

DIFFERENCES IN BODY IMAGE BETWEEN PEOPLE REPORTING NEAR-DEATH AND SPONTANEOUS OUT-OF-BODY EXPERIENCES

by CRAIG D. MURRAY and JEZZ FOX

ABSTRACT

Many people report having had an 'out-of-body' experience (OBE) in which they felt as if their phenomenal self was separated from their physical body. Previous work has found OBE experiencers (OBErs) to score higher on measures of dissociation (e.g. Richards, 1991) and to differ from non-experiencers (non-OBErs) with regard to the perceptual experience of their body (Irwin, 2000). These findings have been interpreted as supporting a dissociational theory of the OBE. More recent work has suggested that an examination of other dimensions of body experience might reveal further aspects of such dissociational experience (Murray & Fox, 2005a, 2005b). In this work, OBErs have been found to score higher on a measure of body dissatisfaction, and lower on a measure of confidence in their physical self-presentation than non-OBErs. However, this prior research did not distinguish between those who had had a spontaneous OBE or an OBE as part of a near-death experience (NDE). The circumstances surrounding the spontaneous OBE and the NDE which includes an OBE appear to be very different; the former usually takes place when the person is on the verge of being awake or asleep, while the latter usually occurs when the person is placed in very stressful and fearful circumstances in which they perceive themselves to be near to death, are by some objective criteria near to death, or both. Given the very different contexts in which these forms of OBE occur, in the present study it was hypothesised that the causes of the spontaneous OBE and the OBE which takes place as part of an NDE have different causal psychological mechanisms. If this was supported by research findings, this would suggest at least two pathways to the OBE and the need for research which distinguishes between these. It was predicted that people reporting a prior spontaneous OBE would score more negatively on a variety of dimensions of body-related experience than people reporting an OBE as part of an NDE. Not all of the hypotheses were supported, but spontaneous OBErs were found to score significantly higher on measures of somatoform dissociation, body dissatisfaction and self-consciousness. The findings reported here support the theory that there are pre-existing differences in the body experience of NDErs and spontaneous OBErs.

INTRODUCTION

The Out-of-Body Experience (OBE), in which the self and body are experienced as phenomenologically separate, has been a topic of concern in the psychological sciences for well over 100 years (Alvarado, 1992). Some frequently reported features of an OBE include a sensation of floating, seeing one's own physical body from outside, and an experience of travelling to a place remote from one's actual physical-body location (Alvarado, 1992). Despite the experience of this phenomenon by a significant proportion of the population (12% in a random British sample studied by Blackmore, 1984a), mainstream psychology has largely overlooked it.

Prior research has found that people who report having had an OBE are more likely to have had multiple rather than single OBEs (Palmer, 1979; see

also Alvarado, 1986, for a meta-analysis of 19 studies), which may be indicative of individual predisposing factors (Murray & Fox, 2005a). While a number of psychological theories have been advanced to account for the OBE (e.g. Blackmore, 1984b; Palmer, 1978) these theories have been criticised for generally overlooking the everyday experience a person has of being in their body in relation to whether they are likely to have had an OBE or not, and for lacking a full exposition and evidence for why some people are more prone to having an OBE than others (see Murray & Fox, 2004, 2005a).

One notable exception to the above criticism is a study by Irwin (2000). Irwin initially presented a 'synaesthetic' theory of the OBE (Irwin, 1985). The term synaesthesia is commonly used to refer to a psychological phenomenon in which some people experience perception as if mediated by more than one sense organ, when usually only one of those sense organs would be used. For example, some people claim to be able to 'hear' colours: the colour red may elicit one particular sound, green another, and so on. In Irwin's (1985) synaesthetic theory of the OBE he argued that a distorted or impoverished impression of the body experienced via the proprioceptive and kinaesthetic senses was translated into a visual experience of that distorted body experience.

