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## OUT-OF-BODY EXPERIENCES

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In an out-of-body experience (OBE), people feel that their “self,” or center of awareness, is located outside of the physical body. The experients’ reported perceptions are organized in such a way as to be consistent with this perspective and include such features as sensations of floating, traveling to distant locations, and observing the physical body from a distance. The following examples illustrate OBEs.

A 36-year-old American police officer from California wrote the following in reply to a question in one of my studies. On her first night on patrol, she pursued an armed suspect. “When I and three other officers stopped the vehicle and started getting [to] the suspect . . . I was afraid. I promptly went out of my body and up into the air maybe 20 feet above the scene. I remained there, extremely calm, while I watched the entire procedure—including watching myself do exactly what I had been trained to do.” Suddenly, she found herself back in her body after the suspect had been subdued.

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A Scottish woman wrote that, when she was 32 years old, she had an OBE while training for a marathon. "After running approximately 12–13 miles . . . I started to feel as if I wasn't looking through my eyes but from somewhere else. . . . I felt as if something was leaving my body, and although I was still running along looking at the scenery, I was looking at myself running as well. My 'soul' or whatever, was floating somewhere above my body high enough up to see the tops of the trees and the small hills.

There is some confusion in the determination of whether or not an experience counts as an OBE. Both Hart (1954) and Tart (1974) have emphasized the differences between those experiences in which the person has the somaesthetic sense of being located outside of the body (i.e., OBEs) and those other experiences in which a sense of separation from the body is not present or is unclear. In the latter sense, autoscopy, depersonalization, and other experiences reported by patients with temporal lobe epilepsy or other disorders do not qualify as OBEs. This is not to say that OBEs, which include a shifting of the sense of awareness to an exterior location, have not been reported by people who have these disorders (e.g., Brugger, Agosti, Regard, Wieser, & Landis, 1994; Green, 1968, p. 124; Steinberg, 1995). My point is rather that an experience must include the exteriorization of perceptual locus to be classified as an OBE.

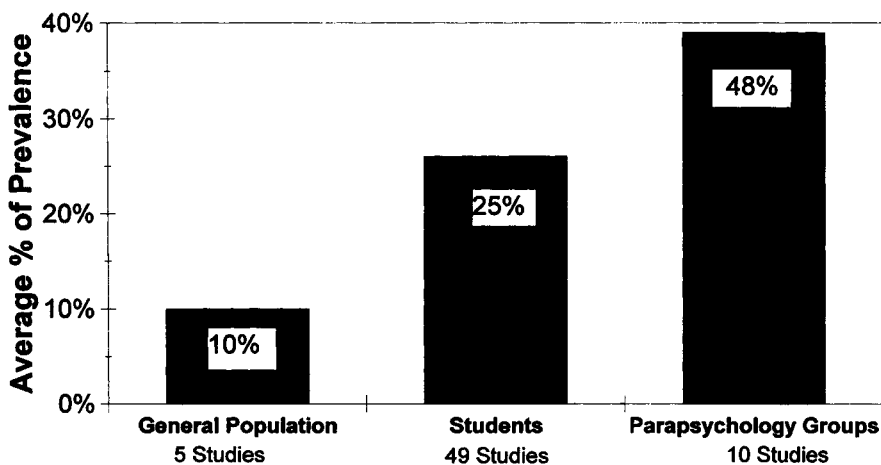
Although an OBE may occur in persons who are close to death, this does not mean that this type of OBE is necessarily a near-death experience (NDE; see Greyson, this volume, chap. 10). Irwin (1985a) said, "The NDE is not simply a variety of the OBE: the former has additional facets which give it status as an experiential syndrome in its own right" (p. 12).

Descriptions of OBEs can be found in several case collections (e.g., Crookall, 1961, 1964, 1972, 1978; Green 1968; Muldoon, 1936; Muldoon & Carrington, 1951) and in the autobiographical writings of those who claim to have the ability to induce the experience at will or who have had many spontaneous OBEs (e.g., Fox, 1939; Harary, 1978; Monroe, 1971; Muldoon & Carrington, 1929; Peterson, 1997; Vieira, 1995).

Recent writings have popularized OBEs that have occurred close to death, but they have also been reported under ordinary conditions and during illness, stress, meditation, hypnosis, and by voluntary induction. Although there is a long history of interest in and study of this phenomenon (Alvarado, 1989, 1992), it is only recently that systematic research has been conducted.

Questionnaire studies provide an estimate of how common OBEs are, although they suffer from certain methodological ambiguities that are discussed later. In the meantime, I discuss some trends in the literature, summarized in Figure 6.1.

Representative surveys of the general population have obtained a much lower prevalence of OBEs than surveys that have sampled either



*Figure 6.1.* Average prevalence of out-of-body experiences in three different groups. Most of the studies used in these analyses are listed by Alvarado (1986a) and by Irwin (1985a, pp. 174–175). Additional studies include students, Alvarado and Zingrone (1997a, 1997b); Brelaz de Castro (1998); Chadha, Sahni, and Alvarado (1987); Clarke (1995); Glicksohn (1989, 1990); Irwin, 1996; McClenon, 1990; Pekala, Cumar, and Cummings (1992); Pekala, Kumar, and Marcano (1995); Severi (1995); Spanos and Moretti (1988); Stanford (1987); Tobacyk, Wells, and Miller (1998); Usha and Pasricha (1989a); Zangari and Machado (1996); and parapsychology-related groups, Alvarado and Zingrone (1999); Glicksohn (1990); Richards (1988, 1991); and Thalbourne (1994).

college students or individuals with a particular interest in parapsychological phenomena (see Targ, Schlitz, & Irwin, this volume, chap. 7). This finding is not surprising, in that many people join parapsychologically oriented interest groups primarily to share such experiences and to try to understand them. High prevalences of OBEs have also been obtained from other special samples, among them, people with schizophrenia (42%, Blackmore, 1986a), individuals highly prone to fantasy (88%, Wilson & Barber, 1983), individuals who are highly hypnotizable (Cardeña, 1988), and people who use marijuana (44%, Tart, 1971).

At this point, it is difficult to explain why student populations report more OBEs than do members of the general population. Palmer (1979a) suggested that higher use of mind-altering drugs among students may provide one answer. However, there is no evidence that the majority of college students who report OBEs experienced them while using drugs or even as a side effect of drug use. Irwin (1985a, p. 176) suggested instead that students may be better able to report OBEs, perhaps because they have greater self-observational skills, the experience occurred more recently, or they are more willing to report unusual experiences than are other individuals.

The available studies clearly show that the prevalence of multiple

OBEs is significantly higher than the prevalence of single occurrences. In a previous analysis of 19 studies, I found that, on average, 30% of respondents reported a single OBE, whereas 67% reported more than one OBE (Alvarado, 1986b). This statistically significant difference ( $p < .02$ ) may mean that those who have had one OBE are prone to have the experience more than once, perhaps by developing the cognitive skills necessary to repeat the experience or identify it when it occurs again.

## PHENOMENOLOGY

Although case studies indicate that the phenomenology of the OBE varies (Alvarado, 1984; Crookall, 1961, 1964; Gabbard & Twemlow, 1984; Giovetti, 1983; Green, 1968; Poynton, 1975; see also Alvarado, 1997), I focus here on some selected features. The analysis below of the prevalence of these specific features is based mainly on a previous literature review (Alvarado, 1986b).

During an OBE, some people have reported an awareness of separation and return to the body, whereas others just seem to see themselves out of their body or coming back into their body with no sensation of any transitions. In three studies in which respondents were asked if they had experienced sensations of leaving the body, an average of 31% reported that they had ( $Mdn = 35.5$ ; range = 22%–36%). Many experiencers see their physical body from a short distance, especially from positions above their bodies; on average, 62% reported this feature ( $n = 11$  studies;  $Mdn = 60\%$ ; range = 42%–81%).

