of my own mind.
27. T F I have sometimes had the feeling that my body is decaying inside.
28. T F Good luck charms don't work.
29. T F I have had the momentary feeling that the things I touch remain attached to my body.
30. T F I have noticed sounds on my records that are not there at other times.
31. T F Occasionally it has seemed as if my body had taken on the appearance of another person's body.
32. T F The hand motions that strangers make seem to influence me at times.

33. T F Sometimes I feel like everything around me is tilting.
34. T F I almost never dream about things before they happen.
35. T F Ordinary colors sometimes seem much too bright to me (without taking drugs).
36. T F I have had the momentary feeling that someone's place has been taken by a look-alike.
37. T F My hands or feet have never seemed far away.
38. T F It is not possible to harm others merely by thinking bad thoughts about them.
39. T F I have sometimes felt that some part of my body no longer belonged to me.
40. T F I have sometimes sensed an evil presence around me, although I could not see it.
41. T F I have felt that something outside my body was a part of my body.
42. T F I sometimes have a feeling of gaining or losing energy when certain people look at me or touch me.
43. T F I have felt that my body and another person's body were one and the same.
44. T F I have sometimes had the passing thought that strangers are in love with me.
45. T F Now and then when I look in the mirror, my face seems quite different than usual.
46. T F I have never had the feeling that certain thoughts of mine really belonged to someone else.
47. T F I have felt as though my head or limbs were somehow not my own.
48. T F When introduced to strangers, I really wonder whether I have known them before.
49. T F Sometimes when I look at things like tables and chairs, they seem strange.

50. T F If reincarnation were true, it would explain some unusual experiences I have had.
51. T F I have never had the passing feeling that my arms or legs had become longer than usual.
52. T F People often behave so strongly that one wonders if they are part of an experiment.
53. T F I sometimes have had the feeling that some parts of my body are not attached to the same person.
54. T F At times I perform certain little rituals to ward off negative influences.
55. T F I have had the momentary feeling that my body has become misshapen.
56. T F I have felt that I might cause something to happen just by thinking too much about it.
57. T F Sometimes part of my body has seemed smaller than it usually is.
58. T F My hearing is sometimes so sensitive that ordinary sounds become uncomfortable.
59. T F I have wondered whether the spirits of the dead can influence the living.
60. T F Sometimes people whom I know well begin to look like strangers.
61. T F I have sometimes felt confused as to whether my body was really my own.
62. T F At times I have felt that a professor's lecture was meant especially for me.
63. T F Often I have a day when indoor lights seem so bright that they bother my eyes.
64. T F I have sometimes felt that strangers were reading my mind.
65. T F For several days at a time I have had such a heightened awareness of sights and sounds that I cannot shut them out.

Appendix H

The Personal Philosophy Inventory
Instructions

This questionnaire was designed to help us understand the relationship between philosophical beliefs and personality. These questions are not intended to embarrass or to question any religious belief. They have been asked in accordance with a single assumption: if a belief is true , then no amount of challenge will change it. All answers are confidential. Computer analyses will be performed only after the person has been protected by a coded number.

Please answer the following questions as correctly as you can. Think carefully about each question before you answer. The answer is either true or false. For each question place an X in the appropriate true or false box on the answer sheet. If the answer could be either true or false, then select the answer that is appropriate most of the time. Now turn the page and begin.

1. Most nights I go to sleep without thoughts or ideas bothering me.
2. I like reading mechanics magazines.
3. I do not always tell the truth.
4. During important conversations, I stick to the topic more than most people.
5. When I get upset or angry, my legs feel weak.
6. I go to church at least once a month.
7. After writing prose or poetry, I feel better.
8. I do not read every editorial in the newspaper everyday.
9. I like to read or study while listening to the radio.
10. There is good evidence that life exists on other planets.
11. If I breathe quickly, I feel dizzy or odd.
12. Sometimes an event will occur that has special significance for me only.
13. I am afraid of earthquakes.
14. I like to buy new things.
15. I have had a vision.
16. Once in a while I put off until tomorrow what I ought to do today.
17. An inner voice has told me where to find something and it was actually there.
18. At least once in the last ten years, I have fallen asleep and then awaken the next morning in another room.
19. I would rather go to a priest or minister than a psychologist for personal problems.
20. Sometimes I am sure that people can tell what I am thinking.

21. At least once during childhood, I hit my head (or was hit in the head) and blacked out.
22. I like to eat well-prepared meat.
23. There have been times when I have stared at an object and it appeared to become larger and larger.
24. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
25. Once I start talking in an enjoyable setting, I have a hard time leaving.
26. I believe there is a God.
27. About once a year, I will awaken during sleep and not be able to move.
28. Once in a while, I laugh at a dirty joke.
29. While sitting quietly, I have had uplifting sensations as if I were driving quickly over a rolling road.
30. I prefer to eat with my left hand.
31. Belief in science and belief in God are not compatible.
32. Sometimes I can read another person's thoughts.
33. People tell me that I "blank out" sometimes when we are talking.
34. I would rather win than lose in a game.
35. I have had a religious experience that I know was real.
36. Once I thought about a person whom I had not seen for a while and then saw the person a few minutes later.
37. Compared to other people, my memory is excellent.
38. At least once in my life very late at night, I have felt the presence of another Being.
39. If I am not careful, a high pressure salesperson can sell me a "bill of goods".
40. When I have a tough decision to make, a sign will be given and I will know what to do.

41. I like to know some important people because it makes me feel important.
42. Intense smells bother me more than other people.
43. God has healed me or one of my family on at least one occasion.
44. I would like to time travel.
45. Evil spirits possess me sometimes.
46. There are no such things as ghosts or haunts.
47. I like to read about science.
48. I like to poke fun at people.
49. I do not like everyone I know.
50. I go to church at least once a week during most months.
51. There must be something more to life.
52. Most of the time, I am happy.
53. I keep a diary or notebook about my feelings and thoughts.
54. If there was a car accident, I believe I would have a better chance than most people to survive.
55. I have been known to walk in my sleep.
56. I gossip a little at times.
57. My spouse or (girl or boy) friend should do what I want out of love for me.
58. I have been taken aboard a spaceship.
59. People tell me that I become excited over insignificant events.
60. Sometimes I am so full of pep and energy that I feel superhuman.
61. Every so often I feel like gripping my thumb within the fingers of the same hand.
62. When relaxed or just before falling asleep, I sometimes feel pleasant vibrations moving through my whole body.