More recently Irwin (2000) has extended this theory, examining OBErs' somatic experiences and developing a model that also involves dissociation (a psychological state in which two or more mental processes or contents are *not* associated or integrated—see Alvarado & Zingrone, 1997; Richards, 1991; Zingrone & Alvarado, 1994). The occurrence of an OBE has been found to correlate positively with dissociation and absorption (a psychological state in which the person is in a high state of engrossment in experience—Dalton, Zingrone & Alvarado, 1999; Glickson, 1990; Irwin, 1980), both of which are dissociational processes. Drawing upon the work of Nijenhuis and colleagues (e.g. Nijenhuis, Spinhoven, van Dyke, van der Hart & Vanderlinden, 1996) into dissociative states, Irwin argues that OBEs are in part the result of somatoform dissociation (the somatic expression of mental dissociation processes) in which there can be a 'deficit symptom' such as numbness in a part of the body, or 'positive symptom' in which psychosomatic pain or tics are experienced.

Irwin (2000) explains the OBE as the result of the convergence of a number of dissociative factors. The OBEr experiences high levels of absorption as well as the simultaneous occurrence of dissociation from somatic input. These changes are posited to undermine the socially conditioned assumption that the body is the container of the self, and as a result promote the feeling that the person's consciousness is no longer in the spatial confines of the body. In turn, this abstract perception of a disembodied self is cognitively processed "into a passive, generalized somaesthetic image of a static floating self" (Irwin, 2000, p. 272) and into an experience of an OBE. Through the process of synaesthesia, and providing the experiencer has a basic visuo-spatial ability, the somaesthetic image may be translated into a visual image.

Irwin (2000) administered the Somatoform Dissociation Questionnaire (SDQ) to 113 psychology students, who reported an OBE incidence rate of 38.9% (a figure which is higher than in other student populations—see Alvarado, 2000—but which Irwin states is comparable with his previous research). The SDQ consists of statements to which participants indicate their

level of agreement, such as: "It sometimes happens that I am paralysed for a while" and "It sometimes happens that my body, or part of it, is insensitive to pain". Irwin found that the score on this questionnaire was the only predictor variable (from a logistic regression analysis which included participants' data for dissociative experiences, absorption, gender and age) able to discriminate independently between people with and without a prior OBE, as well as the only predictor variable which contributed significantly in predicting OBE frequency.

Murray and Fox (2004, 2005a, 2005b) built upon Irwin's (2000) work to argue that OBEs are more likely to occur in people who usually have a *weak* sense of embodiment: this is characterised by perceiving the body as an object, distinct from the self; perceiving oneself to have limited physical abilities; and making negative evaluations of one's body. They suggested that these experiences were indicative of a generalised dissociation between the self and body which can be measured on a number of body experience dimensions. Central to this argument is the idea that OBErs have pre-existing differences in their body experience compared with non-OBErs, and that these pre-existing differences are possibly exacerbated in the moments in which an OBE occurs. If this is the case, this would help to explain why OBErs tend to have multiple, rather than isolated instances of, OBEs.

In order to test the above theory, Murray and Fox (2004, 2005a) conducted a web-based questionnaire study. As with Irwin (2000), respondents ($n = 243$) reporting a previous OBE ($n = 62$, or 25%) were found to score significantly higher on the SDQ than respondents not reporting a previous OBE. In order to test the hypothesis that an increase in sensory perception was also influential in whether an OBE was experienced, Murray and Fox conducted further analysis on those items on the SDQ which related to the *amplification* of somatic information (such as pain), and found these were independently significant and therefore contributed to the observed difference. This finding fits comfortably with a dissociational theory of the OBE (such as Irwin's, 2000), but is more difficult to accommodate in those of Palmer (1978) and Blackmore (1984), both of which posit that the OBE occurs following the absence of sensory information about the body.

OBErs also scored higher on measures of self-consciousness and body dissatisfaction, and lower on a measure of confidence in their physical self-presentation, than respondents without a previous OBE. There were no significant differences between these groups concerning physical self-efficacy or perceived physical ability, objectified body consciousness, or social physique anxiety. A later study by Murray and Fox (2005b) found a similar pattern of results, but this time OBErs also scored higher in social physique anxiety.