Some out-of-body (OB) experiencers have reported the so-called “astral cord,” that is, a ropelike or stringlike connection that links the physical body to the out-of-body location (e.g., Crookall, 1964; Muldoon & Carrington, 1929). In my analysis of the literature, this feature had been reported by an average 7% of respondents ( $n = 6$  studies;  $Mdn = 6\%$ ; range 0%–20%). On close examination, the prevalence of 20% claimed by Crookall (1964) seems to be inflated, because he erroneously grouped cases with mere kinesthetic sensations he felt were consistent with such a claim with actual “cord” cases. After recategorization, only 11% of Crookall’s cases actually qualify as true cord cases. This feature of the OBE, frequently claimed in the occult and popular literatures to be commonplace, is actually rare. My finding underscores the importance of systematic research into the phenomenology of the OBE.

Experiencers describe themselves in a variety of ways when they find themselves out of their bodies. Some experience being in another body, usually resembling their physical one ( $n = 10$  studies;  $M = 46\%$ ,  $Mdn = 49\%$ ; range = 15%–75%). Others do not experience a body at all, describing themselves as “pure consciousness” ( $n = 6$  studies;  $M = 31\%$ ;  $Mdn =$

21.5%; range = 7%–80%) or as “balls of light,” “points in space,” or “clouds” ( $n = 6$  studies;  $M = 29\%$ ;  $Mdn = 28\%$ ; range = 13%–47%). These forms of self-perception are not necessarily distinct. Osis (1979) found that 23% of his OB experiencers reported that the type of “shape” experienced varied as the OBE progressed.

On average, 19% of experiencers ( $n = 10$  studies;  $Mdn = 16.5\%$ ; range = 5%–40%) have claimed that during an OBE, they made verifiable observations. Experiencers generally claim that they have traveled to a particular place and have obtained information about events occurring there (Alvarado, 1983; Hart, 1954). However, there are reasons to distrust this particular prevalence figure. For example, I found that of 61 claims of OBE cases, only 3 qualified as potentially veridical when experiencers were asked to provide fuller descriptions (Alvarado, 1986a). This finding underscores the limitations of questionnaire data that are gathered without the addition of narrative descriptions. Some laboratory studies that are relevant to the possibility of veridical observations at locations away from the physical body are discussed later in this chapter.

A neglected area in OBE research has been the study of the variables that are related to the content (for a more detailed discussion, see Alvarado, 1997; Irwin, 1985a, pp. 81–141). Crookall (1964) claimed that the circumstances surrounding the production of an OBE affected the content of the experience, but his work has been shown to have problems of validity and reliability (Irwin, 1985a). Gabbard, Twemlow, and Jones (1981) compared OBE experience features occurring in near-death circumstances to those occurring in other circumstances. They found that the near-death OBEs had a higher prevalence of such features as hearing noises at the beginning of the experience, traveling through a tunnel, seeing the physical body, being aware of the presence of other “beings” and deceased persons, and seeing brilliant lights.

Some researchers have found a higher frequency of these types of features in the OBEs of individuals reporting multiple experiences, as compared with those reporting a single experience (Alvarado & Zingrone, 1999; Gabbard & Twemlow, 1984). In addition, recent work has found significant positive correlations between the overall number of OBE features per case and the frequency of such variables as intentionally produced OBEs, frequency of parapsychological experiences, lucid dreams, and dream recall (Alvarado & Zingrone, 1999; see LaBerge & Gackenbach, this volume, chap. 5).

Although many of the studies of OBE phenomenology have used different questionnaires, there is consistency in the type of features reported (e.g., seeing the physical body at a distance). Unfortunately, little research has been conducted as to the variables that may predict the OBE features reported.

## AFTEREFFECTS

Particularly relevant to this section is the fact that most, if not all, OBE surveys include some NDE cases in which an OBE was present. Osis (1979) found that 88% of the OB experiencers he studied reported beneficial changes after the experience, whereas 11% reported no changes and 1% claimed to have undergone negative changes. Sixty percent of the respondents claimed improved functioning in daily life, which they related to the OBE. They reported improvement in self-rated mental health (50%) and in social relations (45%). Osis's sample comprised volunteer respondents, which may have biased his results.

In contrast, in a randomly selected sample from the electoral lists, Blackmore (1984a) found that only 10% of respondents claimed changes in their beliefs and in the quality of life as a result of their OBEs. However, a nationally representative survey conducted in Iceland found that, out of 18 OB experiencers interviewed, 56% claimed to have undergone positive changes in their lives, beliefs, and attitudes after the OBE (Wiedman & Haraldsson, 1980). Daily working activities were not affected in 78% of the cases, 17% reported an improvement in these activities, and only 5% felt that their working lives were negatively affected. In a study by Gabbard and Twemlow (1984, p. 23), 86% of experiencers reported a greater "awareness of reality" after the experience, and 78% claimed to have received lasting benefits from it.

Among the more specific transformations reported are changes in attitudes toward death and spirituality. Osis (1979) found that, after their OBEs, 73% of respondents claimed to have a new attitude about life after death, and 67% reported a reduction in their fear of death. Sixty-six percent in Gabbard and Twemlow's (1984, p. 23) sample claimed to have adopted a belief in life after death after an OBE.

Other studies have related specific phenomenological characteristics of the OBE to attitude change. Gabbard and Twemlow (1984, p. 32) found that OBEs occurring near death were associated both with more claims of life changes and with greater changes of lasting benefit than OBEs occurring during other circumstances. Gabbard and Twemlow also found that OBEs occurring in circumstances of mental calmness were more likely to be related to belief in the survival of bodily death (p. 24). In Alvarado and Zingrone (1998), the number of features reported in OBEs was the best predictor of life changes after the experience.

Irwin (1988) found no overall difference between OBE experiencers and nonexperiencers, with two exceptions: OB experiencers scored significantly higher on the Life Attitude Profile scales measuring positive attitudes regarding goal seeking and acceptance of death. Although there were no significant differences on the Death Perspectives Scale (DPS), those who

claimed to have had OBEs under near-death circumstances scored higher on a DPS subscale measuring positive attitude when anticipating death.

The results of these studies suggest that OBEs may lead to positive attitudinal changes, but one should keep in mind that these results are from correlational studies. Therefore, it is not possible to know if the OBE brought about a change of attitudes and beliefs or if prior attitudes and beliefs in some sense induced the OBE.

## PSYCHOPHYSIOLOGICAL CORRELATES

Most of the work on OBEs has been conducted with individuals who claim to be able to induce the experience at will. The first such study was conducted with Robert Monroe, a well-known OB experient. Tart (1967) reported that Monroe spent considerable time during his OBEs in "borderline states" characterized by 7–8 Hertz alpha and high amplitude theta waves, and in electroencephalographic (EEG) patterns characterizing Stage 1 sleep, with normal heart activity and few eye movements. In a later study (Tart, 1969), Monroe again showed a Stage 1 EEG pattern, theta activity, and a drop in systolic blood pressure during the first of two OBEs. The second OBE occurred after Tart observed shifts in EEG patterns between Stage 1 and Stage 2 sleep. No changes in cardiac activity were registered.

Gabbard and Twemlow (1984) also conducted studies with Monroe and reported EEG amplitude differences between the brain hemispheres. Lower EEG frequencies were recorded while Monroe was experiencing an OBE than during either of the periods before or after it. These recordings were described as ranging between 4 and 5 Hertz (Gabbard & Twemlow, 1984, p. 208) and as "being much less on the right side of his brain than on the left side" (Twemlow, 1977, p. 280). In another study with a different volunteer, Tart (1968) found that during OBEs the EEG showed an increase in 7–8 Hertz alpha activity. There were no changes in heart and galvanic skin response activity.

Osis and Mitchell (1977) measured the EEG of an OB experient, Ingo Swann, before and during his OBEs. The mean EEG amplitude during the OBE period was somewhat less than that recorded during the non-OBE period in both the right and left occipital lobes. Nonsignificant decreases in alpha activity also were reported.