63. Sometimes, in the early morning hours between midnight and 4:00 AM, my experiences are very meaningful.
64. I am no different from anybody else.
65. Sometimes at elections, I vote for a person about whom I know very little.
66. Christ has appeared to me in a vision.
67. I am afraid of snakes.
68. There is something wrong with my mind.
69. I have a good appetite.
70. When I have a headache, it is primarily along the sides of my head.
71. My soul sometimes leaves my body.
72. I am afraid of mice.
73. I get angry sometimes.
74. When I have personal problems, talking to an older person is more helpful than talking to my friends.
75. I have never had "memory blanks" where I could not recall previous events.
76. I have heard an inner voice call my name.
77. Criticism and scolding hurt me terribly.
78. When I am really upset, I feel my hands shaking.
79. Lightning is one of my fears.
80. Everything is turning out just like the prophets in the Bible said it would.
81. At times I feel like swearing.
82. At least once a month, I experience intense smells that do not have an obvious source.
83. The existence of God cannot be explained by Science.
84. I use "hunches" more than simple learning to solve new problems.

85. There are some days when I accidentally hit my hand on something, smash my fingers or trip over my own two feet.
86. I prefer to write with my right hand.
87. When I lose an argument, I spend alot of time thinking about what I should have said.
88. I often feel as if things are not real.
89. I love(d) my father.
90. People tell me that I imitate the characters in a movie I have just seen.
91. When I walk up stairs, I sometimes note a strange smell from nowhere.
92. I like poetry.
93. I can "speak in tongues".
94. Telepathy (ESP) is a real phenomenon.
95. Sometimes people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
96. As a child, I played with an imaginary friend.
97. I sometimes feel a sensation or a bulge in my abdomen.
98. My table manners are not quite as good at home as when I am out in company.
99. Animals should not be killed just for the benefit of mankind.
100. I have kept a diary.
101. There is an Eternal and Infinite Force.
102. Once, in a crowded area, I suddenly could not recognize where I was.
103. I have learned to meditate.
104. Although I am not sure, there is a good possibility that I have lived in a previous time.
105. I like to spend time persuading people to do things.

106. Once in a while, I think of things too bad to talk about.
107. After my religious conversion, I suddenly felt full of energy.
108. When I start something, I have a hard time stopping until it is finished.
109. I have had experiences when I felt as if I were somewhere else.
110. I have dreams of floating or flying through the air at least once a year.
111. I am very religious (more than most people).
112. At times I feel like smashing things.
113. I have had an epileptic seizure.
114. Sometimes when I am not feeling well I am cross.
115. Alien intelligence is probably responsible for UFOs.
116. Haunts and poltergeists are the works of the devil.
117. I have frequent headaches.
118. I have noticed tingling sensations along the back of my legs.
119. My parents should be obeyed and respected.
120. At least once a month or so, I'll keep singing or thinking a part of a song again and again.
121. I lack self confidence.
122. When I am alone or feel really low, reciting poetry or prose is a pleasant experience.
123. At least once in my life, just before falling down, I had the intense sensation of a smell from childhood.
124. I do not worry about catching diseases.
125. There are some things that Science should not investigate.
126. I believe in the second coming of Christ.

127. When I see a child starving from hunger on T.V. commercials, I feel sad.
128. Most people should be guided to insure their spiritual development.
129. I am a special agent of God.
130. Women should have the same opportunity as men for education.
131. I have experienced terror.
132. Most of the time, I study while listening to music.
133. I have been visited by a Spiritual Being.
134. My face has never been paralysed.
135. I sincerely believe that I am very special.
136. If God told me to kill, I would do it in His name.
137. Two or three times in my life, there have been a few brief moments when I felt very close to a Universal Consciousness.
138. My first religious or mystical experience occurred before I was a teenager.
139. I have a tremor in one or both of my hands.
140. People say that I repeat myself often.

Appendix I

Inventory of Childhood Memories and Imaginings (ICMI)

The major purpose of this inventory is to determine how many adults remember themselves as very imaginative during childhood. A second purpose is to quantify the kinds of childhood imaginative activities, fantasies, and related experiences that can be remembered by adults. A third purpose is to determine to what extent childhood imaginings affect adult experiences or carry over into adult functioning.

Please place a check in front of each item below that applies to you. Please answer as honestly as possible and do not be concerned if you find that you are either checking almost all the items or almost none.

- ☐ 1. When I was a child, I enjoyed active movement such as running and jumping.
- ☐ 2. When I was a child, I enjoyed swinging (on a swing).
- ☐ 3. When I was a child, I liked some kinds of music.
- ☐ 4. When I was a child, I enjoyed cartoons (on TV or in movies).
- ☐ 5. I can remember clearly one or more things that happened to me when I was two years of age or younger.
- ☐ 6. When I remember back to when I was 6, 7, or 8 years of age, I can re-experience myself as a child; that is, I can "see" and "hear" what I saw and heard then and I can feel again the emotions and sensations I felt then.
- ☐ 7. Although I have grown and I've had more experiences, I still feel basically the same as I did when I was a child.
- ☐ 8. When I was a child, I believed in such beings as fairies, elves, or leprechauns, etc.
- ☐ 9. Now that I am an adult, I still in some sense believe in such beings as fairies, elves, or leprechauns, etc.