One problem that Murray and Fox (2004, 2005a) identified with their work was that the item used to assess whether an OBE had been experienced allowed only a broad delineation between those who responded 'yes' or 'no', and they recommended that future research employing the same or similar measures should be accompanied by a finer-grained analysis of the circumstances surrounding the OBE and the form which it took. This included a suggestion to look at the OBE as part of the related phenomenon of near-death experiences (NDEs), in which the person may be close to death, or perceive themselves to be close to death, and experiences a number of features (such as travelling

along a tunnel, seeing bright lights, and meeting spiritual beings or deceased persons) which have been identified as the main characteristics of an NDE (Greyson, 2000a) in addition to those of the OBE. Murray and Fox (2004, 2005a) argued that such analyses might reveal certain forms of body image to be more characteristic of particular types of OBE.

As with OBErs, near-death experiencers (NDErs) have been reported to score high on a measure of absorption (Council, Greyson & Huff, 1986; Twemlow & Gabbard, 1984) and fantasy proneness (Council et al., 1986; cf. Ring & Rosing, 1990). NDErs have also been found to score highly on a measure of psychological dissociation (Greyson, 2000b; Ring & Rosing, 1990), with Greyson (2000b) suggesting that the higher dissociation of the NDEr is a natural reaction to the traumatic events surrounding the NDE, rather than a predisposing factor to it. However, it does not appear that any work has been conducted which explicitly sets out to explore differences between OBEs which happen as part of an NDE and those that do not.

The theory which underpins Murray and Fox's (2004, 2005a, 2005b) work would suggest that a wider variety of dissociational body experiences found in OBErs would be more typical of those who have a spontaneous OBE (defined here as one which does not occur under the influence of alcohol, drugs, or traumatic stress), which tends to occur when the person is on the verge of going to sleep (hypnagogic state) or waking up (hypnopompic state). In contrast, OBEs which form part of an NDE usually occur in particularly stressful and fearful circumstances, such as a serious accident, illness or a perceived life-threatening event. Given the very different contexts in which these forms of OBE occur, and the characteristic differences in the content of the spontaneous OBE and NDE, the argument being presented here is that these different forms of OBEs are attributable to different psychological mechanisms.

NDErs are therefore hypothesized not to have the same pattern of dissociational body experiences as spontaneous OBErs. As reviewed here, a small body of literature suggests that, like OBErs, NDErs are characterized by elevated levels of absorption and dissociation. However the suggestion that OBErs are also characterized by qualitatively different experiences of their body along a number of dimensions (in particular affective and perceptual) has only recently been explored and variations between spontaneous OBEs and those that occur as part of an NDE have not yet been explored. Given that the prior theorizing of Murray and Fox (2004, 2005a, 2005b) would predict that dissociational body experience would characterize those prone to spontaneous OBEs, rather than OBEs induced by alcohol, drugs or traumatic events, the present study examines differences on a number of dimensions of body image between people reporting near-death and spontaneous out-of-body experiences. Such an examination can help develop the theory.

Based on the prior work outlined above, a number of hypotheses are made concerning the body experiences of those respondents who only report having previously had spontaneous OBEs and those respondents who only report having previously had an OBE as part of an NDE: Spontaneous OBErs will experience higher levels of dissociation between their perceptual body and self; they will have heightened self-awareness or self-consciousness; they will have

a reduced belief in their physical ability and in providing an acceptable physical self-presentation; they will be more dissatisfied with their bodies; and they will be more anxious at the prospect of having their physique evaluated by others.

METHOD

Participants

Participants were recruited via e-mail advertisements to on-line discussion groups dedicated to topics of either near-death experiences (NDE) or out-of-body experiences (OBE). The survey yielded 55 responses, of which 39 were used for the present analysis. The 16 which were excluded consisted of 5 people who did not indicate the type of OBE they had had (choosing an 'other' option on the questionnaire), 7 who indicated they had had an OBE when under the influence of some form of drug, and 4 who indicated that they had had an OBE when under the influence of alcohol. This study focused only on participants who had had a spontaneous OBE or OBE as part of a near-death experience¹ when not under the influence of alcohol and/or other drugs.

The remaining 39 participants comprised 20 males and 19 females, with a mean age of 36.6, $SD = 13.7$. Respondents were mainly from the USA ($n = 19$) and the UK ($n = 11$), but 2 were from Denmark, while Australia, Canada, Holland, Portugal, South Africa, Sweden, and Switzerland contributed 1 respondent each. Of these, 28 reported an OBE (14 males, 14 females, mean age 34.9, $SD = 13.1$) and 11 reported an NDE (6 males, 5 females, mean age 40.9, $SD = 14.8$).