A study with yet another OB experient, S. B. Harary, compared changes in psychophysiological variables from a relaxation period to an OBE period with two relaxation and two OBE periods in each session (Morris, Harary, Janis, Hartwell, & Roll, 1978). Skin potential decreased during the OBE periods, whereas respiration and heart rate increased. No significant changes were found in eye movements, plethysmographic readings, electromyography (a measure of muscle tension), or alpha fre-

quency in the EEG. Measurements during the first and second relaxation periods and during the first and second OBE periods did not differ from each other.

Palmer (1979b) attempted to induce OBEs in participants who had never before had the experience and correlated EEG measures to questionnaire data on experiences and expectations at different times during the study. He found no significant correlations among these variables, but he did report that "the three subjects who had more than 30 percent theta in their baseline EEGs all reported rather strong OBEs" (Palmer, 1979b, p. 138).

In another study of induced OBEs conducted by Gabbard and Twemlow (1984) with a single participant, the EEG resembled a pattern of Stage 3 sleep, described as a "transitional theta-delta band [in which the participant] retains a greater degree of conscious awareness than is usual for this Stage 3 sleep state" (p. 219).

Krippner (1996) reported on a 4-night dream laboratory study with a volunteer who claimed to have occasional OBEs. In the morning after the 4th night, the participant reported having had an OBE. During that time period, the EEG record showed that his REM sleep had been interrupted by "a pattern of slow brain waves in the theta and delta frequencies" (p. 90).

McCreery and Claridge (1996b) compared volunteer student and nonclinical OB experients from whom psychophysiological data had been previously elicited with individuals who had never had an OBE. The OB experients were found to have had higher rates of right-brain hemisphere activation, higher EEG amplitude coherence between the hemispheres, and a higher rate of lability in skin conductance level than the nonexperients.

In general, the studies suggest a tendency for relaxation or low arousal states to occur during OBEs, but the results of these studies are difficult to evaluate because different measurements were taken. In addition, some of the techniques used to induce OBEs may have confounded the interpretation of psychophysiological results. Finally, few of these studies seem to have been theory driven, which would have allowed future experiments to build on previous ones in formulating testable hypotheses. Further research is needed to corroborate and extend the available data.

## INDIVIDUAL DIFFERENCES

Most OBE research has focused on individual differences between experients and nonexperients as assessed by paper-and-pencil tests. Because no important differences regarding demographic variables have been found



in those studies, I focus my review on psychological correlates of the OBE (see also Alvarado, 1986b, 1988; Irwin, 1985a.)

### **Personality Variables**

The OBE has not been found to relate to extraversion, as assessed by the Differential Personality Questionnaire (DPQ; Irwin, 1980), by the Eysenck Personality Inventory (Irwin, 1985a, p. 201; McCreery & Claridge, 1995), or by the NEO Personality Inventory Revisited (Alvarado, Zingrone, & Dalton, 1996b). The traits of sensation seeking and danger seeking have been found to relate to OBEs in some studies but not in others. Using the DPQ, Gabbard and Twemlow (1984, p. 32) found lower levels of danger seeking in OB experiencers, although Irwin (1980) reported no significant relationship. The Risk-Taking factor of the Jackson Personality Inventory has been positively correlated with OBEs (Myers, Austrin, Grisso, & Nickeson, 1983), but Zuckerman's Sensation Seeking Scale has not (Glicksohn, 1990). Scores on excitement seeking from the Neuroticism factor of the NEO-PI-R were virtually identical for experiencers and nonexperiencers (Alvarado et al., 1996b).

Irwin (1981b) used the Edwards Personal Preference Schedule to study a variety of personality traits. Compared with the control group, an OBE group obtained lower scores in achievement and deference but higher scores on intraception (the disposition to pay attention to subjective experiences). Myers et al. (1983) found that OBEs were positively correlated with breadth of interest, innovation, responsibility, risk taking, and social participation and were negatively correlated with several aspects of personal complexity and orthodox values. They also found that OB experiencers were significantly more internally focused than nonexperiencers. Other researchers reported nonsignificant differences regarding locus of control between OB experiencers and nonexperiencers (Tobacyk, Wells, & Miller, 1998).

Spanos and Moretti (1988) found no relationship between OBEs and depressive affect. Likewise, Tobacyk and Mitchell (1987) found no differences between experiencers and nonexperiencers on such measures of adjustment as death orientation, defensive style, narcissism, self-concept, or social desirability. A hypothesized positive relationship between OBE and openness to experience has not been supported (Alvarado et al., 1996b).

### **Absorption, Fantasy Proneness, Hypnosis, and Dissociation**

In a pioneering study using the DPQ, Irwin (1980) found a positive correlation between OBEs and the DPQ Absorption scale. Since then, several other studies have been conducted to test this relationship. Most have replicated Irwin's initial finding (Alvarado & Zingrone, 1997b [two studies]; Dalton, Zingrone, & Alvarado, 1999; Glicksohn, 1990 [two stud-

ies]; Irwin, 1981c [two studies], 1985a [three studies]; Myers et al., 1983). Four failed to replicate (Alvarado & Zingrone, 1997b [one study]; Gabbard & Twemlow, 1984, p. 32; Glicksohn, 1990 [one study]; Spanos & Moretti, 1988). (Not included here is one of Irwin's, 1985c, studies in which the Absorption scale from the DPQ was modified to measure "need for absorption.") Taken together, these studies show a moderate correlation between OBEs and absorption (Stouffer's  $z = 10.53$ ,  $p < .001$ ,  $r = .41$ ).<sup>1</sup>

J. R. Hilgard's Imaginative Involvement scale correlated positively with OBE reports (Hunt, Gervais, Shearing-Johns, & Travis, 1992). In addition, fantasy proneness has been consistently and positively related to the OBE (Alvarado & Zingrone, 1994; Myers et al., 1983; Wilson & Barber, 1983). Although the data in Wilson and Barber's initial study were not analyzed statistically, I contrasted their high and low fantasy proneness group in relation to OBE prevalence, discovering significant differences between these two groups ( $\phi = .60$ ,  $p < .001$ ).

Spanos and Moretti (1988) reported significant positive correlations between various hypnosis tests and the prevalence of OBE, and studies by Pekala and associates found higher OBE prevalence among highly hypnotizable individuals (Pekala, Kumar, & Cummings, 1992; Pekala, Kumar, & Marcano, 1995). In an experimental context, Palmer and Lieberman (1976) found that participants who reported OBEs after an induction procedure involving progressive muscular relaxation, guided instructions and a ganzfeld or a uniform visual field, also obtained higher scores on Barber's Susceptibility Scale than those who did not report them.

Cardeña (1988, 1996) conducted an experimental study to investigate the phenomenology of "deep hypnosis" among individuals with very high hypnotizability. He found that spontaneous OBE-like sensations and other distortions of body image were more common in self-rated deep levels of hypnosis. These experiences were also more frequent in a state of quiescence (i.e., lying down) than while engaged in automatic or willful physical activity (i.e., pedaling a stationary bicycle or riding while a motor moved the pedals).

Richards (1991) reported significant positive correlations between the Dissociative Experiences Scale (DES) and prevalence of spontaneous and voluntary OBEs (.37 and .43, respectively) in a group of participants interested in spiritual and parapsychological phenomena. In my own studies with a colleague, we found a marginally significant ( $p = .06$ ) positive correlation between dissociation and OBEs in a small group of college library employees (Zingrone & Alvarado, 1994) and a significant association in a

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<sup>1</sup>This and the following analyses are frequently based on lower estimates. Consequently, they should be interpreted as a conservative approximation of overall probabilities and effect sizes. The  $r$  is based on the Fisher's  $z$  transformation (Rosenthal, 1991). Gabbard and Twemlow (1984) and Spanos and Moretti (1988) did not report  $p$  values. Consequently, I have assumed a  $z$  value of 0 for these studies.

community college student sample (Alvarado & Zingrone, 1997a). A more recent study with creative individuals also found a significant positive association between OBEs and DES scores (Dalton et al., 1999).

