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ARTICLE

# Prosocial Attitude Change in Response to an Anomalous Mass Sighting Event: The Phoenix Lights

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**ABSTRACT**

Research on individuals experiencing close encounters with unidentified aerial or anomalous phenomena (UAP) and nonhuman intelligent beings has revealed that these “experiencers” report many positive and prosocial attitude changes, along with additional anomalous experiences. Ring proposed that these individuals may gain lowered thresholds and thus heightened sensitivity to a wide range of paranormal phenomena, thereby becoming “encounter prone personalities.” This research has been limited, however, by the fact that the UAP encounters reported in these studies tend to occur across widely varying geographic locations and environmental conditions. In order to obtain more “standardized” stimulus conditions, wherein witnesses all perceive either the same or a highly similar stimulus event, the present study surveyed witnesses to a singular historical event, the appearance of the Phoenix Lights on March 13, 1997. This sighting was arguably the most widely viewed and best documented sighting of UAP in history, having been covered by national and local media, as well as being the subject of a book and documentary movie. Witnesses to the event (N=117) completed an internet questionnaire of approximately 100 response items, assessing history of paranormal experiences, attitude change along five dimensions derived from principal components factor analysis and reliability analysis of Ring’s Life Changes Inventory, as well as a measure of Subjective Happiness. The questionnaire also included response items to detect agreement bias and motivated confabulation. Based upon prior research, authors hypothesized that witnesses would report an array of additional paranormal and non-ordinary experiences, would experience both positive and prosocial attitude changes as a result of their encounter, and that these attitude changes would be positive and would correlate with reported subjective happiness. Results revealed that respondents reported additional paranormal experiences, in addition to their sighting, and in some cases these paranormal experiences exceeded population base rates reported in other research. Respondents’ reported attitude changes across all 5 dimensions were in the expected direction. However, only one attitude dimension, Sense of Self and Connection with a Higher Power, was found to correlate independently with self-reported Subjective Happiness. Results were interpreted as generally supporting Ring’s heightened sensitivity to paranormal phenomena and were consistent with other research into encounters with UAP and nonhuman intelligent beings.

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**KEYWORDS**

Unidentified Aerial Phenomena (UAP), UFOs, nonhuman intelligence, extraterrestrial encounters, prosocial attitude change, paranormal experience, non ordinary encounters, contact experience, spiritual transformation, survey analysis, mass sighting.



Public interest in the phenomenon of UFOs has increased in recent years, coinciding with the release of videos by the U.S. Navy and their related admission that these objects, referred to as Unidentified Aerial Phenomena or Unidentified Anomalous Phenomena (UAP), are detected on radar and regularly overfly and interfere with naval carrier group maneuvers (Cooper et al., 2017). These disclosures have in turn led to efforts by the U.S. congress to hold hearings and enact legislation to make it easier for witnesses of these phenomena to come forward and submit reports and testimony without fear of retaliation or stigmatization (Cameron, 2023).

One of the earliest scientific investigations of the UFO phenomenon (Hynek, 1972) proposed a scale for “close encounters”, ranging from sighting of nocturnal lights in the sky or objects closer than 500 feet away (CE-1) to more dramatic encounters that leave physical traces/effects (CE-2), all the way to sighting of beings or occupants of craft (CE-3). This scale was later modified (Vallee, 1990) with the addition of a fourth category (CE-4) wherein a witness reports “abduction” by, or interaction with, non-human beings. The largest number of studies of witnesses (often referred to as “experiencers”) has focused upon the fourth category: individuals reporting contact with, or physical relocation or abduction by, nonhuman intelligent beings (NHIB) (Appelle et al., 2014; Clancy, 2005; Davis et al., 2013; Hopkins, 1987; Jacobs, 2008; LeLievre et al., 2010; Mack, 1994, 1999; Marden, 2015; Ring, 1992; Rodeghier et al., 1991; Ring, 1992; Spanos et al., 1993). The term “alien abduction” has become commonplace, (“abduction” being defined by the Merriam-Webster dictionary as “to seize and take away (a person) by force”). The terms “alien abduction” or “abductee” may be misleading characterizations of encounters with NHIB, however, since many, if not most such contacts with NHIB have been found to be positive and even desired by the experiencers (Appelle et al., 2014; Hernandez et al., 2018). Research on “abductees” (Mack, 1994, 1999; Ring, 1992) found positive attitude and personality changes, along with favorable responses to the nonhuman contact experience among so-called “abductee” subjects. Similarly, in a study by Hernandez et al. (2018), 71% of respondents with “conscious memory of being aboard a UFO craft” reported their contact aboard with nonhumans as being “More egalitarian, with permission and compassion”, and 84% of all individuals experiencing contact with nonhumans indicated they would not stop their contact, if given the choice. More negative (e.g., fearful or traumatic) reactions to contact tended to

occur in response to an individual’s initial, early contacts, with reactions becoming significantly more positive with repeated contact over time. Thus, the criterion for defining a study participant as one who has experienced “abduction” becomes questionable, given the context and nature of nonhuman contact, and needs to be more carefully defined. When an experiencer is transported to another location, such as a craft or facility used by nonhumans, the encounter might better be described as an “interaction with physical relocation”, unless the involuntary nature of the relocation can be determined.

A number of theories have been put forward to suggest that experiencers of contact with UAP and NHIB might be misreporting their encounters due to traits such as “status inconsistency” (Warren, 1970) or “fantasy proneness” (Wilson & Barber, 1983). However, trait theories have not been supported by subsequent research (see for example, Marden, 2015; Parnell & Sprinkle, 1990; Ring & Rosing, 1990; Ring, 1992; Stubbings & Wong, 2024). Another theory to explain misperceived NHIB contact is “sleep paralysis” (Clancy, 2005), wherein a dreamlike state experienced by a person upon awakening could be associated with feelings of paralysis that lead experiencers to believe they are being immobilized and taken aboard a UAP craft. This theory, however, does not explain NHIB encounters during normal daylight hours, or when the experiencer is wide awake and moving. Moreover, neither trait nor sleep paralysis theories can explain the diversity of contacts reported, the lengthy duration of some contacts, the powerful sense of reality reported, or simultaneous NHIB encounters with multiple people. These misperception/misreporting theories also have difficulty explaining the fact that experiencers may be reported missing by others during the time of their contact and that many experiencers are able to show an investigator geometric markings, wounds, or even medical implants following their encounters (Jacobs, 2008, 2015).

A major factor that has complicated research into the psychology of UFO/UAP witnesses is the sheer diversity of experiences reported, as well as the tendency of individuals to report multiple, additional non-ordinary experiences. Craft or beings may be sighted together or separately, either near the home or in other locations, preceded or followed by other paranormal phenomena, such as glowing orbs, electrical malfunctions, telepathic messages, or out-of-body experiences. (Hernandez et al., 2018). This confluence of different paranormal experiences makes categorizing participants who “have” versus “do not have” a particular experience difficult. In his (1992)

study of UFO/UAP experiencers and near-death experiencers (NDEers), Ring noted that his subjects seemed to be “encounter-prone”, with lowered thresholds for perceiving a wide variety of paranormal phenomena and having non-ordinary experiences of many kinds. He hypothesized that temporal lobe changes and temporal lobe sensitivity in experiencers may make them more sensitive to UFO/UAP encounters, and may mediate access to non-ordinary or alternate realities (Ring, 1992; Ring, personal communication, December 7, 2020), such as those occurring in paranormal phenomena or near-death experiences (NDEs). In one recent worldwide survey of over 3200 UFO/UAP experiencers (Hernandez et al., 2018), of those who reported encounters with UFO/UAP and/or nonhuman intelligent beings, two-thirds (66%) reported “seeing intelligently controlled craft” with over half (52%) receiving “telepathic messages.” Approximately one fourth (20-29%, depending upon country) of respondents in this study reported having “conscious memory [without aid of hypnosis] of being aboard a UFO craft” and 44% reported seeing “strange lights in your home.” Moreover, reported rates of out-of-body (OBE) and NDE experiences for respondents in this study were much higher than the general population.

This diversity and high rate of multiple, non-ordinary experiences makes classification of study subjects or survey respondents problematic, since it becomes increasingly difficult to determine which non-ordinary experience may have elicited a life-altering emotional response, or what Mack (1994, 1999) refers to as “ontological shock.”

Thus, the selection or sampling of study participants in order to evaluate their perceptions, along with attitudinal and emotional responses to their sighting or contact experience, would clearly benefit from a well-defined, singular, unequivocal stimulus event or condition that is common to all study participants. Inducing such an event within a laboratory environment would be difficult and would likely pose ethical challenges, given the extreme emotions that may accompany such experiences.

### The Phoenix Lights Event of 1997

The appearance of the Phoenix Lights on March 13, 1997 was arguably the most widely viewed and best documented singular sighting of unidentified aerial phenomena in history. Some witnesses reported a large, solid V-shaped craft moving over the highway earlier in the afternoon, while other witnesses, estimated by a Councilwoman and Vice-Mayor of Phoenix to be “at least 10,000

people” (Kitei, 2017b), observed the object as a fixed formation, at least a mile wide, of between three and nine large equidistant spherical lights over the city of Phoenix later that night. The phenomenon was seen over the period of 3:30PM until 5:30AM the following morning, starting in northern Arizona, and moving all the way south to northern Mexico. Witnesses also reported observing fighter jets being scrambled from Luke Air Force Base attempting to intercept the object, but to no avail. Many high-resolution photos and videos of these anomalies were subjected to analysis by both military and academic experts and failed to reveal any prosaic explanation of the phenomenon (Kitei, 2017a). Based upon the widespread awareness and media coverage of the Phoenix Lights, and the fact that virtually all witnesses, including news media, described the same silent, equidistant one-to-eight-mile-wide formation of orbs and/or a V-shaped (or triangle/boomerang-shaped) solid craft, the consistency of this event was deemed by the authors to make it an ideal stimulus for a field study of witness perceptions of, and responses to, a well-documented UAP event. And while the Phoenix Lights event constituted a narrower range of encounter situations than those reported in either Ring’s 1992 Omega Project study or Hernandez et al.’s (2018) study (conducted by the Dr. Edgar Mitchell Foundation for Research into Extraterrestrial and Extraordinary Experiences (FREE), henceforth also referred to as the FREE study) it presented an opportunity to at least partially replicate the findings of those studies with respect to such things as the positivity of encounters, attitude change associated with encounters, and the experience of other non-ordinary or paranormal phenomena by witnesses. Additionally, given that the core features of the Phoenix Lights event mentioned above were so well documented and relatively uniform for potentially thousands of experiencers, it was likely that variability in the stimuli and other situational factors for this event would be greatly reduced, as compared with most other studies of experiencers. Two of the authors (LDK and BE) had also experienced the event firsthand as eyewitnesses, and in their many conversations and correspondence with other experiencers of the event over the intervening years, determined that a large number of people had undergone significant personal changes as a result of their encounter in 1997 and remained eager to describe their experience.