Materials

Respondents completed a questionnaire consisting of 7 validated scales and one item for assessing whether they had had a previous OBE. In the following we detail each of these questionnaire components in the order they were presented.

Somatoform Dissociation Questionnaire (SDQ-20). The SDQ-20 is a 20-item instrument designed to measure 'somatoform dissociation' or the degree to which the person experiences negative (e.g. losses of perceptions and control over functions) or positive (e.g. localized pain) perceptual or somatic symptoms indicative of dissociative disorder (Nijenhuis et al., 1996). Responses are made to 20 statements (e.g. "It sometimes happens that it is as if my body, or part of it, has disappeared") on a 5-point Likert scale (from 'not applicable' (1) to 'highly applicable' (5)), with the range of possible scores being 20–100.

Self-Consciousness Scale (S-CS). The S-CS was constructed by Fenigstein, Scheier and Buss (1975) to assess individual differences in self-consciousness. In their construction of the scale the following behaviours were considered to constitute the area of self-consciousness: a preoccupation with past, present and future behaviour; sensitivity to inner feelings; recognition of one's positive and negative attributes; introspective behaviour; a tendency to picture one's physical appearance and presentation; and concern over the appraisal of

¹ It should be noted that the present study is concerned with participants' reported perception of being close to death or having died, but has no way of verifying whether they had been near death according to medical criteria.

others. The scale has three sub-scales: public self-consciousness (7 items), private self-consciousness (10 items) and social anxiety (6 items). The first of these refers to attending to one's inner thoughts and feelings (e.g. "I reflect about myself a lot"), the second to one's awareness of one's self as a social object (e.g. "I'm self-conscious of the way I look"), and the third to discomfort experienced in the presence of others (e.g. "Large groups make me nervous"). Therefore the full scale consists of 23 items to which participants respond on a 5-point Likert scale ('extremely uncharacteristic' (0) to 'extremely characteristic' (4)). The range of possible scores for the complete scale and its sub-scales are (in order) 0–92, 0–28, 0–40, and 0–24.

Physical Self-Efficacy Scale (PS-ES). The PS-ES is a 22-item scale which assesses the degree to which respondents have a sense of physical self-efficacy (Ryckman, Robbins, Thornton and Cantrell, 1982). The scale has two subscales: Perceived Physical Ability (10 items, e.g. "I am not agile and graceful") and Physical Self-Presentation (12 items, e.g. "Sometimes I feel uncomfortable shaking hands because my hands are clammy"). Responses are made to 22 statements on a 6-point Likert scale ('strongly agree' (1) to 'strongly disagree' (6)). High scores on Perceived Physical Ability are taken to indicate higher perceived physical ability, while high scores on Physical Self-Presentation indicate greater confidence in the presentation of physical skills. The range of possible scores for the complete scale and its sub-scales are (in order) 22–132, 10–60, and 12–72.

Body Satisfaction Scale (BSS). The BSS was developed by Slade, Dewey, Newton, Brodie and Kiemle (1990) to measure satisfaction/dissatisfaction with body parts. The scale consists of 16 named body parts (e.g. 'legs'), to which the respondent is asked to indicate on a 7-point Likert scale ('very satisfied' (1) to 'very unsatisfied' (7)) their degree of satisfaction with each. Three scales are derived from this. The first is a 'general' scale which includes all items, the second a 'head' sub-scale including most items relating to the face (7 items, e.g. 'jaw'), and the third a 'body' sub-scale including those items relating to body parts (7 items, e.g. 'chest'). The scale was employed in the present study as a measure of respondents' affective responses to their own bodies. The range of possible scores for the complete scale and its sub-scales are (in order) 16–112, 7–49, 7–49.

Social Physique Anxiety Scale (SPAS). The SPAS is a 12-item self-report measure of the degree to which people become anxious at the prospect or actuality of their physique being observed or evaluated by others (Hart, Leary & Rejeski, 1989). Respondents indicate the degree to which each statement (e.g. "It would make me uncomfortable to know others were evaluating my physique/figure") is characteristic of them on a 5-point Likert scale ('not at all' (1) to 'extremely characteristic' (5)). This scale was employed in the present study as it has a focus on how people feel others evaluate their personal appearance, and as such emphasises the social dimension of body image. The range of possible scores for the scale is 12–60.