### **Imagery and Spatial Ability Variables**

Although it has been thought that imagery variables correlate with the OBE, research has not demonstrated a clear relationship. Two out of six studies found a significant positive correlation between OBEs and hypnagogic (i.e., the state between being awake and falling asleep) imagery (Blackmore, 1983a; Glicksohn, 1989, 1990; McCreery & Claridge, 1996a). In regard to hypnopompic (i.e., the stage between being asleep and waking up) imagery and OBEs, only one of four studies conducted by Glicksohn (1989, 1990) found a significant, positive correlation.

Using the Vividness of Visual Imagery Questionnaire, vividness of mental imagery was negatively correlated with the OBE in one study (Irwin, 1980), positively in another (Alvarado & Zingrone, 1994), and unrelated in a third (Irwin, 1981a, 1985a, p. 268). Blackmore (1982c) found no significant differences between experiencers and nonexperiencers using the Betts' Questionnaire on Mental Imagery.

Visualizer and verbalizer coding styles did not differentiate experiencers from nonexperiencers in studies conducted by Irwin (1980, 1985a, p. 270), but McCreery (1993) found that OB experiencers were predominantly visualizers. Others have explored the OBE's relationship to imagery control. Blackmore (1987) reported a positive relationship between these variables when participants were asked to indicate how easily they could change their viewpoints in imaginal memory scenes. "OBEs are better than others at switching from one viewpoint to another (especially to the viewpoint above the head), [are] more proficient at producing clear and detailed images from different viewpoints, and tend to use the observer viewpoint in dream recall" (p. 64). Other studies, using the Gordon's Control of Imagery Questionnaire, did not find significant results (Blackmore, 1983b; Irwin, 1985a, p. 271). Finally, no significant relationships were found between OBEs and performance on the Necker Cube Fluctuation Test of imagery (Cook & Irwin, 1983).

OB experiencers were found to have better spatial abilities in a study with a device built for the research project (Cook & Irwin, 1983). Blackmore (1983b) did not obtain significant relationships between spatial abilities and OBEs using the Space Relations Test of the Differential Aptitude Test battery. Although Gackenbach (1978) found no relationship between OBEs and scores on the Embedded Figures Test, Hunt et al. (1992) did report a positive relationship.

Overall, the best predictors of the OBE seem to be some cognitive variables that are intercorrelated, namely dissociation, hypnotic suscepti-

bility, absorption, and fantasy proneness. No consistent patterns have been found between personality variables and the OBE in the relatively small number of the studies that have been conducted.

### **Experiential Variables: Perceptual Distortions, Spontaneous Alterations of Consciousness, Dreams, and Parapsychological Experiences**

Several findings confirm the idea that OB experiencers tend to experience a variety of hallucinatory and perceptual distortions. McCreery and Claridge (1995) found this to be the case when they tested OB experiencers on scales measuring hallucinatory experiences and perceptual aberrations (see Bentall, this volume, chap. 3). Blackmore's (1986a) findings also supported this relationship: She found distortions of body image to be more frequent among OB experiencers than among nonexperiencers in samples of students and individuals with schizophrenia. Another study found a positive relationship between the OBE and hallucinatory experiences, experiences of perceived changes in body size, and floating sensations (Blackmore, 1984a). However, the experiencers' awareness of somatic processes, as measured by the Body Consciousness Questionnaire, was not related to OBEs (Irwin, 1985a, pp. 279–280; Miller, Murphy, & Buss, 1981).

McCreery and Claridge's (1996a) work has also supported the importance of perceptual distortions. In their study, OB experiencers reported more hallucinatory experiences in response to physical and mental relaxation exercises and a higher rate of detachment from the body during a laboratory exercise than did nonexperiencers. More recently, two colleagues and I (Alvarado, Zingrone, & Dalton, 1996a; Dalton et al., 1999) found that OB experiencers, as compared with nonexperiencers, did not have higher rates of alterations of consciousness under conditions of laboratory-induced partial sensory deprivation. We did observe that experiencers had a significantly higher frequency of spontaneous loss of awareness of the surroundings and of the passage of time while engaged in tasks in daily life than did nonexperiencers.

Table 6.1 summarizes trends in survey studies that have assessed the relationship of the OBE to dream variables. Most of these variables, especially lucid dreams (see LaBerge & Gackenbach, this volume, chap. 5), have been consistent predictors of OBEs. In addition, Blackmore (1986b) found that persons who experienced deliberate, as compared with spontaneous, OBEs reported higher frequencies of flying dreams and the ability to control and terminate dream content.

Although OBEs have not been found to be significantly related to laboratory performance in experimental extrasensory perception (ESP) testing (Alvarado et al., 1996a; Blackmore, 1982c), they have been positively correlated with claims of spontaneous ESP experiences (Alvarado & Zingrone, 1994; Alvarado et al., 1996a; Blackmore, 1984a; Green, 1967; Hunt

TABLE 6.1  
Relationships Between the Out-of-Body Experience and  
Dream Variables

Study	Lucid dreams	Dream recall	Vivid dreams	Flying dreams
Alvarado et al. (1996a)	<i>ns</i>	<i>ns</i>		
Blackmore (1982b)	<i>s</i>	<i>s</i> <sup>a</sup>		<i>s</i> <sup>a</sup>
Blackmore (1982c)				
Study 1	<i>s</i>	<i>ns</i> <sup>a</sup>		
Study 2	<i>ns</i>	<i>ns</i> <sup>a</sup>		<i>ns</i> <sup>a</sup>
Blackmore (1983a)	<i>s</i> <sup>a</sup>			<i>ns</i> <sup>a</sup>
Blackmore (1984a)	<i>s</i>	<i>ns</i> <sup>a</sup>	<i>s</i> <sup>a</sup>	<i>s</i>
Blackmore (1986b)	<i>s</i>			<i>s</i>
Drab (in Irwin, 1985b)				
Study 1	<i>s</i>			
Study 2	<i>ns</i>			
Study 3	<i>s</i>			
Gackenbach (1978)	<i>s</i>			
Glicksohn (1990)				
Study 1	<i>s</i>	<i>ns</i>		
Study 2	<i>s</i>	<i>ns</i>		
Study 3	<i>s</i>	<i>ns</i>		
Irwin (1983)	<i>s</i>			
Irwin (1986)	<i>s</i>			
Kohr (1980)	<i>s</i>	<i>s</i>	<i>s</i>	
Myers (1982)	<i>ns</i>			
Olsen (1988)		<i>s</i>	<i>s</i>	
Palmer (1979a)				
Students	<i>ns</i>	<i>ns</i>	<i>ns</i>	
Townspeople	<i>s</i>	<i>ns</i>	<i>s</i>	
Usha and Pasricha (1989b)	<i>s</i>	<i>ns</i>		
Wiedman and Haraldsson (1980)	<i>s</i>	<i>ns</i>		
Stouffer <i>z</i>	11.47	1.98	5.04	6.22
<i>p</i>	$10 \times 10^{-31}$	.02	$2 \times 10^{-7}$	$2 \times 10^{-10}$
Mean <i>r</i>	.24	.05	.16	.33

*Note.* With the exception of two of Glicksohn's (1990) studies of dream recall (1 and 3), none of the relationships are negative. *s* = significant; *ns* = nonsignificant. Missing data indicate that the relationship was not explored in the study.