The physical nature of the Phoenix Lights phenomenon has been extensively explored in the documenting of military and academic expert findings from analysis of photographic evidence, the testimony of witnesses across

multiple states in the U.S. Southwest, and statements of government officials (Kitei, 2017a, 2017b). Nevertheless, the authors recognize that a range of opinions still exists as to the physical nature of the Phoenix Lights, even within our own eyewitness sample. The present research will therefore not focus upon the physical nature of the phenomenon, but will rather investigate the perceptual, attitudinal, and behavioral responses of witnesses to a singular event of high strangeness.

## Hypotheses

Based upon both prior research and the authors' experience with the phenomenon of sightings and related contact with nonhuman intelligence, the following hypotheses were formulated.

### **Hypothesis 1 – Multiple Paranormal Experiences**

If witnesses to a major sighting event experience lowered thresholds for other paranormal phenomena as Ring (1992) observed, we would expect our survey respondents to endorse at least several additional paranormal experiences which may or may not be associated with UAP or nonhumans. This would also be consistent with Hernandez et al.'s (2018) finding of high base rate endorsement of paranormal and non-ordinary experiences among those reporting sightings and contact with nonhuman beings. The term "non-ordinary" is used in addition to the term "paranormal", to connote the wide range of unusual phenomena endorsed by experiencers in Hernandez et al.'s (2018) FREE study. These included not only psychic phenomena and encounters with NHIB, but also orbs appearing in the home, near death and out-of-body experiences, and occasions of being transported to a "matrix reality" defined as "a reality with no boundaries, similar like you are in the middle of outer space."

### **Hypothesis 2 – Positive and Prosocial Attitudinal Changes**

Ring (1992) and Hernandez et al. (2018), both of whom employed Ring's Life Changes Inventory to measure attitude change, found that encounters with UAP and nonhumans produced shifts in attitudes towards referents such as one's inner spiritual life and search for personal meaning; sense of connection to others' suffering and desire to help others; reduced concern for wealth, fame, ambition, and lowered fear of death; one's sense of self and connection to a higher power; and concern for the Earth, nature, and

ecology. That such powerful and transformative change can occur in people as the result of a profound, ineffable experience was recognized early in the 20<sup>th</sup> century by such writers as William James (James, 1902/2009). James wrote about mystical experiences, wherein a sudden personal mystical insight or "persuasion" can lead a person to feel closer to the divine, connected to "the all" ("monistic"), acquiring a sense of inner peace, optimism, and reduced fear of death. Given the direct personal experience of two of the authors (LDK and BE) with the Phoenix Lights, and subjective reports of Phoenix Lights experiencers received by one of the authors (LDK), we expected that the attitude changes documented by Ring and Hernandez et al. would also occur among Phoenix Lights experiencers.

### **Hypothesis 3 – Positivity of Encounters**

While such experiences as sightings, encounters with nonhumans, and other non-ordinary experiences may at first elicit a sense of "ontological shock" (Mack, 1994, 1999) and associated trauma, it is expected that with repeated exposure, due to subsequent paranormal experiences or repeated media coverage of the original event or similar events, these reactions should transition to more positive feelings over time. This would be consistent not only with Hernandez et al.'s (2018) finding that positivity increased with frequency of contact, but also attitudinal research on the "exposure effect", showing that "familiarity breeds comfort" and that positivity increases with repeated exposure to a stimulus event (Oskamp & Scalpone, 1975; Scalpone, 1975; Zajonc, 1968).

### **Hypothesis 4 – Positive Attitude Changes Should Influence Subjective Happiness**

Lastly, if as expected, sightings or reported interactions with NHIB are associated with such powerful positive attitude changes towards the self and others, towards life and death, and towards the environment, it would follow that these changes should be associated with a change in the experiencers' subjective happiness. Relating these experiences to subjective happiness was thought to be important, given its importance in the study of positive psychology as a measure of an individual's psychological well-being. Subjective happiness has been utilized as an outcome measure across a variety of disciplines, such as neuroscience, health, and psychiatry, encompassing studies of physical and mental health, psychotherapy effectiveness, the classification of individual strengths and virtues,

soldier fitness, and educational effectiveness (Seligman, 2019).

## METHOD OF APPROACH

The greatest challenge in conducting a questionnaire study of this phenomenon was perceived by the authors to be recruiting a sample of respondents who were suitable for testing the hypotheses for the study. Fortunately, one of the authors (LDK) had elicited correspondence from a sizable number of Phoenix Lights experiencers in response to her (2017) book, documentary movie (2005), Facebook page, website, and public appearances related to the phenomenon. This resulted in the construction of three sampling frames for the study:

- 1) Group 1: Correspondents for whom there existed a valid email address. Approximately 200 individuals had corresponded with one of the authors (LDK) and appeared to have a valid email address at the time of the study. This group was sent an email inviting participation and providing a link to the online survey. While email addresses for these individuals were known at the outset, no identifying information was collected or tracked, so that actual survey respondents remained relatively anonymous.
- 2) Group 2: Visitors to <https://thephoenixlights.net> website. A separate survey link was posted on the website with the instructions: "If you had an experience related to the PHOENIX LIGHTS click HERE to take our anonymous & confidential SURVEY." Visitors to the website were presumed to be individuals with an interest in the phenomenon and who might include actual witnesses. Once again, no identifying information was collected on respondents.
- 3) Group 3: Listeners to Coast-to-Coast AM (C2C) broadcast. Following a C2C program about the Phoenix Lights that included an interview with one of the authors (LDK), the host posted a separate survey link on the C2C website, allowing any listeners who had an experience like the Phoenix Lights to participate.

The two survey links posted online invited visitors who "...had an experience related to the Phoenix Lights" to click the link and complete a questionnaire.

The intent was to select from the total group of all respondents those individuals who would constitute witnesses to a "mass sighting event." For the purposes of this study, we would define a mass sighting event as an inexplicable UAP anomaly, witnessed by 100+

individuals, within the same approximate time frame and location. If successful, this study would be the first known instance wherein a large number of these "experiencers" were systematically surveyed to determine their perceptual, attitudinal, and psychological reactions to a singular event.

## Survey Measures

Upon clicking the survey link, respondents were taken to a consent form providing a rationale for the survey, along with risks, benefits, anonymity/confidentiality provisions, and statement about the voluntary nature of the survey. Respondents had to indicate that they were at least 18 years of age, had read and understood the Consent Form, and agreed to participate in order to access the questionnaire.

## Demographics and Information About the Respondent

A decision was made to limit demographic descriptor items to minimize any potential concerns of respondents that their anonymity might be compromised. Initial questions asked for age, gender, education, and whether they had witnessed "large glowing orbs or craft in the sky (typically referred to as the 'Phoenix Lights') DIRECTLY, with your own eyes?" Subsequent questions asked about the time and location of sighting.

## Reactions of Respondent and Family Members to Sighting

The next set of questions asked respondents to rate their emotional reactions and those of family members to their sighting, as well as exposure to media coverage of the Phoenix Lights from other sources. They were also asked to indicate what they thought the lights consisted of.

## Subjective Happiness Scale

Respondents next encountered a four-item Subjective Happiness measure. This measure was developed by Lyubomirsky and Lepper (1999) and has been widely used in positive psychology research both within the U.S. (e.g., Kurtz & Lyubomirsky, 2012) and cross-culturally (Gardiner et al., 2020). Pursuant to study objectives and hypotheses, the authors wanted to see how this measure might correlate with any changes in attitude measures.

### ***Measures Related to Contact with Nonhuman Intelligent Beings (NHIB)***

Since individuals who report memorable sightings of UFOs/UAP often report contact with NHIB (Hernandez et al., 2018) we asked respondents “Have you ever seen or interacted with non-human intelligent Being (NHIB), such as an extraterrestrial, ghost, spirit, or Light Being?” What followed, if the respondent answered “Yes”, was a set of 24 questions about the nature of this contact: how real the contact seemed, age at time of first contact, degree of conscious recall of contact, frequency of contact, whether the respondent would choose to cease contact, timing of contact relative to Phoenix Lights, nature of any communication with the NHIB, types of beings encountered, and a variety of other questions about the primary being encountered. If respondents answered “No” (i.e., no contact with any NHIBs) they bypassed these questions and started the next portion of the questionnaire.

### ***Other Non-Ordinary and Paranormal Experiences***

As mentioned earlier, another common occurrence with individuals encountering UFOs/UAP is a high frequency of non-ordinary and paranormal experiences (Hernandez et al., 2018; Mack, 1994, 1999; Ring, 1992). Consequently, a series of 16 questions asked respondents about other paranormal experiences they might have had, for which they could respond “No”, “Uncertain”, or “Yes”. These response items included such things as having memory of being aboard a UFO craft; seeing a UFO craft close up; having a near death, out-of-body, or cosmic consciousness experience; bedroom visitations or healings by nonhumans; receiving telepathic messages or powerful sensations of others’ feelings; experiencing unexplainable electrical or electronic reactions or malfunctions, and other psychic or channeling experiences.

### ***Items to Detect Agreement Bias and Motivation to Confabulate***

Agreement or acquiescence bias is a well-known source of measurement error in survey research (see for example, Krosnick, 1999). This occurs when respondents are motivated to simply agree with any statement on a questionnaire. This can be mitigated to a degree by including response items that are reverse scored (for example, a negative or “Disagree” response results in a higher score on a particular scale or dimension). However, detection of biased records is preferred, and so the authors included

three response items which, in our own experience and that of colleagues who have interviewed many hundreds of UFO/UAP and NHIB experiencers, were highly unlikely occurrences during a contact or sighting experience. One of the items asked respondents if they recognized a purely fictional individual. It was assumed that any respondent who endorsed all three items would be indicating an unacceptable degree of acquiescence or agreement bias.

Another concern was the possibility that a respondent who wished to feel “special” or to seek attention from others might endorse a high number of non-ordinary experiences or assert an unwarranted degree of certainty about these phenomena. Consequently, several response items were included to assess these tendencies. The intent was to correlate responses to these items with the frequency of endorsement for a range of paranormal phenomena germane to the study hypotheses, and thereby determine whether such motives might influence the tendency to report such experiences, which could in turn exert a confounding effect on our conclusions.