Belief in the Paranormal Scale (BPS). A common explanation advanced for people's reported paranormal experiences is that the 'paranormality' of these experiences derive from their particular cognitive processes, such as their

belief in the paranormal (Blackmore & Moore, 1994). In order to exclude the possibility that any observed differences between OBEs and NDEs would be due to differences in paranormal belief it was decided to include a measure of this. The BPS is an 8-item measure designed to assess respondents' level of belief in paranormal phenomena. It was developed by Musch and Ehrenberg (2002) based upon previous scales designed to assess paranormal belief (Brugger, 1991; Glickson, 1990). Responses are made to eight statements (e.g. "I remember an event that I can only explain as a case of telepathy") on a 6-point Likert-scale ('total disagreement' (1) to 'total agreement' (6)). The range of possible scores on the scale is 8-48.

Item for Assessing the Occurrence of OBEs. In order to ascertain whether participants had experienced an OBE, respondents were provided with the following statement from Palmer (1979) and asked to indicate 'yes' or 'no': "Have you ever had an experience in which you felt that 'you' were 'outside of' or 'away from' your physical body; that is, the feeling that your consciousness, mind, or centre of awareness was at a different place than your physical body? (If in doubt, please answer 'no')." "

Procedure

The survey was advertised via e-mail advertisements to on-line discussion groups dedicated to the topics of NDEs and OBEs. These advertisements invited potential participants with a prior OBE or NDE to complete an on-line questionnaire regarding their experiences, beliefs and perceptions of their body. These groups were identified via a Google search using the terms 'out-of-body experience' and 'near-death experience' with the terms 'discussion' and 'group'. The same search terms were used within the search facility of Yahoo Groups. People were then free to respond in their own time by visiting the address of the web page provided in the advertisements.

The first page respondents visited provided a brief outline of the study along with contact details for one of the authors (CM) and two questions concerning personal details (asking their sex and age). By using a button at the bottom of this page they were then taken to a new page presenting them with the first of the seven scales. Upon completion of each of the seven scales they moved to the next stage of the survey by using the button at the bottom of the page. Before proceeding to the next stage their submission was validated in order to ensure that appropriate responses had been provided (typically checking that the respondent had provided responses to all the items in the scale). If the validation failed they were presented with the page as they had submitted it, but with a message stating that there were errors in their submission, and the items requiring attention were highlighted. The software (Perl CGI script) used for presenting these materials monitored the stage that participants had reached in the survey and prevented participants from returning to pages to make changes once they had provided a valid submission for that page.

Following the scales, the final page before the completion of the survey asked three questions relating to whether they had ever experienced being 'outside of' or 'away from' their body, and if so the frequency of these occurrences and whether they had felt either close to death or that they had died. They were also asked whether their experience had occurred when under the influence of

alcohol and/or other drugs (whether they believed their experience was related to this or not). Following submission of this form they were thanked for their participation. The software used in the study collected the IP address of computers from which submissions were made. This enabled the researchers to check for and prevent multiple submissions from the same person (no such cases were found).

RESULTS

Table 1

Respondents' Mean Scores (with Standard Deviations), Mean Ranks and p Values for Mann-Whitney U Significance Tests on the Study Measures