<sup>a</sup>Analyses done with chi-squares having more than two degrees of freedom. These results have not been included in the combined analyses reported at the bottom of the table.

et al., 1992; Irwin, 1985a, p. 290; Kohr, 1980; Myers, 1982; see Targ, Schlitz, & Irwin, this volume, chap. 7). Positive relationships between the OBE and indices of a variety of parapsychological claims (Alvarado et al., 1996a; Dalton et al., 1999; Glicksohn, 1990 [two out of three studies]) and such specific purported experiences as seeing apparitions (Alvarado & Zingrone, 1994; Myers, 1982) and auras (Alvarado & Zingrone, 1994) have also been reported. Mystical experiences have been consistently but modestly related to the OBE (Blackmore, 1984a, 1986b; Hunt et al., 1992; Kohr, 1980; Myers et al., 1983; Palmer, 1979a; Wiedman & Haraldsson,

1980; Stouffer's  $z = 7.21$ ,  $p < .001$ ,  $r = .21$ ), although a study by Spanos and Moretti (1988) did not support such a relationship.

### Use of Drugs and Mental Disciplines

There is evidence that the frequency of OBEs is significantly higher after one's initiation into marijuana use (Tart, 1971). Some studies with student samples have found positive correlations between psychedelic drug use and OBEs (Blackmore & Harris, 1983; Myers et al., 1983; Palmer, 1979a; Usha & Pasricha, 1989b), but this relationship has not been found with nonstudent samples (Kohr, 1980; Palmer, 1979a).

With a few exceptions (Gabbard & Twemlow, 1984; Palmer, 1979a), the practice of meditation and similar disciplines generally has been positively correlated with the OBE (Alvarado et al., 1996a; Hunt et al., 1992; Kohr, 1980; Myers et al., 1983; Palmer, 1979a; Usha & Pasricha, 1989b; Stouffer's  $z = 6.93$ ,  $p < .001$ ;  $r = .21$ ).

These studies imply that both spontaneous and deliberate entry into altered states are related to the OBE. These practices, in turn, may be related to absorption, hypnotic susceptibility, dissociation, perceptual distortions, and psi-experiences.

### DEVELOPMENTAL VARIABLES

Initial research by Stanford (1987) uncovered significant positive correlations between OBEs while awake and reports of time spent reading or being read to during childhood, as well as between OBEs while falling asleep and reports of time spent playing with imaginary playmates. No significant relationships emerged between OBEs and spankings or deprivation during childhood. However, in a later study, Stanford (1994) failed to replicate the previous findings.

Irwin (1996) did not find a significant relationship between OBEs and measured parental support of imagination and other activities in childhood, but they found significant positive correlations between OBEs and various subscales of the Survey of Traumatic Childhood Events. They included intrafamilial sexual abuse, extrafamilial sexual abuse, extrafamilial assault, death or illness of a close friend, and isolation from friends and playmates. These findings are similar to data emerging from research on NDE experiences (Irwin, 1993; Ring, 1992) and individuals with high hypnotic susceptibility (Nash, Lynn, & Givens, 1984). Stanford's (1987) initial finding and Irwin's study both deserve to be replicated, but the dearth of studies in this area make generalization of results both speculative and premature. The provocative but limited data on developmental antecedents

of the OBE suggest that they deserve more attention than they have received in the past.

## MEDICAL AND NEUROLOGICAL VARIABLES

Although some investigators have speculated that OBEs are related to headaches (Comfort, 1982; Lippman, 1953) and temporal-lobe epilepsy (Eastman, 1962; Persinger, 1983), virtually no research has been conducted to test these ideas. Green (1967) found that 11% of OB experiencers suffered migraine headaches, and Irwin (1983) reported a positive relationship between OBEs and headaches in three out of four surveys. However, when Irwin partialled out the correlation controlling for lucid dreams, he found that the relationship of OBEs to headaches was not significant. McCreery (1997, p. 267) reported a significantly higher proportion of migraines in OB experiencers than in nonexperiencers. Although Spanos and Moretti (1988) found a positive association between OBEs and psychosomatic symptoms, Gabbard and Twemlow (1984, p. 31) did not.

Penfield and Jasper (1954) were able to elicit OBE sensations by electrical stimulation of the temporal cortex. Others have suspected an association between the OBE and temporal-lobe symptomatology or epilepsy. In his examination of a handful of people diagnosed with epilepsy, McCreery (1993) found no relationship between epilepsy and OBEs. However, Kennedy, Kanthamani, and Palmer (1994) reported a significant positive correlation between items from Persinger and Makarec's (1987) Personal Philosophy Inventory, which reputedly measures temporal-lobe symptomatology, and an item asking about the occurrence of parapsychological experiences, including OBEs. Persinger (1995) found a positive correlation between epilepticlike signs, as measured by a subscale of his Personal Philosophy Inventory, and participants' reported experiences of "leaving the body" and feeling "detached" from it in the laboratory. (This relationship interacted with measures of increased global geomagnetic activity, indicating the possibility that this environmental factor influences OBE occurrence.)

Another report suggested that OBEs, like so-called autoscopic hallucinations (i.e., visual hallucinations of one's body), are related to brain hemisphericity (Brugger, Regard, & Landis, 1996). In a comparison of 13 cases of unilateral autoscopia with 27 cases of OBEs, the authors found that the majority of the autoscopic experiences occurred in the left visual field (85%), whereas most of the OBEs were perceived in the right visual field (63%), a difference that I found to be statistically significant ( $p = .005$ ). Although the studies reviewed are promising, there is no strong evidence that consistently relates the OBE to medical or neurological variables.

## PSYCHOPATHOLOGY

Measures of traits and symptoms related to psychosis have failed to differentiate OB experiencers from nonexperiencers (Gabbard & Twemlow, 1984; Irwin, 1980; McCreery & Claridge, 1995). McCreery (1993) found no relationship between the occurrence of OBEs and his participants' psychiatric histories. Gabbard and Twemlow (1984) concluded that "the OBE group was significantly healthier than a variety of other normative groups in the population and did not have the constellation of symptoms often equated with character disorders, such as psychosomatic disorders, alcohol and drug abuse, or stimulus seeking" (p. 32). They also argued that such phenomena as depersonalization, autoscopy, and body boundary disorders are phenomenologically different from the OB experiencers' range of experiences (see Twemlow, 1989). A similar analysis has been presented by Irwin (1985a). However, no one to date has conducted empirical studies that differentiate the OBE from seemingly similar phenomena in terms of phenomenology, antecedents, demographics, or other variables.

Although the link between OBEs and psychosis is not supported by most empirical evidence, an exception is the study by McCreery and Claridge (1995), in which OBEs were related to scores on several schizotypy scales (typically used to predict the onset of schizophrenia). However, the authors used Claridge's (1985, 1988) model of schizotypy in which a distinction is made between schizophrenia as a process of psychological deterioration and schizotypy as a personality trait. Hence, Claridge's model actually may be related to those psychological models of OBEs that suggest that an individual's ability to have an OBE is related to such capacities as alterations of consciousness and unusual styles of perceptual processing (Blackmore, 1984a; Irwin, 1985a; Palmer, 1978b).

In addition, McCreery and Claridge (1995) found that their OB experiencers scored lower on a measure of physical anhedonia (the inability to experience pleasure) than nonexperiencers. The authors described their OB-experiencers as "happy schizotypes," who are considered to be "functional despite, or perhaps even in part because of, his or her anomalous experiences" (p. 142).

In Irwin's (1980) initial study, OB experiencers had higher scores on the Stress Reaction Scale (related to neuroticism) of the DPQ than would be expected in the general population. However, other studies have failed to relate the OBE to such measures of psychopathology as the Anxiety and Ergic Tension factors of Cattell's 16PF Questionnaire (Gackebach, 1978), the Anxiety scale of the Jackson Personality Inventory (Myers et al., 1983), Caine's Hysteroid Scale (Gabbard & Twemlow, 1984), the Neuroticism scale of the Eysenck Personality Inventory (Irwin, 1985a, p. 201; McCreery & Claridge, 1995; Spanos & Moretti, 1988), or the Neuroticism factor and facets of the NEO-PI-R (Alvarado et al., 1996b).



