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Living the death: death attitudes and representations after a near-death experience

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Introduction

Over the last 40 years, since Moody's (1975) seminal work, Near Death experiences (NDEs) have been being at the centre of several academic investigations in in psychology, philosophy and medicine, and the debate on its nature is still in progress (Agrillo, 2011). This topic widely extends the scientists' and philosophers' reflections on the relationship between mind and brain, life and death, as well as the entire ontological question (Moody, 1975; Rousseau, 2011; Fenwick 2012). Until now, a number of authors tried to investigate and propose an interpretation of NDE. In existing literature, we observe a predominance of opinion articles, review articles, and papers, which describe NDE's features. A recent work, that offers a review of the literature, highlights a lack of empirical studies that test explanatory hypotheses by using original data (Sleutjes et al., 2014). Direct studies of the phenomenon in lab, or at least in a controlled condition, are not possible, given the subjective and extraordinary nature of this experience (see paragraph 1.1 for an extensive description). Thus, the investigation of what NDE produces in people (e.g., memories of the experience or the so-called NDE aftereffects) could represent a more suitable way to explore NDE nature, since if we can assess objectively differences between people who had a NDE and people who had not, we could be able to derive indirectly information about NDE.

In this study, we focus on a widely reported aftereffect, which is not still understood: NDErs' loss or reduction of fear of death (Tassel-Matamua & Lindsay, 2016). In order to explore the processes underlining the loss of fear of death in people who had a NDE, we apply a mixed methodology, in which explicit and implicit measures are included. The general aim of this study is to investigate conscious and unconscious death anxiety and death representations in people who had a NDE, and to provide insights on the nature of this fascinating phenomenon.

In the first chapter, the theoretical framework of the study is provided. NDE has been described as an intense phenomenon that leads to a variety of psychological and interpersonal aftereffects. In this section, a number of theoretical models are extensively described in order to provide a useful framework to interpret this phenomenon. Moreover, a review on the death anxiety concept and the measures of fear of death is provided, highlighting differences between conscious fear of death, usually assessed with self-report instruments, and unconscious reaction toward death, assessed using implicit measures. Finally, Terror Management Theory (TMT) is introduced, as one of the

most relevant models that describe human reactions toward death. In this piece of research, NDE is studied for the first time within a TMT framework, producing interesting implications that are discussed in last chapter.

In the second chapter, the method is presented. In order to test our hypotheses and to integrate different perspectives and methodologies, participants' death attitude is assessed using self-report scales, open ended questions, and an implicit measure of what is called "Death Thought Accessibility", that it is an indirect measure of psychologically defensive reactions toward death.

In the third chapter, results are reported, showing differences between people who had a NDE and those who do not. Specifically, people who had a near death experience reported less fear of death, more death acceptance, and a different representation of death with respect to individuals who had not have a NDE.

In the fourth chapter, discussion of results and suggestions for future research are provided.

Chapter 1

Literature review and theoretical background

1.1 Near-Death Experiences

1.1.1 Definition of Near-Death Experience

A near-death experience can be defined as an intense psychological experience of a non-ordinary state of consciousness, occurring during an episode of seeming unconsciousness. NDEs usually happen in critical situations in which the individuals are close to death, e.g. during a coma or a cardiac arrest (Moody, 1975; Greyson, 2010).

Typical NDE's features have been reported and summarized by many authors in the literature (Moody, 1975; Agrillo, 2011; Fenwick, 2012; Greyson, 2010; Charland-Verville et al, 2014). People who had a NDE usually report to have been aware of being dead during the experience, and they describe pleasant feelings and sensations, happiness, and well-being. They declare to have left their body like in an out-of-body experience (OBE) and they report to have been able to see themselves from a high position above their own body. One of the most iconic features is surely the path into a tunnel-like passage, with the perception of a warm and bright light, and the sight of a heavenly or hellish landscape. During this experience, many people can encounter and communicate with deceased relatives, religious figures, or beings of light. Sounds, music or unpleasant noises can be heard, and there is an altered perception of time stream. Another typical characteristic is the experience of life review, in which images of one's past return to consciousness. Finally, NDErs often encounter a border, like a point of no return, where either they choose to stop or hear a message suggesting to go back. At the end of the experience, people wake up into their body. Even though NDEs share these common characteristics, every NDE is unique and there is a lot of variability between accounts. The above reported features may occur in any order and there is no need to have all of them to identify an NDE (Moody, 1975; Zingrone and Alvarado, 2009).

As concerns the exact incidence of the phenomenon, it is unknown as it varies across different studies depending on the definition of NDEs adopted by the authors (Zingrone and Alvarado, 2009). In existing literature, NDEs' incidence ranges from 9% (Parnia et al., 2014) to 18% (van Lommel et al., 2001) of cardiac arrest survivors, up to 38% in people who required resuscitation (Pacciolla, 1996), with an average estimate of 17% in ill patients (Zingrone and Alvarado, 2009). In a German study with 2000 healthy young adults, 4% of participants reported such experience (Schmied, Knoblauch, & Schnettler, 2001).