Measure	NDE Group (n = 11)		OBE Group (n = 28)		p value
	Mean Score	Mean Rank	Mean Score	Mean Rank	
The Somatoform Dissociation Questionnaire (SDQ-20)	29.36 (13.53)	14.00	38.79 (16.88)	22.36	0.040
Body Satisfaction Scale	31.45 (11.74)	13.23	48.79 (20.02)	22.66	0.018
Head	13.55 (6.01)	13.45	20.71 (9.14)	22.57	0.024
Body	14.18 (6.49)	13.32	22.89 (10.45)	22.63	0.020
Self-Consciousness Scale (S-CS)	42.27 (11.32)	12.68	52.39 (13.80)	22.88	0.010
Private Self-Consciousness	20.55 (3.59)	15.55	23.18 (6.97)	21.75	0.132
Public Self-Consciousness	11.82 (5.98)	15.09	14.96 (5.87)	21.93	0.095
Social Anxiety	9.91 (3.91)	12.09	14.25 (5.8)	23.11	0.006
Physical Self-Efficacy Scale (PS-ES)	83.64 (18.88)	21.68	82.32 (14.61)	19.34	0.569
Perceived Physical Ability	39.64 (8.35)	24.91	35.14 (7.47)	18.07	0.095
Physical Self-Presentation	44.00 (11.86)	18.27	47.18 (8.82)	20.68	0.569
Social Physique Anxiety Scale (SPAS)	29.09 (10.34)	15.68	35.57 (11.12)	21.70	0.140
Belief in the Paranormal Scale (BPS)	36.18 (13.04)	20.68	35.82 (11.29)	19.73	0.818

Respondents' mean scores and mean ranks for each measure are shown in Table 1, along with the results of Mann-Whitney U tests. Respondents reporting a previous spontaneous OBE scored higher on measures of somatoform dissociation, body dissatisfaction, self-consciousness and social physique

anxiety. Using the Mann-Whitney U test, the scores for respondents reporting a previous spontaneous OBE were found to be significantly different from those for non-OBEs on somatoform dissociation ($U = 88$, $p = 0.04$), the Body Satisfaction Scale (BSS) ($U = 79.5$, $p = 0.018$) and both its Head ($U = 82$, $p = 0.024$) and Body ($U = 80.5$, $p = 0.020$) subscales than NDE respondents. They also scored significantly differently on the Self-Consciousness Scale ($U = 73.5$, $p = 0.01$) and its social anxiety subscale ($U = 67$, $p = 0.006$). There were no significant differences on any of the remaining scales.

DISCUSSION

In line with the predictions for this study, spontaneous OBEs were found to score higher on somatoform dissociation, to be more dissatisfied with their bodies, and to have a heightened self-awareness or self-consciousness. However, they were not found to be more anxious at the prospect of having their physique evaluated by others, nor to have a reduced belief in their physical ability and in providing an acceptable physical self-presentation. These findings support the argument that people who report spontaneous OBEs not only have qualitatively different bodily experiences from people who do not, but differ from those whose OBEs are reported as part of a near-death experience.

The significant findings reported here had been expected and were features which we theorised characterised a general dissociation between body and self by OBEs. The spontaneous OBE sample in the present study was expected to have a weak sense of embodiment in part characterised by an increased focus on the private or inner self. However, when analyses were carried out on the sub-scales of the Self-Consciousness Scale, namely the Private Self-Consciousness, Public Self-Consciousness and Social Anxiety sub-scales, only the third of these remained statistically significant; that is, the spontaneous OBE group scored higher in social anxiety. This contrasts to previous work in which people reporting a previous OBE have not been found to differ to non-OBEs on social anxiety (Murray & Fox, 2004, 2005a, 2005b); one study in which no difference was found on social physique anxiety (SPA) (Murray & Fox, 2004, 2005a); and one study in which OBEs scored higher on SPA (Murray & Fox, 2005b).

Although the present study did not make use of a participant sample who had not experienced any form of OBE at all, it is possible to compare the findings of participants here with those previously presented for non-OBEs by Murray and Fox (2004, 2005a). In the present study, NDEs' mean somatoform dissociation scores were higher than non-OBEs (29.36 compared with 26.15). However, NDEs in the present study obtained mean scores which were considerably lower in body dissatisfaction (31.45 compared with 47.73), self-consciousness (42.27 compared with 50.70), and social physique anxiety (29.09 compared with 35.98) than these non-OBEs. Given that Murray and Fox's (2004, 2005a) study did not differentiate between different forms of OBE, it is not possible to make like-for-like comparisons with their OBE sample and the spontaneous OBEs and NDEs in the present study. However, it is interesting to note that OBEs in the present study obtained a mean overall body satisfaction score (48.79) comparable with non-OBEs (47.73) and lower than OBEs in that study (56.53).