In sum, the OBE has not been related to psychopathological variables in most of the research conducted, with the possible exception of its purported relationship to schizotypy as conceptualized by Claridge (1985, 1988).

## PARAPSYCHOLOGICAL RESEARCH

In a previous section, I mentioned apparently veridical perceptions during an OBE as a particular phenomenological feature of the experience. These perceptions have also been studied in the laboratory. In these tests, volunteers who claim to be capable of inducing an OBE are usually asked to travel to a nearby location and obtain information from preselected target material. They are then asked to report this information when they feel they have returned to their bodies. Some isolated positive results have been obtained (for reviews, see Alvarado, 1982a; Blackmore, 1982a).

Probably the best known of these studies is Tart's (1968) study of a woman known as "Miss Z." She was reported to have "read" a randomly selected five-digit number put on a shelf out of her reach but in the same room where she was lying in a bed with EEG electrodes connected to her head. According to Tart (1968) there was an unlikely possibility that the study's participant perceived subliminally a reflection of the number from the glass surface of a nearby clock.

Harary and Solfvín (1977) conducted a study with 6 non-experients and 2 OB experients who claimed to be able to induce the experience at will. Participants were asked to identify tape-recorded sounds played at a distance and to say if a person was present in that distant location. Only one of the "at-will" participants provided significant results on both tasks.

In a series of four studies, Palmer (Palmer, 1979b; Palmer & Lieberman, 1975, 1976; Palmer & Vassar, 1974) tested for ESP by attempting to induce OBEs in general volunteers using relaxation and sensory deprivation techniques. A later evaluation of the studies led Palmer (1978a) to conclude that those participants who had reported OBEs during the experimental induction did not achieve better ESP scores than participants who failed to report OBEs. However, there were indications of an interaction among ESP scores, a hypnagogic state, and the use of sensory deprivation procedures. Other studies on this issue failed to obtain significant results (Morris et al., 1978; Tart, 1967, 1969) or obtained them only when so many analyses were conducted that chance factors could not be ruled out (Osis, 1975).

Another line of experimental research attempts to detect anomalous physical activity at the site the OB experient is "visiting" during the OBE. I will not comment on the old studies that used photography and other

means of detection because it is not clear that the participants had sensations of being located out of their bodies (see reviews by Alvarado, 1980; Blackmore, 1982a). Instead, I focus on two recent attempts to detect the OBE physically. The first used a combination of physical and biological detectors while the participant attempted to visit a distant location during an OBE (Morris et al., 1978). The measurements taken from a variety of detectors of heat, light, and other physical indexes in the visit site were not significantly related to the participant's reported OBEs. More successful were the responses of a kitten that seemed to react, at statistically significant levels, to Harary's nonphysical presence in some sessions, as measured by observations of the animal's movements and vocalizations. Other tests with the same kitten obtained good initial results, which declined in later testing. Overall, the results were not statistically significant.

In another study, researchers postulated that the detection of an OBE-experient's "presence" at a distant location should correlate with his or her acquisition of information present only at that location (Osis & McCormick, 1980). The participant was asked to visit a viewing window during an OBE. The window was fitted with strain-gauge sensors that detected surrounding vibrations, a fact kept masked from the participant. As expected, during the trials in which the participant retrieved correct information (in the form of pictorial targets), higher activation levels of the sensors were obtained than in the trials in which correct information was not retrieved.

Some of these studies appear to indicate that veridical information has been acquired during an OBE in the laboratory. Unfortunately, only a handful of studies of this sort have been conducted, and the results rarely have been replicated. In addition, it is possible that the results of these studies may be explained by other processes of anomalous communication, such as ESP and psychokinesis (see Targ, Schlitz, and Irwin, this volume, chap. 7).

## THEORIES

Throughout the history of OBE research, two general perspectives have guided both research and theory. On one hand, some researchers have suggested that "something" literally "goes out of the body" during an OBE. Alternatively, others see the experience as "imaginary" in nature. I refer to the former perspective as the *projection model* and to the latter as the *psychological model* (for reviews of these and other concepts, including psychophysiological speculations, see Alvarado, 1982b, 1992; Blackmore, 1982a; Irwin, 1985a).

## The Projection Model

The projection model has had a long history and is traditionally associated with occult and spiritualistic systems of thought. Belief in the projection model has been maintained largely through claims by OB experiencers that they “see” themselves during the experience in a replica of their physical bodies and by their reports that they have “felt” sensations of “leaving” and “returning to” the body. The projection model has also been supported by alleged veridical perceptions during the OBE and by the rare reports of observers who claim to have “seen” an apparition of the OB experient at the time and place the experient later claimed to have been present (Hart, 1954, 1956; Laurentin & Mahéo, 1990). One problem with the projection model is the difficulty in attempting to test it scientifically. Projection claims are interesting, but they have not been systematically studied, and many plausible alternative explanations have been proposed (see Irwin, 1985a). Nonetheless, these ideas are still discussed in the literature in the context of the mind–body problem (Woodhouse, 1994).

## The Psychological Model

The dominant model in OBE studies, by far, is the psychological one. In fact, most recent OBE research has investigated the assumptions of the psychological model in one way or another (Alvarado, 1989, 1992). There are many reasons for the domination of this model. One is the fact that contemporary psychology, as well as science at large, is hesitant to propose explanations that contradict current paradigms. But in all fairness, it should be noted that little evidence exists to support the projection model; furthermore, this model presents myriad obstacles to scientific testing. In contrast, the psychological model is far more amenable to systematic investigation. It also serves to connect the OBE anomaly to the investigative concerns of those who study a wide range of perceptual and cognitive functions.

Psychological models postulate that the OBE is an imaginary or hallucinatory experience of one sort or another (Alvarado, 1992). Palmer's (1978b) model states that OBEs are caused by an organism's reaction to its threatened identity. This reaction is initiated by the altered body image that results from radical deviations in proprioceptive input. Once the unfamiliar input is received, the individual's usual sense of identity is threatened, and this threat activates unconscious processes that attempt to restore the usual sense of identity. According to Palmer, the OBE is only one of several ways in which one's usual identity may be reestablished. Other methods may include lucid dreams at night or daytime fainting, which he contended may occur when no cognitive solution to the threat is apparent.

The OBE, then, is an attempt to prevent the jeopardy to one's identity from reaching awareness and precipitating a crisis. The hypnagogic state is considered to play an important role in this model because of the body image changes commonly reported during this state. Palmer noted that many spontaneous OBEs seem to arise in hypnagogic contexts, or in moments of extreme stress. Some scientific data exist to support Palmer's model; OBEs have occurred in the hypnagogic state in various laboratory contexts (Palmer, 1978a; Palmer & Lieberman, 1975; Palmer & Vassar, 1974). However, findings that specifically relate hypnagogic imagery to spontaneous OBEs have not been consistent. In addition, Palmer's (1978b) model is difficult to test because he postulated that these threats are typically perceived unconsciously:

The person is unlikely to be fully aware (i.e., conscious) of the threat, or even the change of body image, as such. Indeed, the whole purpose of the OBE is to prevent the threat from reaching consciousness, where it could provoke an anxiety attack. (p. 20)

Another important psychological model has been proposed by Blackmore (1984b), who suggested that the psyche creates models of reality based on the sensory impressions it receives. However, only one such model of reality can predominate at any given time. Changes in sensory input, the effects of stress, and other factors may disrupt such stable models, making it necessary for the organism to construct another model using memory and imagination. The OBE is conceived as one such model of reality; perceptual distortions, hallucinations, lucid dreams, mystical experiences, and other alterations of consciousness may represent other models. Blackmore's notions have received some empirical support. For example, as mentioned in the section on individual differences, Blackmore (1987) found that OB experiencers had greater visual-spatial abilities and a greater facility to change imagery perspective than nonexperiencers. (Visual-spatial abilities are also linked to lucid dreaming; see LaBerge & Gackenbach, this volume, chap. 5). Blackmore considered these findings to be consistent with her model because such imagery alteration skills support the idea that the OBE is created by an active manipulation of imagery involving visual and spatial components. Blackmore also argued that deliberate induction of an OBE should require a higher demand on such skills than spontaneous experiences. This prediction found support in one of her studies, in which OB experiencers who claimed to be able to induce the experience at will exhibited a higher level of dream control skills than those whose OBEs had occurred spontaneously (Blackmore, 1986b). Blackmore (1993) also postulated that her model "predicts that people who habitually imagine things or dream in a bird's-eye view should be more likely to have OBEs" (p. 180).