- ___ 10. When I was a child, I would dream or imagine I was flying with such vividness that I felt as if I actually did fly.
- ___ 11. When I was a child, I enjoyed fairytales.
- ___ 12. As an adult, I would still enjoy fairytales.
- ___ 13. When I was a child, I was very imaginative.
- ___ 14. At the present time I am very imaginative.
- ___ 15. When I was a child, I was a "childhood philosopher". That is, I spent time thinking about such things as the meaning of life, and of death, about hypocrisy, levels of existence, etc.
- ___ 16. When I was a child (below age 12), I preferred playing make-believe games which require imagining or pretending, such as cowboys, school, house, etc. I preferred such make-believe games over realistic games which require skills such as hopscotch, checkers, building things, ballgames, etc.
- ___ 17. When I was playing make-believe games as a child, I usually would imagine so vividly that what I pretended seemed real to me.
- ___ 18. When I was a child, I lived in a make-believe world much or most of the time.
- ___ 19. As an adult, I still occasionally live in a make-believe world.
- ___ 20. When I was a young child, I believed that my doll(s) or stuffed animal(s) were alive.
- ___ 21. When I was a child I had an imaginary companion (or companions) such as an imagined person, animal, or object which I talked to, shared feelings with, or took along with me.
- ___ 22. When I was a child, I would at times pretend and in some sense believe I was someone else such as a fairytale character (e.g. Snow White, Peter Pan, Rapunzel, etc.), a prince or a princess, an orphan, etc.
- ___ 23. As an adult, I occasionally pretend I am someone else.

- ___ 24. When I was a child, I would have enjoyed or I did enjoy taking ballet dancing lessons.
- ___ 25. When I was a child or teenager, at times I was afraid my imagining would become so real to me that I would be unable to stop it.
- ___ 26. When I was a child or teenager, sometimes I was accused of lying when I was just reporting what I imagined.
- ___ 27. When I was a young (pre-teenage) child, I had sexual fantasies.
- ___ 28. I have had an orgasm (or orgasms) just by imagining only.
- ___ 29. When I was a child, I would spend at least half my total waking day imagining.
- ___ 30. Now as an adult, I spend a substantial part of my total waking day imagining.
- ___ 31. If I could not imagine anymore, besides other effects it would have on my life, I wouldn't be me anymore - - I would be a basically different person.
- ___ 32. At times, when I was a child or adolescent, it was difficult for me to determine whether something actually happened or whether I had imagined it happened.
- ___ 33. If given the opportunity, I would be very eager to experience an entirely new sensation - - a sensation such as vision, hearing, smell, or touch, but as different from all these as they are all different from each other.
- ___ 34. I have had a deeply moving personal religious, spiritual, or mystical experience.
- ___ 35. I have felt, heard, or seen an apparition (a spirit or ghost).
- ___ 36. I have had an out-of-body experience, that is, I have felt as if I (my mind or my spirit) left my body and existed for awhile independently of my body.

- ___ 37. I have experienced precognition (prophecy or foretelling the future) in a dream or while awake. That is, I have known something would happen even though there was no rational way I could have known.
- ___ 38. I have at times written poems, inspirational messages, short stories, or songs, etc., and I did not feel it was I who was creating them.
- ___ 39. I have at times felt unexplainably compelled to go somewhere, or do something I wouldn't ordinarily do (such as call someone I wouldn't ordinarily call) and then later discovered there was a reason for my compulsion. (For instance, the person I called desperately needed me at that moment.)
- ___ 40. I believe reincarnation is possible, and I have become aware of a life (or lives) that I may have lived prior to this one.
- ___ 41. I have at some time in my life experienced with marijuana, psychedelic drugs (LSD, etc.) amphetamines ("uppers"), tranquilizers ("downers"), or other such drugs in order to experience an altered state of consciousness; that is, in order to experience the world in a new way, not just to relax or feel good.
- ___ 42. I would like to experience hypnosis.
- ___ 43. I think I am hypnotizable; that is, I think I could be hypnotized.
- ___ 44. I have at times thought something happened to me, developed physical symptoms but later found out that what I thought happened never actually occurred. (Some possible examples to illustrate this are as follows: (a) you thought something was in your eye, your eye became irritated, but you couldn't find anything in your eye, (b) or you thought you ate spoiled food, became ill, but later found out that others eating the same food were not bothered, (c) or you thought you touched poison ivy, developed an itch but the doctor said it wasn't poison ivy.)
- ___ 45. I have at some time in my life thought I was pregnant and in addition to not menstruating, developed other symptoms of pregnancy (e.g., morning sickness, abdominal enlargement, breast changes, etc.), only to find out later that I was not pregnant.

- ___ 46. While listening to my favourite music, in addition to experiencing mood changes (e.g., feeling calm, relaxed, energetic, mellow, etc.) I also often experience a transformation (e.g., a feeling of oneness with the music or being transformed to the past or to another place or time, etc.).
- ___ 47. When I remember significant events in my life, in addition to thinking about them, I can also re-experience them. That is, I can see again what I saw then, hear again the sounds, voices, etc., as I heard them before, feel the emotions and sensations I felt then. I can re-live them - not just think about them or see them in my mind's eye.
- ___ 48. I can vividly re-experience in my imagination such things as the feeling of a gentle breeze, warm sand under bare feet, the softness of fur, cool grass, the warmth of the sun, and the smell of freshly cut grass.
- ___ 49. When asked to close my eyes and imagine holding a baby or an animal (dog, cat, etc.) on my lap, I can experience it as if it were actually there. That is, I can feel its weight and warmth, touch it, see it, hear it, etc.
- ___ 50. At times just before I fall asleep, I experience vivid images.
- ___ 51. Many or most of my dreams tend to be at least as vivid as actual life experiences.
- ___ 52. If I wish, I am usually able to finish or change a dream after I awaken.