The findings reported here support the theory that there are pre-existing differences in the body experiences of people who have spontaneous OBEs and those who have OBEs as part of a near-death experience (Murray & Fox, 2004, 2005a, 2005b). Neither Irwin's (2000) nor Blackmore's (1984b) theories of the OBE would appear to predict such differences; Blackmore (1991) has actually explained the NDE in very similar terms to that of the OBE, with the added process of interpreting physiological changes during an actual near-death encounter as giving rise to experiential phenomena such as the classic NDE tunnel. However, Murray and Fox (2004, 2005a, 2005b) have posited different underlying mechanisms to the OBE as experienced spontaneously as experienced as part of an NDE. The findings of the present research provide support for this contention; we have identified a number of body image characteristics which seem to distinguish spontaneous OBEs from NDEs. We feel that further study of the different facets of body image as outlined in this paper in relation to different forms of OBE may prove informative about such issues as their prevalence, frequency and features.

Although we believe the present study presents some important directions for future work, it is important that such work addresses the limitations of the present study. Firstly, the method of recruitment (advertising to on-line discussion groups) means that respondents were self-selected and not necessarily representative of people who have such experiences. These groups also had a particular interest in OBEs and NDEs and responded to a study which explicitly stated it was targeting such experiencers — in contrast to Murray and Fox's (2004, 2005a) work, in which people responded to private e-mail, campus poster and in-house web magazine advertisements of a study about 'body experience'.

The respondent selection method of the present study means that there is a need to be cautious when interpreting the findings for samples which differ in significant ways from that in the present study. Therefore similar future work needs to be carried out using a random sampling strategy. For purposes of comparison, it would also be informative to include a sample of people who have had an NDE but not an OBE, as well as a sample of people who have not had any form of OBE or an NDE. The various forms of body image presented in this paper should also be examined in relation to further forms or types of OBEs, such as meditatively or deliberately induced OBEs, as well as alcohol or drug-induced OBEs. Such analysis may further reveal certain forms and dimensions of body image to be more characteristic of particular types of OBE, and help elucidate different pathways to the OBE.

ACKNOWLEDGEMENTS

This research was funded by the Bial Foundation, as part of the project, "Investigating the Multidimensional Nature of Body Image, Sensorial Representation, and Phenomenology in Relation to Different Forms of Out-of-Body Experience" (number 134/04). The authors are grateful to the two anonymous referees who provided detailed comments on a draft of this paper.

*School of Psychological Sciences
University of Manchester
Oxford Road, Manchester M13 9PL*