Research relating OBEs to the observer's point of view in dreams

has supported this idea (Blackmore, 1987; Irwin, 1986). Finally, Blackmore's model assumes that, as compared with nonexperiencers, OBE experiencers have higher rates of both altered states of consciousness and hallucinations. My research and that of others support this (e.g., Alvarado et al., 1996a; Blackmore, 1984a; Dalton et al., 1999; McCreery & Claridge, 1995).

Another important model has been developed by Irwin (1985a, pp. 307–323). In Irwin's view, the sensation of being out of the body and other OBE features are explained by an interaction between absorption–attentional factors and the process of losing contact with bodily sensations, which Irwin called the *asomatic factor*. When attention is directed away from bodily sensations (both somatic and exteroceptive), those sensations are attenuated and the feeling of being out of the body may result.

If the individual's information processing system becomes habituated to somesthetic and kinesthetic stimuli (as in relaxation and repetitive, automatic motor activity) then absorption in mentation will be facilitated. Conversely, as the individual becomes increasingly absorbed in mentation, awareness of somatic processes progressively will diminish (Irwin, 1985a, p. 308)

The absorbed mentation developed in this way may give rise to the sensation of separation from the body as a result of excluding somatic input.

Irwin (1985a) argued that the sensation of disconnection from the body may be preconscious and in need of recoding or modification in order to be recognized by conscious awareness. As he explained: "Being out of touch with bodily processes inspires both the preconscious notion of the exteriorized state and the conscious mental representation of this state as a passive somesthetic image" (Irwin, 1985a, p. 310). As this occurs, cross-modal perceptual processes, or synesthesia (see Marks, this volume, chap. 4), may define the content of the experience by changing the modality or form of the original somesthetic image into one that, for example, arises from visual and kinesthetic perceptions. As with Blackmore's model, Irwin's ideas have received support from studies relating absorption and visual–spatial abilities to the OBE (Alvarado et al., 1996a). In addition, some evidence exists that synesthesialike items from Tellegen's Absorption scale are positively correlated with OBEs (McCreery & Claridge, 1995; Irwin, 1985a, p. 317).

McCreery (1993, 1997) and McCreery and Claridge (1995) presented some initial theoretical ideas that relate the OBE to their concept of schizotypy. They followed Claridge's (1985, 1988) model of schizotypy, in which the nervous system of schizotypes is hypothesized to lack the homeostatic mechanisms that regulate arousal. The lability in the arousal of the nervous system is considered to be related to such phenomena as OBEs

and other hallucinatory experiences. The positive correlations between OBEs and a variety of schizotypy measures, related experiences, and psychophysiological processes have supported this model (McCreery & Claridge, 1995, 1996a, 1996b). It is important to note that McCreery seems to view OB experiencers as “adjusted” schizotypes because his model does not assume that schizotypes will necessarily become schizophrenics. Although this model has received some empirical support, it is not clear how the sensation of feeling one is out of the body can be explained by schizotypy alone.

The results of Cardeña’s (1988, 1996) study with highly hypnotizable individuals, mentioned earlier, may be used to support models that posit alterations of sensory input as an underlying cause of the OBE, particularly Irwin’s (1985a) model. Cardeña’s study suggests that lack of physical activity or automatic physical activity may allow for a more active use of the cognitive resources necessary to construct an OBE. In any case, these results imply that other variables, such as hypnotizability level and attentional deployment, interact with amount of physical input.

What, then, is the theoretical status of OBE research? Regarding the projection model, the results of the few attempts to test for this idea are unclear at best. In addition, there is no clear theory from which to make specific predictions about this model. Systematic laboratory work needs to be conducted along the lines of the previously discussed detection studies (Morris et al., 1978; Osis & McCormick, 1980). Nonetheless, it is doubtful that this work will support the projection model, considering that in parapsychological circles such results are often explained by recourse to such nonprojection hypotheses as extrasensory perception, psychokinesis (e.g., Irwin, 1985a), or other variables.

However, several of the psychological explanations are also problematic, especially those that simply label the OBE as an example of a particular process (e.g., dissociation) or phenomenon (e.g., a hallucination) without attempting to test these ideas or relate them to other known psychological variables. It is not useful to be told simply that the OBE is “imaginary” without accompanying such pronouncements with specific testable predictions. It is encouraging to see that Palmer’s, Blackmore’s, Irwin’s, and McCreery’s models offer falsifiable predictions and attempt to systematically connect the OBE experience to other psychological processes.

Although some support has been found for the psychological models (especially those of Blackmore, Irwin, and McCreery), much more research is needed. Particularly valuable would be a series of investigations that emphasize the relationship of the OBE experience to other psychological processes. Among the variables needing additional investigation are basic constructs of body image, cognitive maps, absorption and synesthesialike processes, and the lability of the nervous system. Rigorous hypothesis test-

ing is also needed, especially in regard to specific phenomenological features of the experience and their relationships to the main constructs of the various psychological models.

## METHODOLOGICAL ISSUES

Most of the studies reviewed in this chapter depend on self-reports of introspective experiences (see Pekala & Cardena, this volume, chap. 2). A basic problem with questionnaire studies of the OBE is that researchers can never be sure that all positive replies to a question tap the same basic experience (at least at the descriptive level) or that the experiential reports conform to even a minimal definition of the OBE (i.e., the experience of being located out of the physical body). Unfortunately, most questionnaire studies conducted to date rely on *yes* or *no* answers to questions about OBEs. No written description of the experience is requested, nor are interviews with the experiencers conducted. In fact, there is evidence that when researchers try to go beyond *yes* and *no* questions, the overall prevalence of OBE experiences decreases (Blackmore, 1986a, 1987; Irwin, 1980, 1981a; Wiedman & Haraldsson, 1980). As Palmer (1978b) argued, researchers need to pay more attention to the experiencer's evaluation of his or her own experience. But this does not mean that a researcher should ignore the potential confound of the inclusion of experiences that do not include the sensation of being out of the physical body or the potentially differential relationships of such experiences to psychological correlates. One hopes that this point is taken into consideration in future studies. In addition, empirically constructed OBE scales similar to those developed by NDE researchers (e.g., Greyson, 1983) are needed.

Another methodological problem is the varying construction of OBE questions and the different context in which the questions are presented. Although Blackmore (1982b) found that OBE prevalence was not affected by providing examples of OBEs to the participants, Irwin (1985a, p. 177) suggested that a respondent's willingness to acknowledge an OBE may, in fact, be influenced by the context in which the OBE question is presented. For example, the response may differ if the question is asked after other questions of a personal nature rather than after impersonal queries. The whole issue of contextual effects and demand characteristics deserves further exploration in OBE research.

As in any other area of research, the participants used in these studies must be taken into consideration when evaluating the results. Surveys have tended to overrely on samples of college students, whereas laboratory studies of OBEs have tended to rely on purportedly gifted individuals who claim to be able to induce the experience at will. These gifted individuals have usually developed specific ways of inducing the OBE experience within the

context of particular belief systems. Such limited samples limit the generalizability of these studies to the population at large. The answer to these and other issues depends on future research conducted with a variety of approaches and a wider range of participants.