### ***Attitude Change Measures***

Powerful experiences, such as encounters with UFOs/UAP, NHIB, or near-death experiences have been found to be associated with a wide variety of attitude changes (Hernandez et al., 2018; Ring, 1992). To assess these changes, response items from Ring’s Life Changes Inventory were subjected to a principal components factor analysis, with varimax rotation (SPSS 19), using response data from the FREE worldwide study of experiencers of contact with UFOs/UAP and encounters with NHIB (Phase 2 data N=1919) (Hernandez et al., 2018). Factors derived from this analysis were adjusted by adding or deleting response items to maximize Cronbach’s alpha reliability (Cronbach, 1951) for each response scale. A total of five measures were derived for use in this study: Measure 1: Inner Spiritual Life (8 response items): assessing interest in psychic phenomena, spiritual feelings and concern with spiritual matters, understanding of life and sense of meaning, self-understanding and desire to achieve higher consciousness; Measure 2: Connection with Others (9 response items): compassion for and desire to help others, ability to listen to and love others, empathy and sensitivity to suffering of others, and insight into others’ problems; Measure 3: Concern for Wealth, Ambition, Fame, and Status, Fear of Death (8 response items): assessing concern for material things and becoming wealthy, achieving a high standard of living; concern for making a good impression and becoming well

known, competitive tendencies, and fear of death; Measure 4: Sense of Self and Connection with a Higher Power (6 response items): belief in a higher power and sense of God's presence, feelings of self-worth and self-acceptance, sense of a purpose in life and understanding of self; Measure 5: Concern for Earth, Ecology, and Nature. (3 response items). (More discussion of scale reliabilities appears in Results section below). Response items began with directions: "Each statement below should be understood as beginning with the phrase, "As a result of my interest in UAPs/UFOs and/or contact with nonhuman intelligent Beings..." Following each item was a Likert-style response scale: Strongly Increased, Increased Somewhat, Has Not Changed, Decreased Somewhat, Strongly Decreased.

### Open-Ended Question

At the end of the questionnaire, one free-response question was provided to assess any behavioral changes that respondents may have undertaken as a result of their experience: "Please complete the following sentence in your own words (50 words or less): As a result of my "Phoenix Lights" experience, one new or different thing I've done is ...". Two of the authors (BE and RS) agreed upon 7 response categories to be used in grouping the verbatim responses. Each of us sorted the verbatim responses independently, resulting in 83% agreement on first pass, then convened to discuss and decide upon classification of any items that seemed ambiguous or instances where we had sorted them differently.

### Speeder Analysis

A well-known source of bias in online surveys is the tendency of some respondents to race through a questionnaire, responding in a superficial or haphazard way. This can result in a wide variety of response biases, including erroneous or invariant responses, the latter being known as "straightlining." (See for example, Grezski et al., 2015; Zhang & Conrad, 2014). This necessitates rank ordering survey records by completion time (using start time and completion time stamps in the SurveyMonkey data file) and inspecting the records of individuals who spend an inordinately brief time on the questionnaire ("speeders") for unusual or invariant response patterns and other anomalies. For the present study, problematic records were detected and a decision rule was adopted to discard records wherein the respondent's completion time was beyond one standard deviation below the average completion time for the dataset overall.

## RESULTS

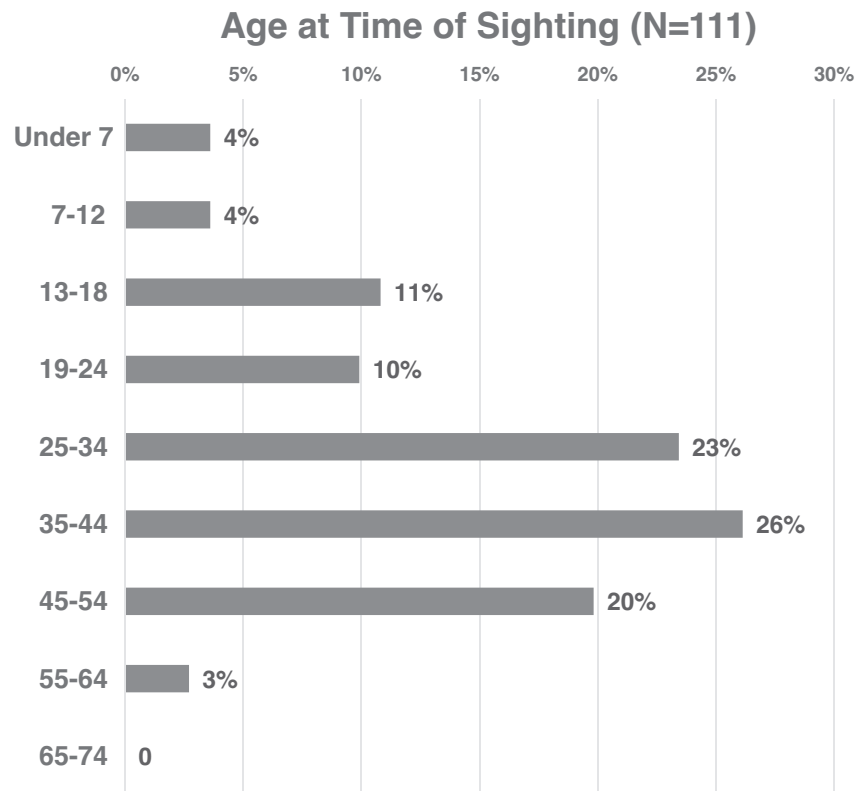
### The Sample

Pooling of samples from each of the three sources mentioned above yielded a total of 1053 records. The speeder analysis removed almost all aberrant records; for example, records where a respondent had typed meaningless responses to fill-in questions, invariant or undecipherable responses, or simply had too few responses to be useful. An additional two records were judged to have agreement bias, since respondents had endorsed all three "rare response" items, and these records were discarded. The result of this data verification process was a final sample of  $N=980$  records. Within this sample, a total  $N=117$  individuals indicated that they had witnessed the Phoenix Lights in "In 1997 (most famous, well-known appearance)", "with their own eyes", in Arizona. This sample required approximately 22 months of survey data collection before the authors felt that sufficient sample size had been attained and was termed the "Phoenix Lights sample." This sample excluded individuals who endorsed an experience at some time other than 1997 and/or in some place other than Arizona, since it was believed that all members of the sample should share the same, singular experience. (The remaining 863 individuals had experiences at other times or in other places.) The proportions of respondents in the Phoenix Lights sample from each of the sample sources (experiencer correspondents, visitors to *thephoenixlights.net* website, or Coast-to-Coast AM listeners) were not significantly different from what would be expected, given the size of each source sample (Chi Square (2df) = 1.334,  $p=.513$ ). Results for the subsequent analyses will pertain to this Phoenix Lights sample.

### Demographics of Phoenix Lights Sample

Respondents were somewhat balanced by gender, with 51% male and 49% female. No one indicated a nonbinary gender identity. The age distribution was somewhat skewed toward older respondents, with 65% being 55 years or older (respondents had to assert they were at least 18 years of age to click through the consent form and access the questionnaire), though the Age at Time of Sighting was somewhat more normally distributed, as can be seen from Figure 1 below.

Respondents 65 years or older at time of sighting are absent from the sample, likely because the Phoenix Lights event occurred 25 years prior to the start of the study



**Figure 1.** Age at Time of Sighting.

(2022). Anyone who was 65 at that time would have been at least at least 90 years old at the time of the study.

**Education**

The distribution of respondents by reported level of education is shown in Figure 2 below. Most respondents indicated at least some college, with 42% reporting a four-year or graduate degree.

Level of educational attainment did not appear to be a major differentiator for the types of experiences reported by respondents. Differences in reported paranormal experiences between educational levels were not significant ( $F(5,111)=1.287, p=.274$ ), nor were differences in reported encounter with NHIB ( $\text{Chi Square } (5df)=2.420, p=.788$ ). Differences for two of the five attitude change dimensions proved to be marginally significant: Measure 2: Connection with Others ( $F(5,104)=2.351, p=.046$ ) and Measure 3: Concern for Wealth, Ambition, Fame, and Status, Fear of Death ( $F(5,103)=2.326, p=.048$ ), reflecting somewhat greater attitude change for people with a four-year or trade school degree. However, when the alpha criterion was corrected for the number of tests performed (Bonferroni, 1936), these results no longer attained statistical significance.

**Reactions to Sighting**

A five-point scale was used to gauge respondents’ reactions to their sighting: STRONG Sense of Shock or Fear, SLIGHT Sense of Shock or Fear, Neutral or No Real Reaction, SLIGHT Sense of Awe or Fascination, STRONG Sense of Awe or Fascination, as well as degree to which sighting may have changed their life in a negative or a positive way, ranging from “Highly negative effect” to Highly positive effect”, again on a 5-point scale. They were also asked about experiencing a “strong bond or sense of connection” to the orbs/craft on a 5-point Agree/Disagree scale. Results are displayed below in Figure 3.

Thus, positive reactions to the sighting appear to predominate, with more than one third of respondents reporting a sense of connection to the phenomenon.

**Reactions of Respondent’s Family Members**

One would expect that an event as widely covered on national news media as the Phoenix Lights would have been free of any perceived stigma or fear on the part of experiencers of being labeled as “crazy” by close family members, especially given that 66% of the sample reported that they also had “close friends or family members who

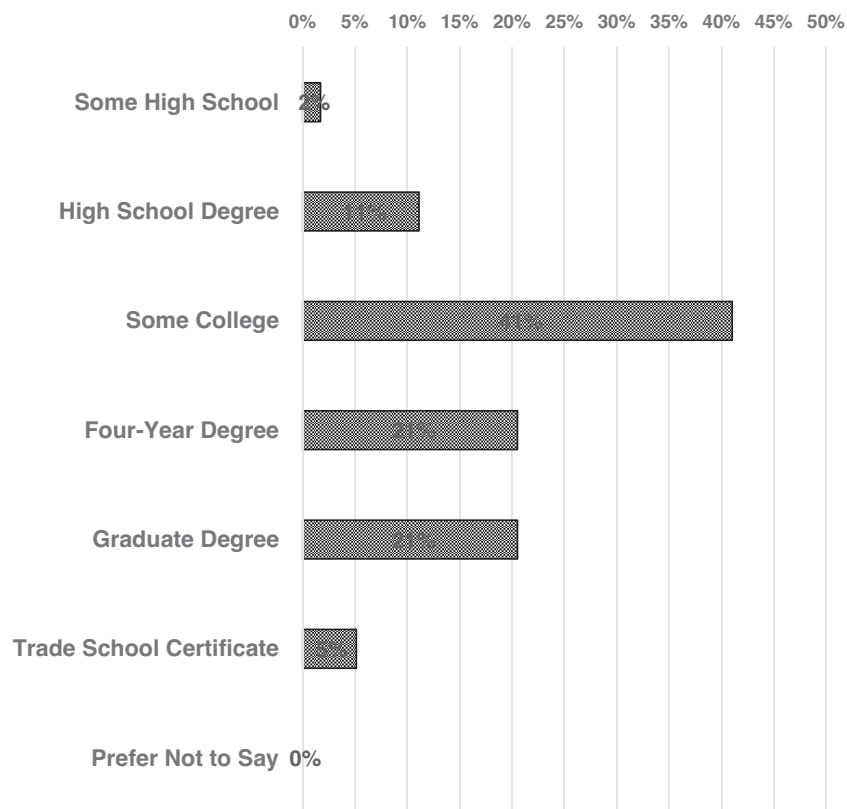


Figure 2. Level of Education Reported by Respondents (N=117).