Appendix J

1. Do you have many different hobbies?.....Yes___ No___
2. Do you stop to think things over before
doing anything?.....Yes___ No___
3. Does your mood often go up and down?.....Yes___ No___
4. Have you ever taken the praise for
something you knew someone else had
really done?.....Yes___ No___
5. Are you a talkative person?.....Yes___ No___
6. Would being in debt worry you?.....Yes___ No___
7. Do you ever feel 'just miserable' for
no reason?.....Yes___ No___
8. Were you ever greedy by helping yourself
to more than your share of anything?.....Yes___ No___
9. Do you lock up your house carefully
at night?.....Yes___ No___
10. Are you rather lively?.....Yes___ No___
11. Would it upset you alot to see a child or
an animal suffer?.....Yes___ No___
12. Do you often worry about things you should
not have said or done?.....Yes___ No___
13. If you say that you will do something, do you
keep your promise no matter how inconvenient
it might be?.....Yes___ No___
14. Can you usually let yourself go and enjoy
yourself at a lively party?.....Yes___ No___
15. Are you an irritable person?.....Yes___ No___
16. Have you ever blamed someone for doing
something you knew was really your
fault?.....Yes___ No___
17. Do you enjoy meeting new people?.....Yes___ No___
18. Do you believe that insurance plans are
a good idea?.....Yes___ No___
19. Are your feelings easily hurt?.....Yes___ No___
20. Are all you habits good and desirable
ones?.....Yes___ No___
21. Do you tend to keep in the background
on social occasions?.....Yes___ No___
22. Would you take drugs which may have strange
or dangerous effects?.....Yes___ No___
23. Do you often feel 'fed-up'?.....Yes___ No___
24. Have you ever taken anything (even a pin or
button) that belonged to someone else?....Yes___ No___
25. Do you like going out a lot?.....Yes___ No___
26. Do you enjoy hurting people you love?.....Yes___ No___
27. Are you often troubled about feelings
of guilt?.....Yes___ No___
28. Do you sometimes talk about things that
you know nothing about?.....Yes___ No___
29. Do you prefer reading to meeting people?...Yes___ No___

30. Do you have enemies that want to harm you?.....Yes___ No___
31. Would you call yourself a nervous person?...Yes___ No___
32. Do you have many friends?.....Yes___ No___
33. Do you enjoy practical jokes that can sometimes really hurt people?.....Yes___ No___
34. Are you a worrier?.....Yes___ No___
35. As a child, did you do as you were told immediately and without grumbling?.....Yes___ No___
36. Would you call yourself happy-go-lucky?....Yes___ No___
37. Do good manners and cleanliness matter much to you?.....Yes___ No___
38. Do you worry about awful things that might happen?.....Yes___ No___
39. Have you ever broken or lost something belonging to someone else?.....Yes___ No___
40. Do you usually take the initiative in making new friends?.....Yes___ No___
41. Would you call yourself tense or 'highly-strung'?.....Yes___ No___
42. Are you mostly quiet when you are with other people?.....Yes___ No___
43. Do you think marriage is old-fashioned and should be done away with?.....Yes___ No___
44. Do you sometimes boast a little?.....Yes___ No___
45. Can you easily get some life into a rather dull party?.....Yes___ No___
46. Do people who drive carefully annoy you?...Yes___ No___
47. Do you worry about your health?.....Yes___ No___
48. Have you ever said anything bad or nasty about anyone?.....Yes___ No___
49. Do you like telling jokes and funny stories to your friends?.....Yes___ No___
50. Do most things taste the same to you?.....Yes___ No___
51. As a child did you ever talk back to your parents?.....Yes___ No___
52. Do you like mixing with people?.....Yes___ No___
53. Does it worry you if you know there are mistakes in your work?.....Yes___ No___
54. Do you suffer from sleeplessness?.....Yes___ No___
55. Do you always wash before a meal?.....Yes___ No___
56. Do you nearly always have a 'ready answer' when people talk to you?.....Yes___ No___
57. Do you like to arrive at appointments in plenty of time?.....Yes___ No___
58. Have you often felt listless and tired for no reason?.....Yes___ No___
59. Have you ever cheated at a game?.....Yes___ No___
60. Do you like to do things in which you have to act quickly?.....Yes___ No___
61. Is (or was) your mother a good woman?.....Yes___ No___
62. Do you often feel life is very dull?.....Yes___ No___

63. Have you ever taken advantage of someone?..Yes___ No___
64. Do you often take on more activities than
you have time for?.....Yes___ No___
65. Are there several people who keep trying
to avoid you?.....Yes___ No___
66. Do you worry alot about your looks?.....Yes___ No___
67. Do you think people spend too much time safeguarding
their future with savings and insurance?..Yes___ No___
68. Have you ever wished that you were dead?...Yes___ No___
69. Would you dodge paying taxes if you were
sure you could never be found out?.....Yes___ No___
70. Can you get a party going?.....Yes___ No___
71. Do you try not to be rude to people?.....Yes___ No___
72. Do you worry too long after an
embarrassing experience?.....Yes___ No___
73. Have you ever insisted on having
your own way?.....Yes___ No___
74. When you catch a train do you often
arrive at the last moment?.....Yes___ No___
75. Do you suffer from 'nerves'?.....Yes___ No___
76. Do your friendships break up easily
without it being your fault?.....Yes___ No___
77. Do you often feel lonely?.....Yes___ No___
78. Do you always practice what you preach?....Yes___ No___
79. Do you sometimes like teasing animals?....Yes___ No___
80. Are you easily hurt when people find fault
with you or the work you do?.....Yes___ No___
81. Have you ever been late for an
appointment or work?.....Yes___ No___
82. Do you like plenty of bustle and
excitement around you?.....Yes___ No___
83. Would you like other people to be
afraid of you?.....Yes___ No___
84. Are you sometimes bubbling over with
energy and sometimes sluggish?.....Yes___ No___
85. Do you sometimes put off until tomorrow
what you ought to do today?.....Yes___ No___
86. Do other people think of you as being
very lively?.....Yes___ No___
87. Do people tell you alot of lies?.....Yes___ No___
88. Are you touchy about some things?.....Yes___ No___
89. Are you always ready to admit it when you
have made a mistake?.....Yes___ No___
90. Would you feel very sorry for an animal
caught in a trap?.....Yes___ No___

Appendix K

Instructions: Please indicate your degree of agreement with each of the following statements by circling the appropriate option for each statement.

S = Strongly Agree

A = Agree

D = Disagree

SD = Strongly Disagree

1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.	At times I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD
9.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself	SA	A	D	SD

Appendix L

Below is a list of problems and complaints that people sometimes have. Read each one carefully and select one of the numbered descriptors that best describes HOW MUCH THAT PROBLEM HAS CAUSED YOU DURING THE PAST MONTH INCLUDING TODAY. Place that number in the open block to the right of the problem. Do not skip any items and print your number clearly. If you change your mind, erase your first number completely. Read the example below before beginning and if you have any questions please ask the experimenter.