## FUTURE RESEARCH

### **Comparison of OBEs With Other Phenomena**

Other than analyses conducted to contrast the OBE to such psychiatric syndromes as autoscopy, depersonalization, and psychotic body boundary phenomena (Gabbard & Twemlow, 1984; Irwin, 1985a; Twemlow, 1989), there are no data on the possible differences between the OBE and these syndromes in relation to developmental factors, demographics, phenomenology, psychophysiology, and so on. In addition, recent work that relates the OBE to other states of consciousness (e.g., Gabbard & Twemlow, 1984; Glicksohn, 1989; Green & McCreery, 1994; Maitz & Pekala, 1991), including a variety of dream experiences (e.g., Palmer, 1979a), has provided useful leads that should be explored. This work will assist us in understanding the OBE in terms of its relation to other psychological experiences.

### **Development of Induction Techniques**

Because the laboratory study of the OBE depends to a great extent on the reliable manifestation of these experiences, investigators need to focus their efforts on the development of methods to induce the phenomenon. Some promising attempts include the sensory deprivation techniques pioneered by Palmer (1978a). In one of his studies, Palmer found that participants who were given instructions to detach themselves from their bodies reported more OBEs than participants to whom no such instructions were given (Palmer & Lieberman, 1975). Irwin (1981c) explored similar methods of induction. The use of hypnotic techniques also deserves further exploration (Cardena, 1996; Irwin, 1989; Nash, Lynn, & Stanley, 1984).

### **Phenomenological Studies**

Although a number of researchers have studied some features of the OBE, I have argued elsewhere that more in-depth phenomenological research is needed (Alvarado, 1997), especially in regard to variables that may moderate the content of the experience. Our understanding of the experience could be much more profound if we had more reliable evidence about the relationship of OBE features to participants' previous interest in



and knowledge of the phenomenon and their scores on tests of such variables as dissociation, absorption, and schizotypy.

### **Alternative Methodologies**

Although the customary survey and experimental approaches to the study of the OBE have not been exhaustively employed, other methodologies may be useful, among them qualitative methods. The works of Green (1968), Greene (1983), and Rogo (1976) have been helpful in providing an understanding of the variety and complexity of OBE phenomenology. Similarly, we may learn a great deal from single case studies of OBEs that emphasize situational variables and psychodynamics, as exemplified by Serdahely's (1993) article about dissociation in OBEs and NDEs and Gabbard and Twemlow's (1984) clinical cases. Analysis of the content of experiencers' accounts may allow us to study the ways in which the experience has been integrated into their lives and identities (White, 1997). Sutherland's (1992/1995) study of NDEs serves as a model of how qualitative analysis can chart the different forms that integration of the experience can take.

### **Aftereffects and Meaning**

With reference to clinical concerns, it is important to study the variables that moderate or mediate the aftereffects of OBEs. This research may provide insight into the factors underlying personality transformations and provide guidelines for psychologists who help OB experiencers adapt to life after the event. For this, the experience needs to be glimpsed from the perspective of the experiencers, that is, in terms of personal meaningfulness. White (1994), articulating the importance of exceptional human experiences to the process of self-exploration and personal growth, wrote,

If one follows the ripples initiated by one's exceptional experience, it will eventuate in a new sense of self and a new view of reality. Once one engages in this process, one becomes more connected to oneself, to others, to other forms of life, and to the universe itself. (p. 63)

Before such a statement can be applied to OB experiencers, researchers need to measure the type of changes people report after the experience in more detail than has been the case so far. In addition, the assessment of these life-transforming changes may be improved by considering other measures of change than the individual's own testimony. Assessment of OBE aftereffects may draw on testimonies of spouses, family members, and friends. Investigators may act on the possibility of whether changes are related to the complexity or depth of the OBE (as done in a study by Alvarado and Zingrone, 1998) and to the circumstances of the experience's

occurrence, as Irwin (1988) did in his study of near-death versus non-near-death conditions of OBE occurrence.

### **Parapsychological Issues**

Although the parapsychological approach may be the most controversial, it is one that should not be neglected, either because of political concerns or scientific conservatism, provided the tools of science are used. Results such as those of Tart (1968), who found that his participant was able to read a randomly selected number while having an OBE, and the interaction among ESP scores, OBEs, and the hypnagogic state found by Palmer (1978a) indicate the necessity for further study. Parapsychological effects are not limited to the acquisition of information. The physical effects of the detection studies reviewed earlier (Osiris & McCormick, 1980) also deserve attention, as do the rare but puzzling OBE apparitions in which others claim to have seen the experient at a distant place during the course of the OBE (Hart, 1954, 1956; Laurentin & Mahéo, 1990). Some may argue that investigating the potentially parapsychological aspects of OBEs will obscure and retard one's understanding of the experience, but the systematic study of such an anomaly as the OBE should not exclude any valid avenue of research just because it challenges the conventional paradigms of psychology.

### **CONCLUSION**

As can be seen in this review, there is still much to be done before the OBE is understood fully. Of the work reviewed in this chapter, it seems that the best predictors of the experience are such cognitive constructs as absorption and hypnotic susceptibility as well as hallucinatory, psi, and dream experiences. They all imply a capacity for openness to experiences, especially to internally generated experiences. Such constructs tell us little about the nature of the OBE itself, however. Research needs to be expanded to understand how these variables are related to both the context in which the OBE is reported to happen and to other variables such as the aftereffects of the experience. From the clinical point of view, it is important to have a better grasp of the apparent transformative power of the OBE on attitudes and values. A close knowledge of any experience capable of producing profound life changes, as the OBE seems to do, would, in principle, help psychologists not only to counsel experiencers more effectively but also to learn lessons applicable to the broader area of personality and attitude change.

Another issue that is important for clinicians is the relation of OBEs to psychopathological symptoms or disorders. The research conducted to

date either does not relate the OBE to pathology or presents findings that are unclear at best. Some have interpreted the relationship with schizotypy as supporting the notion that OBEs indicate a psychotic-prone personality or predict future psychotic breakdowns, but such findings themselves do not unequivocally point to pathology. The relationship of the experience to psychopathology is an area that deserves much more exploration. Research along these lines should go beyond schizotypy, studying in more detail the meaning of relationships found between OBEs and dissociative experiences, such as depersonalization.

Finally, although the evidence for parapsychological effects during OBEs is fascinating and could have important conceptual implications about the ontology of the experience, we should be aware that the situation is not so simple as to assume that a veridical perception implies that the person has left the body in a literal sense. In some cases, there may be alternative sensory explanations for the phenomenological detail of the experiences or alternative parapsychological explanations (e.g., ESP) that do not need to assume that “something” leaves the body during the experience (the projection model of OBEs). Although the evidence for parapsychological processes during the OBE is not as strong as the evidence accumulated in other areas of parapsychology, the few positive findings (and the many spontaneous cases with veridical perceptions) that do exist deserve further exploration because they have the potential to expand our understanding of consciousness as it operates during the OBE. Unfortunately, there seems to be little communication between those who have studied the parapsychological aspects of the OBE and those who have focused on the psychology of the experience. Although I think that much could be gained by bringing both camps together, pragmatically speaking we are dealing with different goals, purposes, and even world views. One group wants to show that the OBE transcends human psychology and physiology and is key to the mind–body problem, whereas the other group suggests that the OBE is part of, or at least related to, the same psychological and physiological processes that operate in a variety of human experiences. I believe this dichotomy of approach has held us back from developing a systematic research program that can actively test different models and assumptions about the experience.

Even considering the research summarized here, the fact is that, similar to many of the other phenomena discussed in this book, OBEs generally have been neglected by psychology. Consequently, little empirical knowledge exists on the subject. It is my hope that this chapter will inspire further research and that future discussions on OBEs will not have to be conducted solely in the context of a psychology of the exotic or the unusual, but in the wider context of the study of the totality of human experience.

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