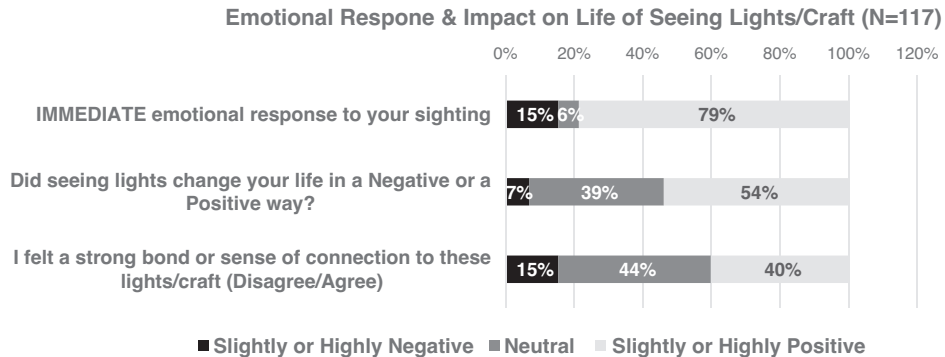


Figure 3. Reactions to Sighting.

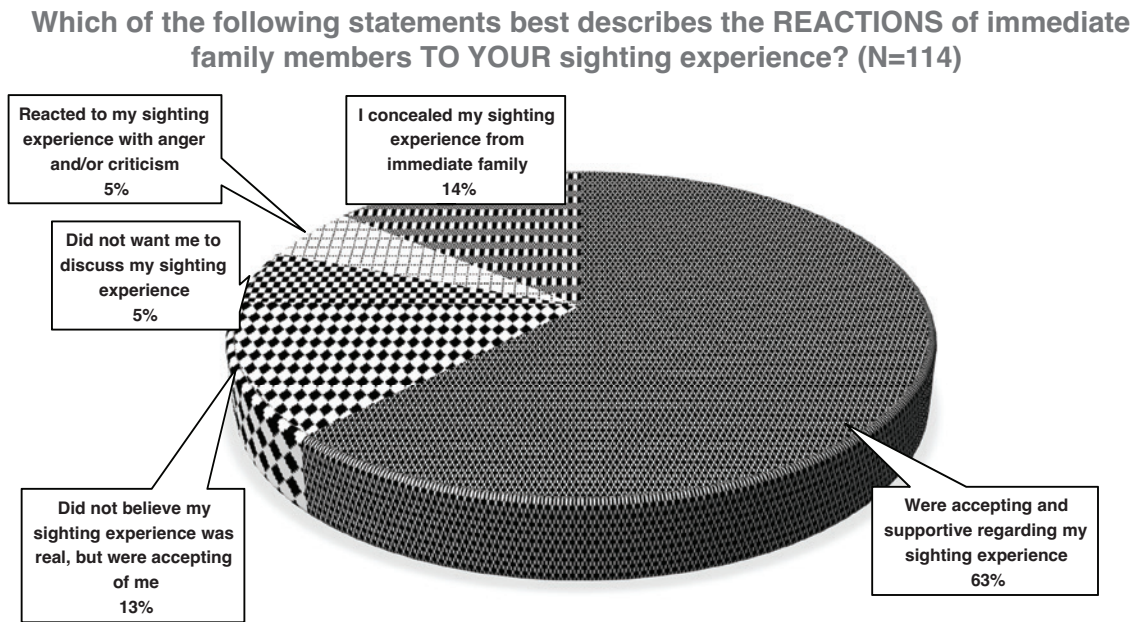
saw the large glowing orbs or craft in the sky.” This turned out not to be the case, however.

As can be seen in Figure 4, while almost two thirds of respondents reported that their immediate family members were accepting and supportive of their sighting experience, 13% say their family members did not believe them, 10% indicate their family did not want to discuss the sighting or reacted with anger or criticism, and 14% opted to to conceal their sighting from family members. Thus, it appears that a full 37% of respondents perceived some form of denial or rejection of what they had experienced.

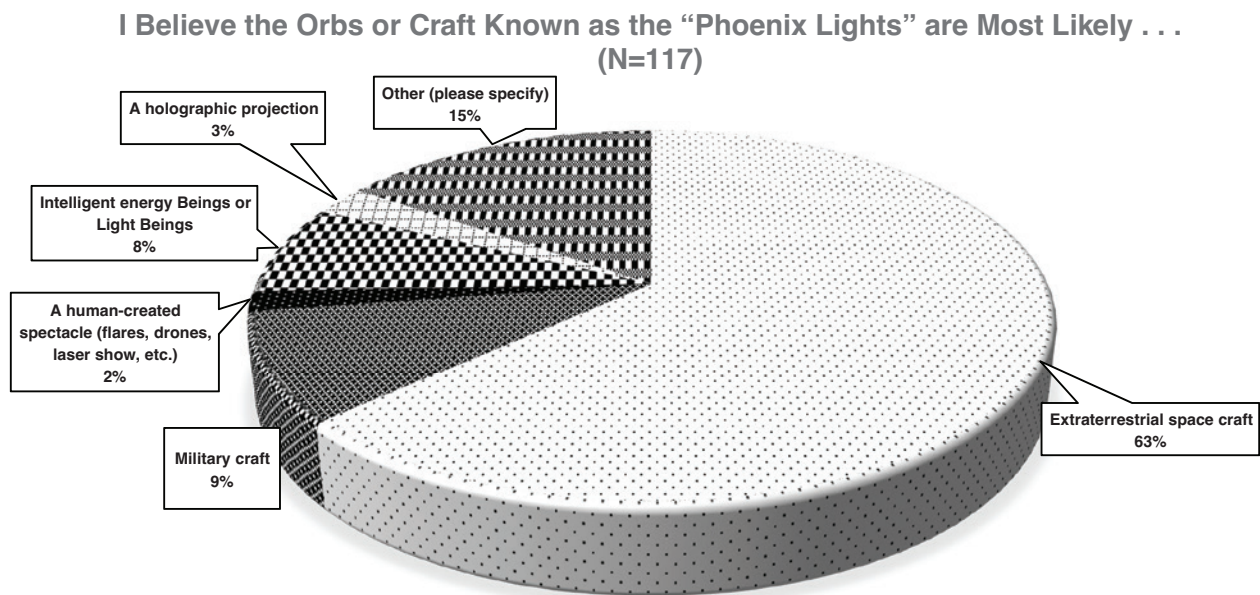
### What Respondents Believed They Were Seeing

While a number theories have been put forward about the nature of the Phoenix Lights, the majority of respondents perceived them as extraterrestrial spacecraft. This can be seen in Figure 5 below.

Clearly, the majority of witnesses did not accept the explanation of military spokespersons that the lights were “flares” that would have been dropped with parachutes during a brief military exercise. It is noteworthy, however, that 8% of witnesses perceived the lights as “Energy Beings” or “Light Beings.”



**Figure 4.** Reactions of Family Members to Respondent’s Sighting.



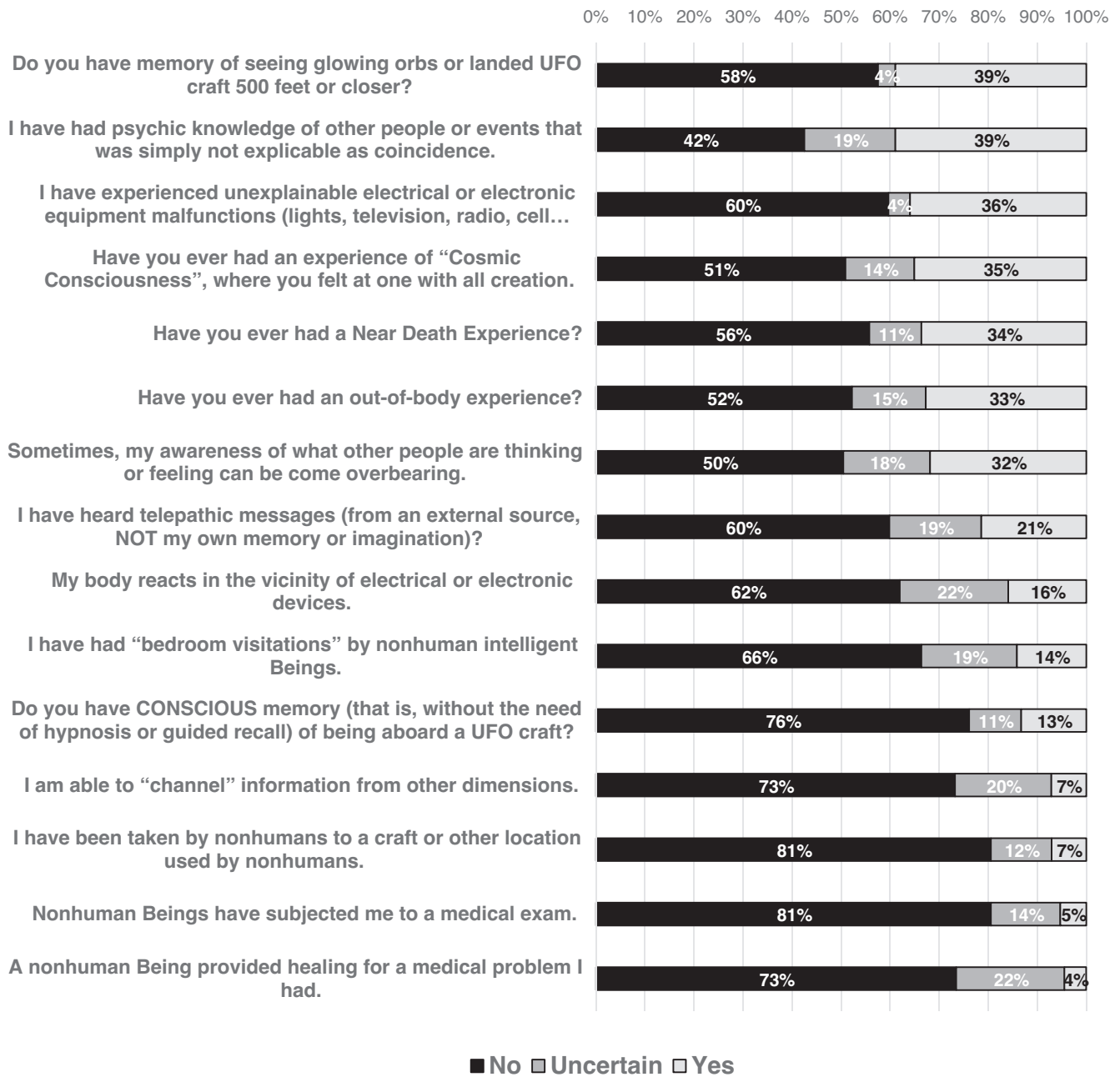
**Figure 5.** Beliefs About the Phoenix Lights.