EXAMPLE

Answer
Ex. Bodyaches.....Ex. 3

Descriptors

- 0. Not at all
- 1. A little bit
- 2. Moderately
- 3. Quite a bit
- 4. Extremely

HOW MUCH WERE YOU DISTRESSED BY:

Descriptors

- 0. Not at all
- 1. A little bit
- 2. Moderately
- 3. Quite a bit
- 4. Extremely

- 1. Headaches_____
- 2. Nervousness or shakiness inside_____
- 3. Repeated unpleasant thoughts that won't leave
your mind_____
- 4. Faintness or dizziness_____
- 5. Loss of sexual interest or pleasure_____
- 6. Feeling critical of others_____
- 7. The idea that someone else can control your
thoughts_____
- 8. Feeling other are to blame for most of your
troubles_____
- 9. Trouble remembering things_____
- 10. Worried about sloppiness or carelessness_____

HOW MUCH WERE YOU DISTRESSED BY:	<u>Descriptors</u>
	0. Not at all
	1. A little bit
	2. Moderately
	3. Quite a bit
	4. Extremely
11. Feeling easily annoyed or irritated	_____
12. Pains in heart or chest	_____
13. Feeling afraid in open spaces or on the streets	_____
14. Feeling low in energy or slowed down	_____
15. Thoughts of ending your life	_____
16. Hearing voices that other people do not hear	_____
17. Trembling	_____
18. Feeling that most people cannot be trusted	_____
19. Poor appetite	_____
20. Crying easily	_____
21. Feeling shy or uneasy with the opposite sex	_____
22. Feelings of being caught or trapped	_____
23. Suddenly scared for no reason	_____
24. Temper outbursts that you could not control	_____
25. Feeling afraid to go out of your house alone	_____
26. Blaming yourself for things	_____
27. Pains in lower back	_____
28. Feeling blocked in getting things done	_____
29. Feeling lonely	_____
30. Feeling blue	_____
31. Worrying too much about things	_____
32. Feeling no interest in things	_____
33. Feeling fearful	_____

- HOW MUCH WERE YOU DISTRESSED BY:
- Descriptors
 0. Not at all
 1. A little bit
 2. Moderately
 3. Quite a bit
 4. Extremely
34. Your feelings being easily hurt_____
35. Other people being aware of your private
 thoughts....._____
36. Feeling others do not understand you or
 are unsympathetic_____
37. Feeling that people are unfriendly or
 dislike you....._____
38. Having to do things very slowly to insure
 correctness_____
39. Heart pounding or racing_____
40. Nausea or upset stomach_____
41. Feeling inferior to others_____
42. Soreness of your muscles_____
43. Feeling that you are watched or talked about
 by others_____
44. Trouble falling asleep_____
45. Having to check and double check what you do_____
46. Difficulty making decisions_____
47. Feeling afraid to travel on buses, subways,
 or trains_____
48. Trouble getting your breath_____
49. Hot or cold spells_____
50. Having to avoid certain things, places, or
 activities because they frighten you_____
51. Your mind going blank_____
52. Numbness or tingling in parts of your body_____
53. A lump in your throat_____

HOW MUCH WERE YOU DISTRESSED BY:	<u>Descriptors</u>
	0. Not at all
	1. A little bit
	2. Moderately
	3. Quite a bit
	4. Extremely
54. Feeling hopeless about the future	_____
55. Trouble concentrating	_____
56. Feeling weak in parts of your body	_____
57. Feeling tense or keyed up	_____
58. Heavy feelings in your arms or legs	_____
59. Thoughts of death or dying	_____
60. Overeating	_____
61. Feeling uneasy when people are watching or talking about you	_____
62. Having thoughts that are not your own	_____
63. Having urges to beat, injure, or harm someone ...	_____
64. Awakening in the early morning	_____
65. Having to repeat the same action such as touching, counting or washing	_____
66. Sleep that is restless or disturbed	_____
67. Having urges to break or smash things	_____
68. Having ideas or beliefs that others do not share	_____
69. Feeling very self-conscious with others	_____
70. Feeling uneasy in crowds, such as shopping or at a movie	_____
71. Feeling everything is an effort	_____
72. Spells of terror or panic	_____
73. Feeling uncomfortable about eating or drinking in public	_____

HOW MUCH WERE YOU DISTRESSED BY:	<u>Descriptors</u>
	0. Not at all
	1. A little bit
	2. Moderately
	3. Quite a bit
	4. Extremely
74. Getting into frequent arguments	_____
75. Feeling nervous when you are left alone	_____
76. Others not giving you proper credit for your achievements	_____
77. Feeling lonely even when you are with people	_____
78. Feeling so restless you couldn't sit still	_____
79. Feelings of worthlessness	_____
80. The feeling that something bad is going to happen to you	_____
81. Shouting or throwing things	_____
82. Feeling afraid that you will faint in public	_____
83. Feeling that people will take advantage of you if you let them	_____
84. Having thoughts about sex that bother you a lot .	_____
85. The idea that you should be punished for your sins.....	_____
86. Thoughts or images of a frightening nature	_____
87. The idea that something serious is wrong with your body	_____
88. Never feeling close to another person	_____
89. Feelings of guilt	_____
90. The idea that something is wrong with your mind.....	_____

Appendix M

Major Events Inventory

The following is a list of "major events" that can occur in life. Please check off all the ones that you have experienced. Some items allow for more than one response - again please check off all the ones that apply to you.