craig.murray-2@manchester.ac.uk

REFERENCES

- Alvarado, C. S. (1986) Research on spontaneous out-of-body experiences: a review of modern developments, 1960–1984. In Shapin, B. and Coly, L. (eds.) *Current Trends in Psi Research*, 140–167. New York: Parapsychology Foundation.
- Alvarado, C. S. (1992) The psychological approach to out-of-body experiences: a review of early and modern developments. *JP* 126 (3), 237–240.
- Alvarado, C. S. (2000) Out-of-body experiences. In Cardeña, E., Lynn, S. J. and Krippner, S. (eds.) *Varieties of Anomalous Experience: Examining the Scientific Evidence*, 183–218. Washington, DC: American Psychological Association.
- Alvarado, C. S. and Zingrone, N. L. (1997) Out-of-body experiences and dissociation. *Proceedings of Presented Papers: the Parapsychological Association 40th Annual Convention*, 11–25.
- Blackmore, S. J. (1984a) A postal survey of OBEs and other experiences. *JASPR* 52, 225–244.
- Blackmore, S. J. (1984b) A psychological theory of the out-of-body experience. *JP* 48, 201–218.
- Blackmore, S. J. (1991) Near-death experiences: in or out of the body? *Skeptical Inquirer* 16, 34–45.
- Blackmore, S. J. and Moore, R. (1994) Seeing things: visual recognition and belief in the paranormal. *EJP* 26, 91–103.
- Brugger, P. (1991) ASW: Aussersinnliche Wahrnehmung oder Ausdruck subjektiver Wahrscheinlichkeit? *Zeitschrift für Parapsychologie und Grenzgebiete der Psychologie* 33, 76–102.
- Council, J. R., Greyson, B. and Huff, K. D. (1986) Fantasy-proneness, hypnotizability, and reports of paranormal experiences. *Paper presented at the meeting of the American Psychological Association, Washington, D.C.*
- Dalton, K., Zingrone, N. L. and Alvarado, C. S. (1999) Exploring out-of-body experiences, dissociation, and alteration of consciousness in the ganzfeld with a creative population. *Proceedings of Presented Papers: the Parapsychological Association 42nd Annual Convention*, 48–67.
- Fenigstein, A., Scheier, M. F. and Buss, A. H. (1975) Public and private self-consciousness: assessment and theory. *Journal of Consulting and Clinical Psychology* 43 (4), 522–527.
- Glickson, J. (1990) Belief in the paranormal and subjective paranormal experience. *Personality and Individual Differences* 11, 675–683.
- Greyson, B. (2000a) Near-death experiences. In Cardeña, E., Lynn, S. and Krippner, S. (eds.) *Varieties of Anomalous Experience: Examining the Scientific Evidence*, 315–352. Washington, DC: American Psychological Association.
- Greyson, B. (2000b) Dissociation in people who have near-death experiences: out of their bodies or out of their minds? *The Lancet* 355, 460–463.
- Hart, E. A., Leary, M. R. and Rejeski, W. J. (1989) The measurement of social physique anxiety. *Journal of Sport and Exercise Psychology* 11, 94–104.
- Irwin, H. J. (1980) Out of the body down under: some cognitive characteristics of Australian students reporting OOBES. *JSPR* 50, 448–459.
- Irwin, H. J. (1985) *Flight of Mind: A Psychological Study of the Out-of-Body Experience*. Metuchen, NJ: Scarecrow Press.
- Irwin, H. J. (2000) The disembodied self: an empirical study of dissociation and the out-of-body experience. *JP* 64, 261–276.
- Murray, C. D. and Fox, J. (2004) Body image in respondents with and without out-of-body experiences. *Proceedings of Presented Papers: the Parapsychological Association 47th Annual Convention*, 145–156.

- Murray, C. D. and Fox, J. (2005a) Body image in persons with and without prior out-of-body experiences. *British Journal of Psychology* 96, 441–456.
- Murray, C. D. and Fox, J. (2005b) The out-of-body experience and body image: differences between experiencers and non-experiencers. *Journal of Nervous and Mental Disease* 193 (1), 70–72.
- Musch, J. and Ehrenberg, K. (2002) Probability misjudgement, cognitive ability, and belief in the paranormal. *British Journal of Psychology* 93, 169–177.
- Nijenhuis, E. R. S., Spinhoven, P., van Dyke, R., van der Hart, O. and Vanderlinden, J. (1996) The development and psychometric characteristics of the somatoform dissociation questionnaire. *Journal of Nervous and Mental Disease* 184 (11), 688–694.
- Palmer, J. (1978) The out-of-body experience: a psychological theory. *Parapsychology Review* 9 (5), 19–22.
- Palmer, J. (1979) A community mail survey of psychic experiences. *JASPR* 73, 221–251.
- Richards, D. G. (1991) A study of the correlation between subjective psychic experiences and dissociative experiences. *Dissociation* 4, 83–91.
- Ring, K. and Rosing, C. J. (1990) The Omega Project: an empirical study of the NDE-prone personality. *Journal of Near-Death Studies* 8, 211–239.
- Ryckman, R. M., Robbins, M. A., Thornton, B. and Cantrell, P. (1982) Development and validation of a physical self-efficacy scale. *Journal of Personality and Social Psychology* 42, 891–900.
- Slade, P. D., Dewey, M. E., Newton, T., Brodie, D., and Kiemle, G. (1990) Development of the body satisfaction scale (BSS). *Psychology and Health* 4, 213–226.
- Twemlow, S. W. and Gabbard, G. O. (1984) The influence of demographic/psychological factors and preexisting conditions on the near-death experience. *Omega* 15, 223–235.
- Zingrone, N. L. and Alvarado, C. S. (1994) Psychic and dissociative experiences: a preliminary report. *Proceedings of Presented Papers: the Parapsychological Association 37th Annual Convention*, 489–501.