**Hypothesis 1 – Multiple Paranormal Experiences**

Hypothesis 1 led us to expect that respondents would endorse high rates of other non-ordinary or paranormal experiences in addition to their sighting. In the FREE study (Hernandez et al., 2018), receiving telepathic messages, sighting of orbs, and malfunctioning of electrical appliances were among the most commonly reported types of paranormal anomalous activity, and such reports are also consistent with studies of the so-called “alien abduction

phenomenon”, wherein subjects report contact with UAP and NHI (Bullard, 1994; Randle et al., 1999).

While population base rates are not available for most of the paranormal phenomena included in Figure 6 above, other studies have indicated that about 5% of the adult population report a Near Death Experience (NDE) (Greyson, 1993; Griffith, 2009), and that between 5% and 10% of the adult population report an out-of-body experience (OBE) (Alvarado, 2000; Lopez & Elziere, 2018). Those base rate values appear much lower than the 34% of our



**Figure 6.** Non-ordinary or Paranormal Experiences “you may have had” (Ranked by percent “Yes”, N=112-114). *Note.* Direct comparisons with FREE study data for the above paranormal experiences are not possible, due to the fact that Hernandez et al. utilized a “Yes” or “No” response scale for most paranormal experiences, whereas the response items above utilized a 3-point scale: “Yes”, “Uncertain”, and “No”. As a result, our rates would likely be lower than FREE’s.

sample reporting an NDE and the 33% who report an OBE, respectively. Thus, for at least some of these paranormal experiences, rates of endorsement appear much higher than population expectations and consistent with the outcomes of other studies. In addition, the 13% of respondents having conscious memory of being aboard a UFO craft was approximately half the percent reported in the FREE study, yet would nevertheless appear unusual.

In addition to the above-mentioned paranormal experiences, 42% of respondents reported that they had “seen or interacted with a non-human intelligent being, such as an extraterrestrial, ghost, spirit, or Light Being” (as contrasted with 53-61% in the FREE study), and of those reporting such contact, 86% indicated that this encounter occurred “when you were wide awake and moving.” The majority (71%) rated this contact as “Very Real”, or

“Hyper real, intensely vivid, engaging all the senses”, with a smaller number (21%) rating the reality of this contact as like “Normal Waking Awareness.” When asked about the degree of conscious recall for this contact with NHI, 64% responded “Total recall – most or all details, without need of hypnosis or memory aids”, with an additional 21% selecting “Partial recall – most important details, without need of hypnosis or memory aids.” The remainder indicated “Fragmentary recall” (13%), or that they needed the help of a therapist or hypnotist (2%) to recover memories. Moreover, 66% of those experiencing contact with NHI reported that the nonhuman being communicated with them, most frequently via telepathy.

### **Motivation to Confabulate**

Three response items were utilized to elicit motivation to confabulate. These items assessed respondent’s report of feeling “special” because of their experience, to seek attention for reporting a non-ordinary experience, or to assert unwarranted certainty about the nature of the Phoenix Lights. A positive correlation between any one of these items and the tendency to report non-ordinary or paranormal experiences might indicate a motive to confabulate an experience. Scores on these three items were each correlated against a respondent’s report for several key experiences: conscious memory of being aboard a UFO craft, encounter with an NHIB, having an OBE, and having an NDE. No significant positive correlations were found. The only significant correlation was between feeling special and reporting conscious memory of being aboard a UFO, and this correlation was slightly negative (indicating tendency to disagree about feeling special). When this correlation was corrected for the number of tests performed (Bonferroni, 1936), it ceased to be significant.

### **Gender Differences**

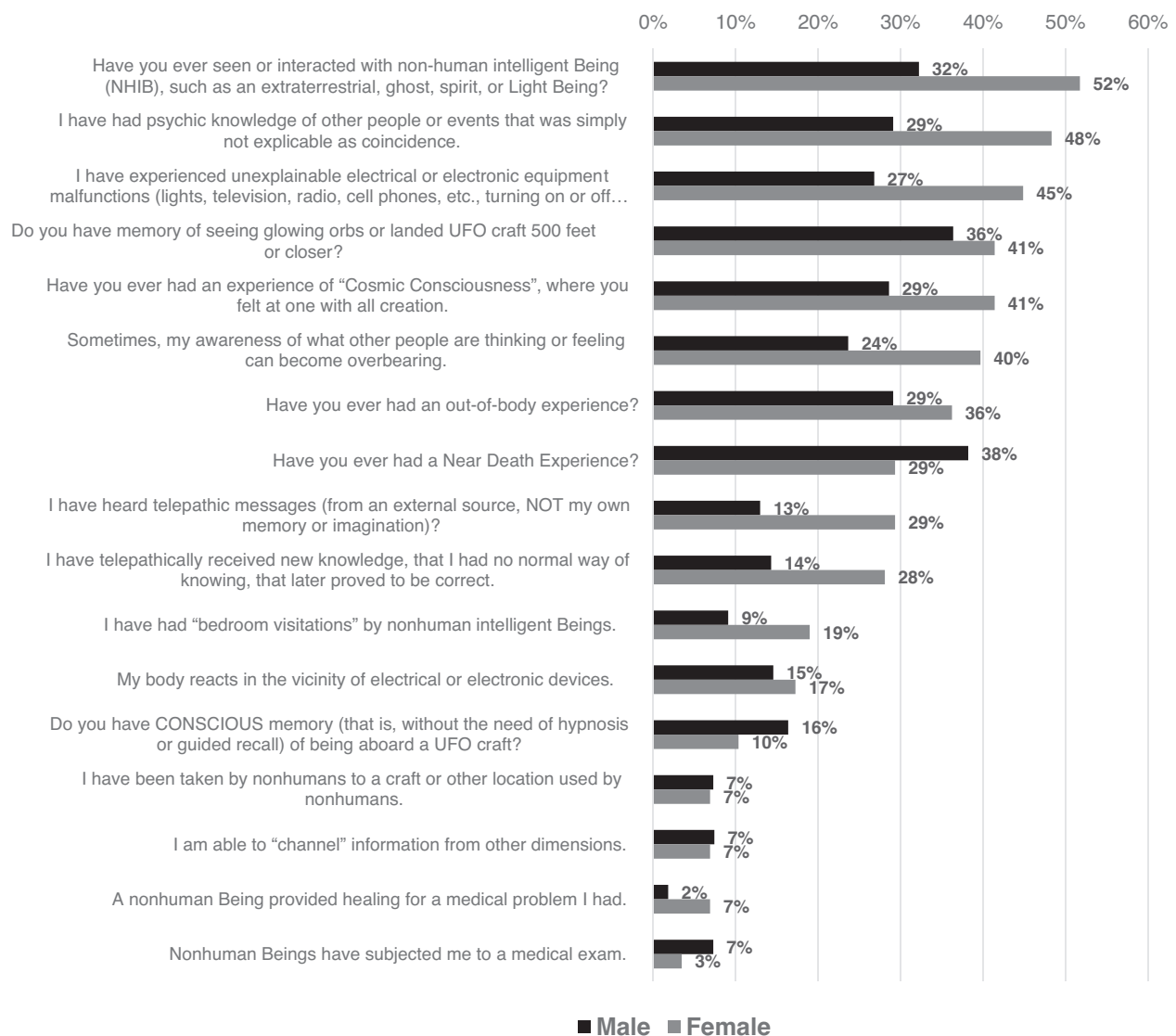
Previous research has shown that female experiencers are more likely to report non-ordinary or paranormal experiences than males (Ring & Rosing, 1990). This turned out to be the case in our Phoenix Lights data as well. As can be seen in Figure 7 below, females reported these experiences at a significantly higher rates than males ( $t(115df) = 2.088$ ,  $p = .0194$ , two-tailed).

The higher rate of experiences for females could be due to biological factors or gender-based biases in reporting, given that such experiences that may be construed as more or less consistent with one’s gender role. However,

it is unclear how biologic or reporting biases might explain such large differences in reporting on response items dealing with experiences such as “I have experienced unexplainable electrical or electronic equipment malfunctions (lights, television, radio, cell phones, etc., turning on or off on their own) around me” or “Have you ever seen or interacted with non-human intelligent Being (NHIB), such as an extraterrestrial, ghost, spirit, or Light Being?” While the study was not designed to assess potential causes of gender differences, a clue might be suggested by examining the seven paranormal experiences showing the greatest disparity between males and females. (The response item “A nonhuman Being provided healing for a medical problem...” could be included among these seven items showing the greatest disparity, since the rate of endorsement for females, while only 7%, is more than three times the rate for males). Among these seven items, four items pertain to encounters with nonhuman beings: encountering an NHIB, having bedroom visitations by nonhumans, feeling a sense of love from a nonhuman, and receiving a medical healing from a nonhuman. Thus, a higher rate of interaction with nonhumans appears to be associated with the gender difference, and might tend to facilitate additional paranormal experiences.