1. ☐ Engagement or marriage

2. ☐ Major surgery

3. ☐ Minor surgery

4. ☐ Major lottery prize win

Physical abuse BEFORE age 16:

5. ☐ Single event

BY: ☐ mother ☐ father ☐ brother ☐ sister
☐ boyfriend ☐ girlfriend ☐ other ☐ peer

6. ☐ Repeated event

BY: ☐ mother ☐ father ☐ brother ☐ sister
☐ boyfriend ☐ girlfriend ☐ other ☐ peer

Physical Abuse age 16 or LATER:

7. ☐ Single event

BY: ☐ mother ☐ father ☐ brother ☐ sister
☐ boyfriend ☐ girlfriend ☐ other ☐ spouse

8. ☐ Repeated event

BY: ☐ mother ☐ father ☐ brother ☐ sister
☐ boyfriend ☐ girlfriend ☐ other ☐ spouse

9. ☐ Desired pregnancy

10. ☐ Undesired pregnancy

11. ☐ Kidnapped

12. ☐ Death of a friend

13. ____ Death of a nuclear family member (parents or siblings)
14. ____ Death of other relative
15. ____ Winning a scholarship or other major academic award
16. ____ Being in a serious car accident
17. ____ Being in a minor car accident

Unwanted sexual activity BEFORE age 14 with someone 5 years (or more) older than yourself.

18. ____ Single event
- BY: ____parent ____friend ____stranger
 ____relative ____acquaintance ____don't remember

19. Repeated event
- BY: ____parent ____friend ____stranger
 ____relative ____acquaintance ____don't remember

Unwanted sexual activity BEFORE age 14 with someone less than 5 years older than yourself.

20. ____ Single event
- BY: ____friend ____stranger ____relative
 ____acquaintance ____don't remember

21. Repeated event
- BY: ____friend ____stranger ____relative
 ____acquaintance ____don't remember

Unwanted sexual activity age 14 or LATER with someone 5 years (or more) older than yourself.

22. ____ Single event
- BY: ____parent ____friend ____stranger
 ____relative ____acquaintance ____don't remember

23. ____ Repeated event
- BY: ____parent ____friend ____stranger
 ____relative ____acquaintance ____don't remember

Unwanted sexual activity age 14 or LATER with someone

less than 5 years older than yourself.

24. ☐ Single event

BY: ☐ friend ☐ stranger ☐ relative
☐ acquaintance ☐ don't remember

25. Repeated event

BY: ☐ friend ☐ stranger ☐ relative
☐ acquaintance ☐ don't remember

26. ☐ Taking a "trip of a lifetime"

27. ☐ Being in a fire

28. ☐ Your home being burned down

29. ☐ Being robbed or mugged

30. ☐ Alcoholism in your family when growing up

31. ☐ Alcoholism in your family now

32. ☐ Winning an athletic event

33. ☐ Winning other public award

34. ☐ Separation/divorce of parents as a child

35. ☐ Separation/divorce of parents as an adult

36. ☐ Separation/divorce of self

37. ☐ Major physical illness

38. ☐ Major physical injury

39. ☐ Physical disability

40. ☐ Learning disability

41. ☐ Being arrested

42. ☐ Emotional abuse as a child:

BY: ☐ mother ☐ father ☐ other

43. _____ Emotional abuse as an adolescent:
BY: _____ mother _____ father _____ other
_____ girlfriend _____ boyfriend
44. _____ Emotional abuse as an adult:
BY: _____ mother _____ father _____ spouse
_____ girlfriend _____ boyfriend _____ other
45. _____ Witnessing violence against others in your home while growing up.
46. _____ Witnessing violence against others outside your home while growing up.
47. _____ Witnessing violence in your home as an adult.
48. _____ Witnessing violence outside your home as an adult
49. _____ Experiencing sexual harassment

Appendix N

Please indicate how often you have experienced the following
in the last two months:

	Never	Occasionally	Fairly Often	Very Often
1. Insomnia (trouble getting to sleep)	0	1	2	3
2. Restless sleep	0	1	2	3
3. Nightmares	0	1	2	3
4. Having sex that you didn't enjoy.	0	1	2	3
5. Waking up early in the morning and can't get back to sleep.	0	1	2	3
6. Weight loss (without dieting)	0	1	2	3
7. Feeling isolated from others	0	1	2	3
8. Loneliness	0	1	2	3
9. Low sex drive	0	1	2	3
10. Sadness	0	1	2	3
11. "Flashbacks" (sudden vivid, distracting memories)	0	1	2	3
12. Not feeling rested in the morning	0	1	2	3
13. "Spacing out" (going away in your mind)	0	1	2	3
14. Headaches	0	1	2	3
15. Not feeling satisfied with your sex life	0	1	2	3

16. Stomach problems	0	1	2	3
17. Uncontrollable crying	0	1	2	3
18. Anxiety attacks	0	1	2	3
19. Trouble controlling temper	0	1	2	3
20. Waking up in the middle of the night	0	1	2	3
21. Trouble getting along with others	0	1	2	3
22. Dizziness	0	1	2	3
23. Passing out	0	1	2	3
24. Desire to physically hurt yourself	0	1	2	3
25. Bad thoughts or feelings during sex	0	1	2	3
26. Desire to physically hurt others	0	1	2	3
27. Sexual problems	0	1	2	3
28. Sexual overactivity	0	1	2	3
29. Fear of men	0	1	2	3
30. Fear of women	0	1	2	3
31. Unnecessary or over-frequent washing	0	1	2	3
32. Feelings of inferiority	0	1	2	3
33. Being confused about your sexual feelings	0	1	2	3
34. Feelings of guilt	0	1	2	3
35. Feelings that things are "unreal"	0	1	2	3

36.	Memory problems	0	1	2	3
37.	Feelings that you are not always in your body	0	1	2	3
38.	Feeling tense all the time	0	1	2	3
39.	Sexual feelings when you shouldn't have them	0	1	2	3
40.	Having trouble breathing	0	1	2	3

Appendix O

Debriefing

Thank-you for your cooperation in this study. This study is attempting to better define the experience of oppression sleep paralysis. Oppression sleep paralysis consists of paralysis before sleeping or just after waking up, accurate perception of the room you are in and at least one of the following; 1) feeling of a presence, 2) seeing someone or something in the room, 3) hearing someone or something in the room or, 4) feeling a pressure on the chest.