### **Hypothesis 2 – Prosocial Attitudinal Changes**

As mentioned earlier, Cronbach alpha scale reliabilities for each of the five attitude change scales had been computed from the FREE study data, and from that sample, alphas ranged between .794 to .902. Prior to analyzing data for the present group of 117 Phoenix Lights respondents, scale reliabilities were recalculated, based upon the overall sample of verified respondents to the Phoenix Lights survey ( $N = 980$ ), to ensure that the attitude change scales remained reliable for the present study. This analysis revealed that the reliability coefficients for each scale had increased and were now in the range of .853 to .959. Average attitude changes for each attitude scale are depicted as the average increasing or decreasing difference or deviation from a null-hypothetical value of 3.0 (“Has Not Changed”) in Figure 8 below. For each dimension, a one-sample t test was performed to compare average obtained increase or decrease on a 5-point scale to the null hypothesis of a 3.0 rating. Obtained differences were as follows: Measure 1: Inner Spiritual Life: mean increase = .92,  $t(109df) = 11.37$ ,  $p < .00001$ ; Measure 2: Connection with Others: mean increase = .82,  $t(109df) = 10.37$ ,  $p < .00001$ ; Measure 3: Concern for Wealth, Ambition, Fame, and Status, Fear of Death:

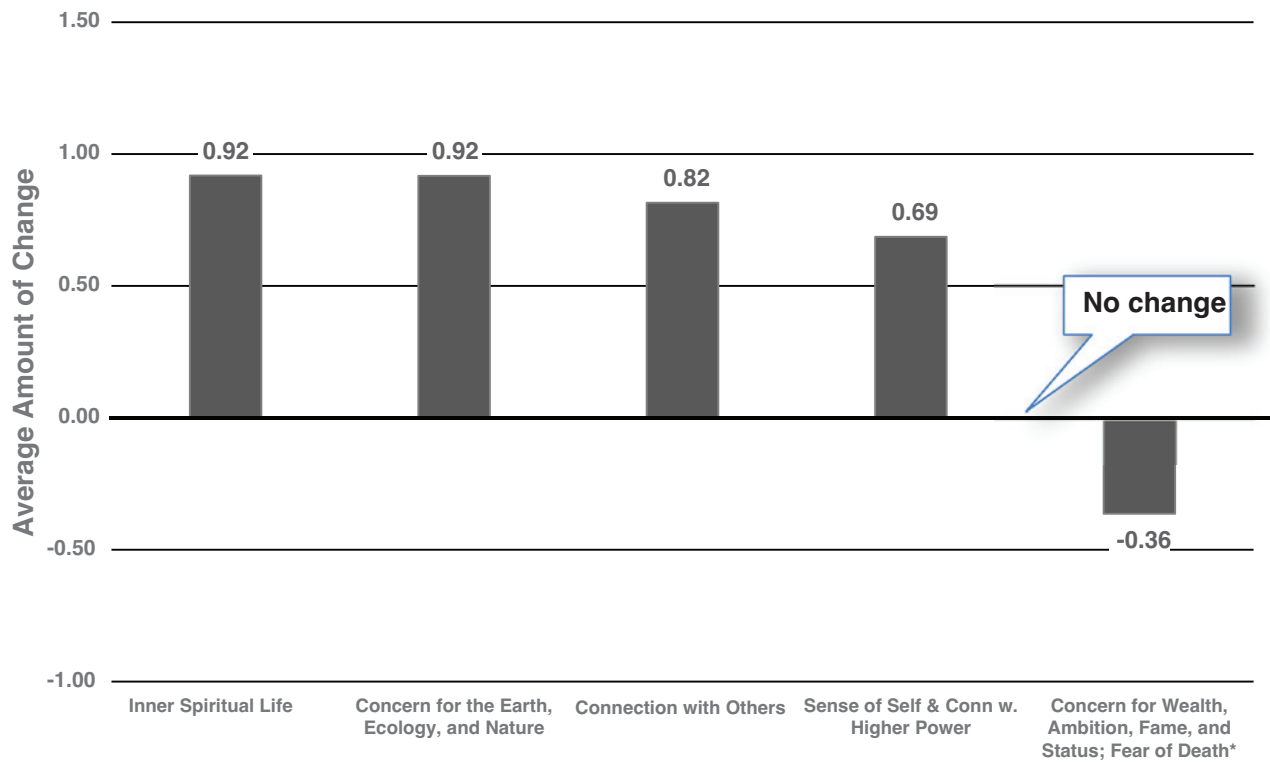


**Figure 7.** Gender Differences in Non-Ordinary or Paranormal Experiences by Gender (Ranked by % of females reporting experience).

mean decrease =  $-.36$ ,  $t(108df) = -5.50$ ,  $p < .00001$ ; Measure 4: Sense of Self and Connection with a Higher Power: mean increase =  $.69$ ,  $t(108df) = 9.16$ ,  $p < .00001$ ; Measure 5: Concern for Earth, Ecology, and Nature: mean increase =  $.92$ ,  $t(108df) = 11.18$ ,  $p < .00001$ . These differences are displayed below in rank order by size in Figure 8. All differences were in the expected direction and significant well beyond the adjusted (Bonferroni, 1936) alpha criterion for five t tests of  $p = .01$ .

The individual response items showing the greatest positive change (sum of "Slight" plus "Strong" increase) are rank ordered for the sample below in Table 1. What is noteworthy is the bolded items, which indicate the top ten positive changes from Ring's Life Changes Inventory found in the FREE study (Hernandez et al., 2018).

It would be expected that interest in UAP/UFOs and contact with nonhuman beings (stated in the item stem) would be associated with "the possibility of extraterrestrial life" (top rated item for positive change), or even other things of a paranormal nature, such as "interest in psychic phenomena." Other items on this list, however, appear to be connoted or implied to a much lesser degree by the question stem, unless a shift in values toward ecological, prosocial, spiritual, or personal growth themes has occurred, as evidenced in "appreciation of nature" and "concern for welfare of planet earth", "desire to help others" and "empathy with others", "desire to achieve higher consciousness" and "understanding of myself", and "my spiritual feelings." These attitude change results appear to replicate FREE study findings to a large extent.



**Figure 8.** Attitude Change “As result of my interest in UAPs/UFOs and/or contact with nonhuman intelligent Beings....” Depicted as the Average Difference from Scale Value of 3.0 (“Has Not Changed”) (N=109-110).

*Note.* Average change scores are rank ordered by size from left to right. \*A decrease in “Concern for Wealth, Ambition, Fame, and Status; Fear of Death” dimension was regarded as a positive attitude change.

### Hypothesis 3 – Positivity of Encounters

Results above indicated that sightings of the Phoenix Lights were perceived as generally positive experiences, with mostly positive impact on the experiencer’s life. An equally important question would be the nature of any contact with NHIB and how people would react to those encounters.

#### Reported Contact with NHIB

When asked “Have you ever seen or interacted with non-human intelligent Being (NHIB), such as an extraterrestrial, ghost, spirit, or Light Being?” 42% of respondents answered “Yes”. Of these, 86% indicated that their encounter occurred “when you were wide awake and moving.” When asked “How real did this contact seem to you?”, 71% responded either “Very Real” or “Hyper real, intensely vivid, engaging all the senses”, with an additional 21% saying it was like “Normal Waking Awareness.” Moreover, most of those encountering an NHIB appeared to have confidence in their recall of the event, with 64% indicating “Total recall – most or all details, without need of hypnosis or memory aids” and an additional 21% indicating “Partial recall – most

important details, without need of hypnosis or memory aids.” The remainder checked “Fragmentary recall” (13%) or “Little or No recall on my own. Additional memories with aid of therapist or hypnotist” (2%). Since past research has shown that people often encounter more than one type of NHIB (Hernandez et al., 2018), we asked about types of beings encountered in two ways: first, the primary type of being encountered, and second, we asked them to check any types encountered. Responses for the primary type of NHIB encountered are shown in Figure 9.

As can be seen in Figure 9, nonphysical beings, such as energy beings, glowing orbs, light beings, spirits or ghosts and interdimensionals appear to predominate reported encounters. When asked to check *any* beings they encountered, once again these same nonphysical beings predominated, although reports of physical beings typically viewed as “alien” increased substantially: short greys (17%), tall greys (13%), insectoid or mantid (15%), and reptilian (6%). Reports of angelic or religious figures also increased to almost one fourth of encounters (23%). Respondents encountering an NHIB on average checked 2.1 different types of beings, when asked to check “any that apply.”

**Table 1.** Response Items Showing the Greatest Change “As result of my interest in UAP/UFOs and/or contact with non-human intelligent Beings...” (Ranked by percent favorable change).

ATTITUDE CHANGE RESPONSE ITEM	% Favorable Increase
<b>My interest in the possibility of Extraterrestrial life has</b>	<b>73%</b>
<b>My understanding of “What is Life all about” has</b>	<b>64%</b>
<b>My interest in psychic phenomena has</b>	<b>64%</b>
<b>My appreciation of nature has</b>	<b>62%</b>
<b>My concern with the welfare of the planet Earth has</b>	<b>62%</b>
<b>My desire to achieve a higher consciousness has</b>	<b>61%</b>
<b>My interest in self understanding has</b>	<b>59%</b>
My desire to help others has	59%
My sense that there is some inner meaning to my life has	58%
My search of personal meaning has	58%
My empathy with others has	58%
<b>My concern with spiritual matters has</b>	<b>57%</b>
<b>My understanding of myself has</b>	<b>57%</b>
<b>My Spiritual feelings have</b>	<b>56%</b>
My compassion for others has	55%
My acceptance of others has	55%
My insight into the problems of others has	54%
My concern with Ecological matters has	54%
My sensitivity to the suffering of others has	53%
My ability to express love for others openly has	52%
My ability to listen patiently to others has	52%

Note. **Bolded** items were the top ten positive change items in the FREE study (Hernandez et al., 2018).

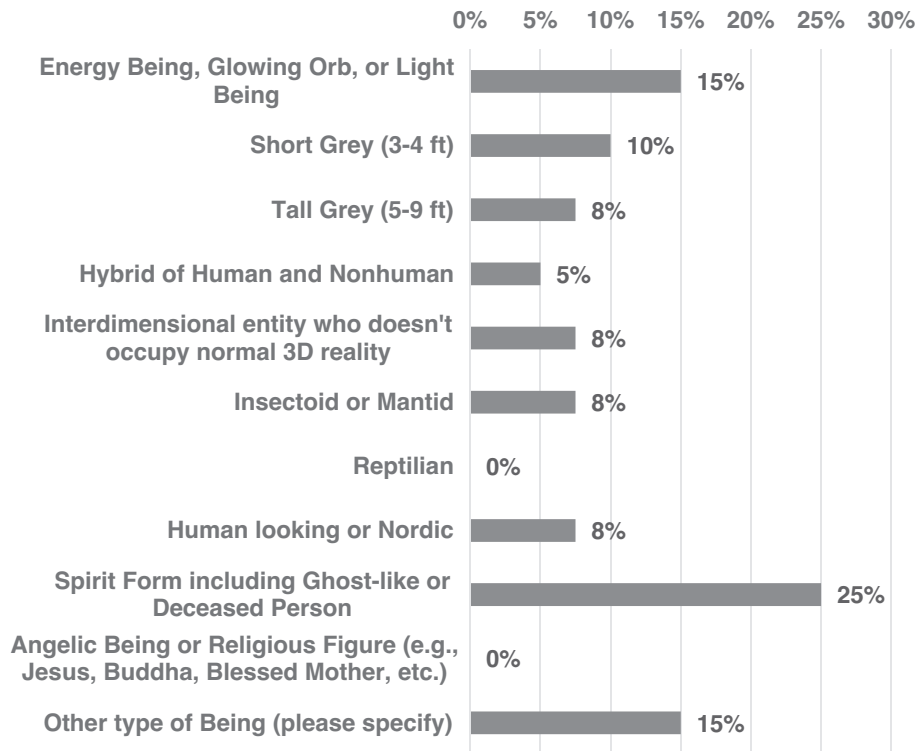
Consistent with Ring’s concept of an “encounter prone personality” was the finding that most respondents reporting NHIB encounters reported multiple encounters: 2-4 times (42%), or 5 or more encounters (37%). Moreover, 58% indicated no connection of their NHIB contact with the Phoenix Lights. Only one person encountered an NHIB only at the exact time of her Phoenix Lights sighting, while an additional two individuals encountered their NHIBs both at the time of their sighting and at other times. Two thirds of respondents encountering an NHIB (66%) indicated that the being had communicated with them, with the most common methods of communication being telepathy (52%), simply “sensing them as a presence” (65%), or “projected images” (28%) (respondents could check any modalities used). The most typical situations of interaction were given as within the home (35%), “where I am taken aboard a craft or in a facility used by nonhumans” (17%), or “telepathic communication only (no specific location)” (15%).

### **Positivity of Contact with NHIB**

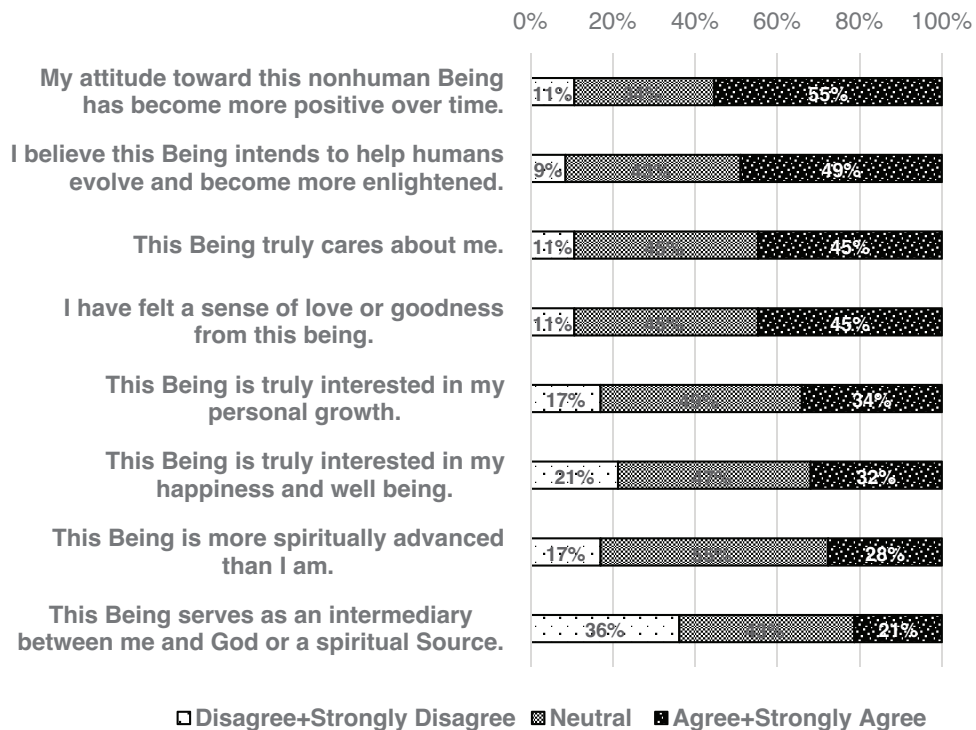
Of those respondents reporting NHIB contact, a number of questions were asked to assess the positivity of contact.

These are displayed below in Figure 10. In the FREE study, positivity toward beings encountered was seen as increasing with frequency of contact, and most respondents in the present study (55%) seem to report the same phenomenon of increased liking over time. In addition, almost half report the belief that the NHIB intends to help humans evolve (49%), “truly cares about me” (45%), and that they have felt “a sense of love or goodness” from the being (45%). And while most would not assert that the being “serves as an intermediary between me and God or a spiritual source”, negative responses appear as a small minority on most of these items.

Another indication of possible benefit from possible nonhuman sources was the question “Have you ever received a body of information, such as a telepathic “download” or channeling from a nonhuman being or source?” One hundred sixteen individuals responded to this question, with 28 people (24%) answering “Yes.” When asked to check any type of information received in this download, 82% responded “Spiritual or religious” and 71% checked “Personally relevant information for you or about you.” The large number of Neutral (“Neither Agree nor Disagree”) responses for each response item above



**Figure 9.** Responses to Question: “Which type of Being have you PRIMARILY seen or interacted with? (Check ONLY ONE)” (N=40 responding).



**Figure 10.** Questions About This Nonhuman Being (“the type you have primarily seen or interacted with”) (N=47) (Rank ordered by percent Agree+Strongly Agree).

raises the question of why some respondents were unable to assess certain qualities or characteristics of the beings they were interacting with. While specific data as to the

cause of these neutral responses is lacking, it is known that the communication with these beings for most experiencers was of a “Spiritual or religious” nature or

“Personally relevant information”, and did not pertain to the NHIB’s own personality or characteristics, and additionally, the fact that for many experiencers, the NHIB was simply “sensed as a presence”. Thus, it is likely that many experiencers lacked sufficient information to make a firm judgment one way or the other. One way to better gauge positivity of beings would be to subgroup and chart responses to the above questions regarding NHIB by type of being (Energy Being, Short Grey, Tall Grey, Hybrid, etc.). This was not feasible for our sample, however, given that the many types of beings and size of our sample would result in subgroups too small to assess a reliable trend. Nevertheless, the fact that negative responses (“Disagree + Strongly Disagree”) constitute a small minority for most questions about the primary NHIB encountered suggest that the impression of this being was predominantly positive to neutral.

One final question was asked about respondent’s NHIB contact in order to frame their evaluation as a behavioral intention: “If you could stop all of your contact experiences with the nonhumans, would you?” Eighty nine percent responded “No”, indicating a desire to continue these contacts. This result compares favorably with the FREE study, wherein 84% indicated they would not stop contact.

**Hypothesis 4 – Positive Attitude Changes Should Influence Subjective Happiness**

The population mean score for Lyubomirsky & Lepper’s Subjective Happiness scale, reported by these authors for eight college samples, ranged between 4.63-5.07, and for three U.S. adult samples, ranged between 4.80-5.62 (Lyubomirsky & Lepper, 1999). The mean score for our sample was 5.52, with a median of 5.75. This finding suggests that our sample scored toward the high end of the range on Subjective Happiness. Correlations of the five attitude change measures with Subjective Happiness are

shown in Table 2 below. Surprisingly, only one of the five attitude change measures, Measure 4: Sense of Self and Connection with a Higher Power, was significant.

Sense of Self and Connection with a Higher Power predicted Subjective Happiness, ( $r=.320$ ;  $df=107$ ,  $p<.001$ ). The six response items comprising this measure imply a discovery of God’s presence and belief in a higher power that is associated with self-discovery through one’s own purpose in life, feelings of self-worth, self-acceptance, and self-understanding. The importance of this attitude change dimension was also supported by the content of verbatim responses to the open-ended question “As a result of my “Phoenix Lights” experience, one new or different thing I’ve done is ... “ This question sought to identify enduring behavioral changes that might have resulted from the respondent’s sighting experience; however, the resulting verbatim comments predominantly reflected changes in attitudes, beliefs, and interests related to things larger than oneself, and to a lesser degree, changes in one’s own openness, spirituality, consciousness, and awareness. Comments received are summarized in Figure 11 below.

As can be seen in this chart, responses relating to the sense of awe and connection with the cosmos, interest in astronomy and extraterrestrial life, and questioning of reality accounted for slightly over half of all comments. Comments referenced the respondent’s personality changes toward more openness and curiosity (9%), self-awareness, spirituality or religiousness, and developing of consciousness, through such means as mindfulness and meditation (7%). These reported changes would be consistent with the attitude change theme of increasing one’s Sense of Self and Connection with a Higher Power.