We are also interested in comparing subjects with oppression sleep paralysis and those without on a number of psychological dimensions such as hypnotizability, imagery vividness, mystical thinking and experience and psychological adjustment.

All studies which have been performed on sleep paralysis have found that subjects who have experienced this phenomenon are normal and do not suffer from any psychopathology.

This study is also attempting to assess whether physical and sexual abuse is related to oppression sleep paralysis. In the event that the questionnaire on abuse has caused you any personal distress, the following information is provided to aid you. Additionally, we may be contacted to answer any questions that you may have or to otherwise aid you.

Services for Victims of Abuse:

Carleton University:

Counselling and Student Life Services 788-2600
x6600

Health Services - Mental Health 788-2600 x6674

Peer Counselling 788-2600 x3581

24 Hour Helplines:

Distress Center 238-3311

Salvation Army Crisis Center 236-7977

Rape Crisis Center 729-8889

Sexual Assault Center 234-2266

If you have any questions or ethical concerns regarding this experiment, please contact any of the following:

Primary Investigators: Stacey McNulty or Martha Pires
788-2600 x2684

Faculty Advisor: Dr. N.P. Spanos 788-2600 x2683

Chair of Ethics Committee: Dr. L. Paquet 788-2600 x2692

Chair of Psychology Dept.: Dr. W. Jones 788-2600 x2648

Appendix P

Correlations among Sleep Paralysis, General Sleep, Psychopathology and Imaginativeness Variables which were entered into the Regression Equation

	1	2	3	4	5	6	7
1	——	.15*	.14	.03	-.16*	-.01	.01
2		——	-.04	-.02	-.06	-.20*	-.13
3			——	.04	.01	-.01	-.14
4				——	.01	.08	.01
5					——	.01	-.16
6						——	.10

Note. 1=Intensity of sleep paralysis (SP), 2=Number of SP attacks, 3=Afraid during SP, 4=Position during SP, 5=SP when falling asleep or waking, 6=Date of SP, 7=Time of SP, 8=Duration of SP, 9=Stress before SP, 10=Overworked before SP, 11=Tired before SP, 12=Age of first SP, 13=End with extremity movement, 14=Family members with SP, 15=Average hours sleep, 16=Sleeptalk/walk factor, 17=Night vividness factor, 18=Nightmare/terror factor, 19=Lucid dreams, 20=Imaginativeness Factor.

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

Correlations among Sleep Paralysis, General Sleep, Psychopathology and Imaginativeness Variables which were entered into the Regression Equation

	8	9	10	11	12	13	14
1	.15	.16*	.19	.09	-.26**	-.21**	.16*
2	.07	.03	.06	.03	-.19*	-.04	-.05
3	.06	.13	.17*	.02	-.11	-.12	.08
4	-.03	-.08	-.06	.00	.06	-.07	.12
5	-.07	.04	-.01	.06	-.02	.11	.01
6	.01	-.13	-.23**	-.20**	-.22**	-.07	.02
7	.00	.02	.14	.01	.15	.08	.00
8	————	-.06	-.02	-.05	.09	-.11	.17*
9		————	.56	.41**	.07	-.10	.02
10			————	.49**	.00	.02	.01
11				————	.08	.01	-.01
12					————	.09	-.08
13						————	.02
14							————

Note. 1=Intensity of sleep paralysis (SP), 2=Number of SP attacks, 3=Afraid during SP, 4=Position during SP, 5=SP when falling asleep or waking, 6=Date of SP, 7=Time of SP, 8=Duration of SP, 9=Stress before SP, 10=Overworked before SP, 11=Tired before SP, 12=Age of first SP, 13=End with extremity movement, 14=Family members with SP, 15=Average hours sleep, 16=Sleeptalk/walk factor, 17=Night vividness factor, 18=Nightmare/terror factor, 19=Lucid dreams, 20=Imaginativeness Factor.

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

Correlations among Sleep Paralysis, General Sleep, Psychopathology and Imaginativeness Variables which were entered into the Regression Equation

	15	16	17	18	19	20
1	-.11	.30**	.12	.28**	.07	.41**
2	-.05	.08	-.01	.06	-.01	.18*
3	.01	-.08	-.12	-.07	-.05	-.07
4	.00	-.09	-.06	-.11	.09	.01
5	.04	.02	.05	-.06	.08	-.08
6	.03	-.11	-.17*	-.06	-.13	-.10
7	.14	-.01	.05	-.04	-.07	-.16
8	.02	.02	.10	-.06	.03	.08
9	.00	-.01	.00	.07	-.12	.15*
10	-.07	.02	-.07	.14	-.12	.07
11	-.02	.07	-.04	.13	-.05	.08
12	.11	-.10	-.16*	-.17*	-.01	-.18*
13	.07	-.09	-.05	-.16*	.05	-.06
14	.05	.05	.02	.06	.13	.24**
15	-----	-.09	-.07	-.11	-.08	-.14
16		-----	.11	.32**	.12	.16*
17			-----	.27**	.17*	.10
18				-----	.19*	.11
19					-----	.02
20						-----

Note. 1=Intensity of sleep paralysis (SP), 2=Number of SP attacks, 3=Afraid during SP, 4=Position during SP, 5=SP when falling asleep or waking, 6=Date of SP, 7=Time of SP, 8=Duration of SP, 9=Stress before SP, 10=Overworked before SP, 11=Tired before SP, 12=Age of first SP, 13=End with extremity movement, 14=Family members with SP, 15=Average hours sleep, 16=Sleeptalk/walk factor, 17=Night vividness factor, 18=Nightmare/terror factor, 19=Lucid dreams, 20=Imaginativeness Factor.