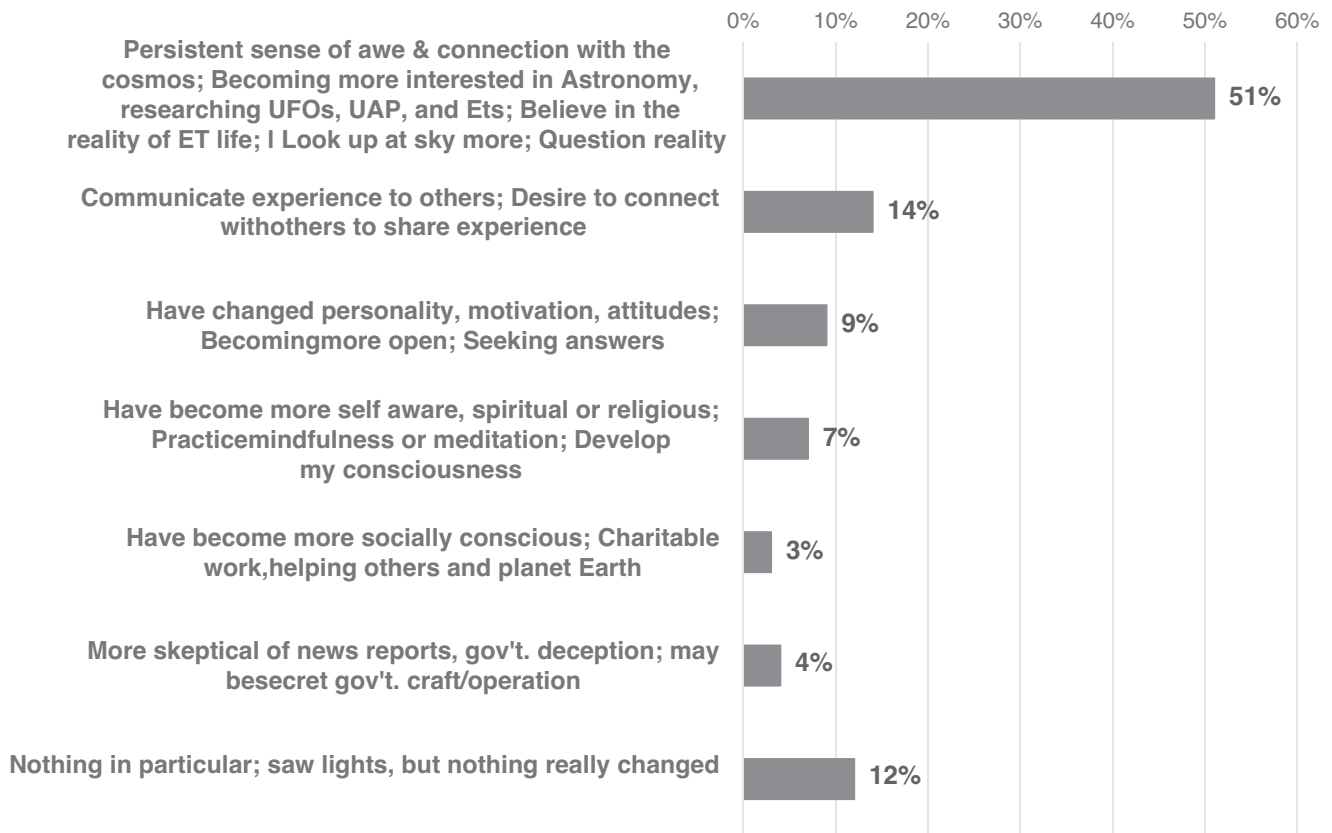
**DISCUSSION**

Overall, this study provides insight into the experiences of people witnessing the Phoenix Lights, while

**Table 2.** Correlations of Five Attitude Change Measures with Subjective Happiness.

	Measure 1: Inner Spiritual Life	Measure 2: Connection with Others	Measure 3: Concern for Wealth, Ambition, Fame, and Status; Fear of Death	Measure 4: Sense of Self and Connection with a Higher Power	Measure 5: Concern for Earth, Ecology, and Nature
Subjective Happiness $r =$	0.111	0.117	-0.086	<b>0.320</b>	0.000
Significance $p =$	0.247	0.225	0.375	<b>0.001</b>	0.999
N	110	110	109	109	109





**Figure 11.** Summary of Verbatim Responses (N=103) to the Question: “As a result of my “Phoenix Lights” experience, one new or different thing I’ve done is ...”.

providing partial replication of both Ring’s (1992) Omega Project research, as well as the FREE study, with respect to the positivity of the encounter experiences, elevated rate of other paranormal experiences, and positive prosocial attitude changes reported. Most respondents perceived the Phoenix Lights to be an extraterrestrial space craft, and most appeared to have been positively affected by their sighting. What is surprising, however, is the finding that more than one third of the sample have experienced some form of disbelief or rejection from immediate family about their sighting, despite the national and local media coverage of the event and the fact that most respondents had “close friends or family members” who also saw the lights. Psychiatrist John Mack has reported that experiencers who report being taken aboard craft by nonhumans experience a “...lifelong sense of isolation and estrangement from those around them” (Mack, 1994, p. 29), as well as how a recounting of such experiences, by those who have them, may elicit anger and hostility in others when it challenges their anthropocentric worldview, wherein humans are believed to represent the apex of creation. As Mack points out, “To destroy someone’s

worldview is virtually to destroy that person.” (Mack, 1999, p. 36). Additionally, former Pentagon insider Luis Elizondo and other Pentagon officials have documented the intensive efforts of the U.S. government, since the 1940s, to deeply stigmatize and discourage any reporting of UFO events, not only within the general population, but even among military and commercial aviation personnel as well (Elizondo, 2024). Thus, it appears that despite congressional hearings and increasing awareness and media coverage of UAP events, talking about one’s own personal experience may yet remain stigmatized for a large segment of the population.

Our Hypothesis 1, proposing many additional paranormal experiences for witnesses of the Phoenix Lights event appears to have been largely confirmed, given the number and frequency of non-ordinary and paranormal experiences reported, especially for female respondents. Similarly, Hypothesis 2 regarding positive prosocial attitude changes appears supported, given the positive direction of change on each of the five attitude measures. The fact that the seven (out of 35) attitude change response items changing the most were also in the top 10 changing items

in the FREE study (all of FREE's top 10 were within our top 14 items) tended to replicate the FREE study's worldwide findings regarding attitude change. Moreover, these changes were consistent with responses to the open-ended question, wherein positive emotional changes, such as greater sense of awe and wonder, curiosity about cosmos and ET life, a desire to share one's experience with others, becoming more open minded and spiritual, and having a desire to help others, were all expressed.

Our Hypothesis 3, concerning the positivity of encounters, was supported by the rated reactions of respondents to their sighting (79% favorable) and its effect upon respondent's life (54% favorable). Contrary to popular depictions of the "alien abduction" phenomenon, the encounters with NHIB reported by 42% of respondents appear to have been largely with non-physical entities (rather than the short gray aliens depicted in movies) and predominantly positive, with 89% of those having an encounter indicating they would not stop those encounters if they could. Also, of the 28 people who reported receiving a "download" of information from a "nonhuman being or source", more than two thirds indicated this information was of a "spiritual or religious" nature or "personally relevant information for you or about you", both of which were consistent with change on the attitude dimension Sense of Self and Connection with a Higher Power, as well as open-ended comments citing personal changes.

Hypothesis 4 proposing a link between attitude change and Subjective Happiness, led us to expect that attitude changes in most of our attitude measures should be associated with Subjective Happiness. The fact that only one measure, Sense of Self and Connection with a Higher Power, correlated with Subjective Happiness implies only partial support for our Hypothesis 4. That change in this particular dimension should link with Subjective Happiness, also appears consistent with Carl Jung's (1959/1978) thesis. Jung proposed that the sighting of round objects in the sky may elicit powerful archetypal images of order, "psychic totality", and individuation or transformation of the self through union of the conscious and unconscious.

And while it is understandable that increased Concern for Earth, Ecology, and Nature might lead to lower happiness given the current global progress on climate change mitigation, we expected that other measures, such as increases in Connection with Others and Inner Spiritual Life, and reduced Concern for Wealth, Ambition, Fame, and

Status, and Fear of Death, should have also been associated with Subjective Happiness. It is also possible, however, that some negative influences upon happiness may be occurring when one has a profound, even life-changing, experience that is disbelieved or rejected outright by close family members. This outcome underscores the complexity of influences upon one's Subjective Happiness.

### **Limitations of the Research**

The research design we utilized for this questionnaire study of psychological reactions to UAP and related phenomena posed several challenges.

### **Representativeness of the Sample**

First and foremost is determining the specific population represented by our sample. It is reasonable to assume that respondents all had an interest in UAP/UFOs, given the websites they were visiting. And while our sample represented a wide range of age and education, it is likely that there was self-selection bias: anecdotally, some respondents sent emails to the authors thanking them for providing an opportunity to "tell their story" via the questionnaire. It is possible that people motivated to complete our 100-item questionnaire may be biased toward those having a strong emotional or life-changing experience who also lack other receptive avenues for sharing their experience.

### **Source of Proneness to Paranormal Experiences**

It would be tempting to infer that having a UAP encounter leads to subsequent paranormal experiences, yet this is only one possibility. The questionnaire did not ask about when respondent's paranormal experiences started, and with respect to NHIB encounters, most respondents (58%) indicated no connection with the Phoenix Lights. Ring (1992; Ring, personal communication, December 7, 2020) hypothesized that traumatic experiences, such as childhood trauma or other emotional experiences that lead the individual to temporarily dissociate from reality as a defense mechanism, may "unlock" sensitivity to paranormal events such as UAP or NDEs and thereby foster a tendency to vividly recall such events. Consequently, while traumatic or "ontologically shocking" encounters with UAP or NHIB could foster encounter proneness and subsequent paranormal sensitivity, other powerful experiences, such as NDEs, OBEs, or trauma could conceivably have the same effect.

### **Causation of Attitude Change**

The attitude change measures employed in our questionnaire did not rely upon assessing attitudes pre versus post UAP experience, but rather asked respondents to rate attitude change “As a result of my interest in UAPs/UFOs and/or contact with nonhuman intelligent Beings...”, relying upon the respondents to determine the extent to which their interest had affected each attitude listed. A pre-post assessment repeated-measures design would clearly have provided a more stringent measure of attitude change for each dimension, but this was not technically feasible, given the unpredictable nature of the UAP phenomenon. Moreover, it is likely that having a non-ordinary experience, such as UAP encounter, will lead the experiencer to seek out books, videos, and websites dealing with UAP-related topics and to affiliate with people or groups who have had, or are receptive to, similar experiences. Any or all of these sources could influence subsequent attitude change. Thus, as was the case with sensitivity to the paranormal, the degree of attitude change may be influenced by the emotional or motivational strength of the initial triggering event, as well as the extent of subsequent information seeking or group affiliation behavior.

### **Future Research**

It is hoped that future research will illuminate how personality factors or potential physiological changes might explain the relationship between an experiencer’s response to an “ontologically shocking” event and associated paranormal experiences. To pursue investigation of possible factors mediating paranormal experiences hypothesized by Ring, one of the authors (RS) is currently conducting a study of experiencers of encounters with UAP and NHI, in conjunction with colleagues at the OPUS Network (a 501c(3) not-for-profit organization providing support resources and therapist referrals for experiencers). This latter study, currently in the data analysis phase, includes measures of dissociation (Carlson & Putnam, 1993) and right temporal lobe anomalies (Makarek & Persinger, 1990), along with other personality measures such as cognitive and affective empathy (Jolliffe & Farrington, 2006) that might either influence or be influenced by a profound ontological experience. And while a pre- and post-experience experimental design remains infeasible, this study includes a control group of non experiencers with only an interest in UAP. Thus, it is hoped that both this and other future research may clarify how potential experiencer characteristics or “triggering” events might facilitate

or disinhibit the attitude change and high rates of paranormal experiences reported by our sample.

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