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

Appendix Q
Variable Names

- 1 = Age**
- 2 = Gender (Scoring 0=males, 1=females)**
- 3 = Sleep Talking/walking Factor**
- 4 = Night Vividness Factor**
- 5 = Nightmare/terror Factor**
- 6 = Lucid Dreams (0= No, 1= Yes)**
- 7 = Hours Sleep Per Night**
- 8 = Physical Abuse (0= No, 1= Yes)**
- 9 = Sexual Abuse (0= No, 1= Yes)**
- 10 = Emotional Abuse (0= No, 1= Yes)**
- 11 = Psychopathology Factor**
- 12 = Imagination Factor**
- 13 = Headache Factor**
- 14 = Reports of Seeing UFOs (0= No, 1= Yes)**
- 15 = Reports of OBEs (0= No, 1= Yes)**
- 16 = Eysenck Personality Questionnaire= Psychoticism Scale**
- 17 = Eysenck Personality Questionnaire= Lie Scale**
- 18 = Eysenck Personality Questionnaire= Extraversion Scale**
- 19 = CURSS O scale**
- 20 = CURSS S scale**
- 21 = Narcolepsy**

**Correlations among Variables for Sleep Paralysis
and Control Subjects**

	1	2	3	4	5	6
1	_____	.10	-.02	-.11	.03	-.03
2	.06	_____	.11	.13*	.19**	.17**
3	.02	-.05	_____	.22**	.47**	.11
4	-.22**	.22**	.11	_____	.29**	.27**
5	-.10	.08	.32**	.27**	_____	.16*
6	.00	-.01	.12	.17*	.19*	_____
7	-.04	-.13	-.09	-.07	-.11	-.08
8	.18*	.11	.08	.22**	.16*	.09
9	.26**	.24**	.09	.10	.08	.08
10	.18*	.17*	.05	.18*	.23**	.12
11	-.02	.24**	.06	.14	.26**	-.05
12	.06	.09	.17*	.28**	.28**	.15*
13	.01	.31**	.16*	.10	.11	.02
14	.22**	.02	.01	.12	-.14	.03
15	.16*	.07	.19**	.16*	.12	.13
16	-.08	-.37**	.04	-.02	.00	.15*
17	.26**	.13	.01	-.15*	-.17*	-.05
18	-.09	.09	.03	.01	.08	-.03
19	-.01	.22**	.03	.11	.19*	.09
20	.09	.29**	.06	.13	.25**	.08
21	.04	-.02	-.08	X	-.12	-.06

Note. See Appendix P1 for Variable Names
 Sleep Paralysis Subjects are Below the Diagonal
 Control Subjects are Above the Diagonal
 * $p < .05$, ** $p < .01$

**Correlations among Variables for Sleep Paralysis
and Control Subjects**

	7	8	9	10	11	12
1	-.07	-.05	.03	.06	-.16*	.00
2	-.06	-.04	.16*	.05	.19**	.12
3	.04	.17**	.20**	.11	.09	.20**
4	.11	.19**	.14*	.10	.19**	.34**
5	.00	.19**	.18**	.21**	.28**	.28**
6	.10	.14*	.12	.05	.15*	.18**
7	-----	-.01	.00	-.04	-.01	-.01
8	-.05	-----	.28**	.44**	.26**	.17**
9	-.03	.35**	-----	.25	.20**	.14*
10	-.07	.37**	.30**	-----	.25**	.21**
11	-.20**	.23**	.27**	.18*	-----	.42**
12	-.14	.24**	.19**	.28**	.53**	-----
13	-.26**	.16*	.20**	.10	.22**	.12
14	.04	.11	.09	.09	.03	.14
15	-.02	.16*	.12	.08	.05	.24**
16	.10	-.04	.02	-.02	.04	.04
17	.01	-.01	.01	.09	.01	-.12
18	.00	-.08	.00	.04	-.14	.12
19	.00	.10	.16*	.14*	.07	.25**
20	-.11	.06	.20**	.15*	.12	.35**
21	-.06	-.07	-.07	-.08	.01	.00

Note. See Appendix P1 for Variable Names

Sleep Paralysis Subjects are Below the Diagonal

Control Subjects are Above the Diagonal

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

**Correlations among Variables for Sleep Paralysis
and Control Subjects**

	13	14	15	16	17	18
1	-.06	-.06	.09	-.06	.14*	.06
2	.27**	-.04	.11	-.23**	.10	.03
3	.12	.06	.20**	.02	-.05	.21**
4	.16**	.04	.06	.00	.00	.09
5	.33**	.07	.24**	.01	-.05	.11
6	.08	.02	.09	.09	-.15*	.00
7	.06	.02	.00	.03	-.12	.04
8	.05	.03	.14*	.15*	-.12	.07
9	.15*	.07	.07	.07	.00	.02
10	.02	.06	.08	.05	.10	.03
11	.28**	.11	.06	.15*	-.10	-.19**
12	.08	.13	.19**	.11	-.08	.17**
13	_____	.00	.13*	-.07	.03	-.02
14	.10	_____	.03	.02	.04	-.07
15	.23**	.22**	_____	.10	.01	.07
16	-.16*	.04	-.06	_____	-.28**	-.06
17	.15*	.08	-.02	-.21**	_____	-.05
18	.00	.00	.00	.05	-.10	_____
19	.12	.05*	.16*	-.22**	-.12	.06
20	.10	.14	.18*	-.24**	-.10	.14
21	-.07	-.02	-.05	-.05	.16*	.07

Note. See Appendix P1 for Variable Names
 Sleep Paralysis Subjects are Below the Diagonal
 Control Subjects are Above the Diagonal
 * $p < .05$, ** $p < .01$

**Correlations among Variables for Sleep Paralysis
and Control Subjects**

	19	20	21
1	-.02	-.02	X
2	.08	.11	X
3	.17**	.22**	X
4	.16*	.28**	X
5	.20**	.22**	X
6	.06	.14*	X
7	-.13*	-.10	X
8	.04	.05	X
9	.04	.06	X
10	-.04	.06	X
11	.11	.12	X
12	.26**	.34**	X
13	.15*	.17**	X
14	.02	.03	X
15	.04	.07	X
16	-.03	-.03	X
17	.04	.04	X
18	.08	.13*	X
19	_____	.73**	X
20	.77**	_____	X
21	.02	.00	_____

Note. See Appendix P1 for Variable Names

Sleep Paralysis Subjects are Below the Diagonal

Control Subjects are Above the Diagonal

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

X = Correlations could not be computed because no control subjects reported narcolepsy

END

1 9-07-94

FIN