NDEs are registered all over the world, independently of demographic, psychological, and sociological variables (Holden et al., 2009). Even though, to the best of our knowledge, the incidence seems to be unsystematic, some studies suggest an effect of age and gender on the frequency and the depth of this experience respectively (van Lommel et al., 2001, Greyson, 2003). Researches on NDE have been conducted mostly in Western countries, and the highly consistent presence of NDE features could be due to the similar cultural background of Anglo-European respondents (Kellehear, 2009). This similarity among NDErs' accounts suggest a sort of universality of the phenomenon, but different studies describe a cultural influence on particular NDE elements between countries dominated by religions such as Christianity and Buddhism and areas characterized by the presence of primitive or animistic cults (Belanti et al., 2008, Corazza, 2008; Kellehear, 2009). Indeed, some features (such as visiting an unearthly world after death, seeing dead people, encountering religious figures like Jesus or Buddha, and having feeling of joy, euphoria or terror) have a history in the sacred scriptures of Western countries and religions (Masumian, 2009).

A comparison between Western NDEs and about 300 non-Western NDEs accounts¹ shown differences among cultures (Kellehear, 2009). The tunnel-like feature seems to be very common in Western NDEs, whilst Japanese NDEs typically include a river (Corazza, 2008). Other NDEs do not include any form of tunnel-like experience. Kellehear (2009) highlights that, in Western societies, "tunnel" could be a specific linguistic way to denote an experience of moving into the darkness, which is a cross-cultural feature.

Life reviews are reported only in Western and Asian countries (i.e., India and China). An interpretation of the presence of this feature has been associated with historic religions and search of identity. In historic religions², a juxtaposition occurs between the material and the divine spheres. In this vein, the materialistic world and the ego are usually devalued, and religious precepts suggest that people are responsible of their behaviors and their actions in front of the divine. Thus, people affiliated to these religions could try to cultivate and develop a moral self to deal with religion's demands, and a life-review during a NDE would be a way to self-evaluating their past thoughts and actions in a critical passage towards the divine world. On the other hand, members of Aboriginal and Pacific cultures do not feel the responsibility of their actions and

¹ Published in 16 refereed journal articles.

² Such as Christianity, Buddhism, Islam, and Hinduism.

thoughts, and they seem to be more easygoing and less self-judging toward themselves with respect to Western people. Thus, it is possible that they do not need any kind of review of their past in search of a sense of identity, as Western people do (Kellehear, 2009).

Finally, OBEs³ usually are not reported in African and Australian NDEs, even though this kind of experience is well known in these cultures, whilst cross-cultural features include the presence of supernatural beings and the sight of other worlds (Kellehear, 2009). These cultural variations could be due to different interpretations of the event and different ways to report it. Language, religious and cultural beliefs, and NDErs' expectations could have an effect on how people represent and share the episode (Belanti et al., 2008). Despite these differences, it seems that the core of NDE is shared by different cultures.

Although life risk is commonly believed to be a necessary condition for the emergence of NDE, this idea is not supported by all the registered cases of NDE-like experiences. NDE-like experiences have been observed also in individuals in serious health conditions, depressed, during isolation, after a psychological critical life event, in meditative condition, and in presence of the so-called "fear-death experiences" (Owens et al., 1990; Gabbard, 1991; Holden, 2009; van Lommel., 2010; Fenwick, 2012; Facco and Agrillo 2012; Charland-Verville et al., 2014).

The International Association for Near Death Studies (IANDS)⁴ states that the 25% of the accounts in its archives are reported by people who were not close to death or clinically dead at the time of their NDE. A recent study showed that there are no differences between NDE and NDE-like both in intensity and content of the experience (Charland-Verville et al., 2014). Independently of the health conditions of who lived this kind of experience, what defines a NDE (and distinguishes it from other experiences) is the pattern of perceptions that creates an identifiable general event.

Most reported NDEs present positive feelings, but also partially or entirely unpleasant experiences are recorded with an incidence rate of 3-15% (Bonenfant, 2001). Greyson and Bush (1992, 1996) classified 50 accounts of "distressing NDE" into three categories. The first one is similar in phenomenology to the typical peaceful NDE, but the experience could be misunderstood and interpreted as terrifying because people feel a loss of control on the situation. The second type involves a sense of nothingness or featureless void, and people could feel like their lives and the

³ Out of Body Experiences.

⁴ The International Association of Near Death Studies (IANDS) is a non-profit organization focused into providing high quality information about NDE-related subjects. IANDS' objective is to promote the exploration of NDE, their effects on people's lives, and their implications for beliefs about life, death, and human purpose (see iands.org).

world never existed. The third one includes hellish landscapes, with the presence of demons and/or a sense of eternal falling down in a dark pit. More recently, Rommer (2000) suggest a fourth and rare type, in which people are disturbed, terrified, and feel to be negatively judged during their life review. Distressing experiences seem to occur equally in NDEs, regardless of age, education, socioeconomic level, sexual orientation, religious/spiritual beliefs, and the way one goes close to death (Rommer, 2000). Actually, it is unknown why most people report a pleasant NDE and others a distressing one.

1.1.2 Aftereffects of Near Death Experience

Like other transcendent or traumatic experiences, NDE can lead people to a radical transformation. People who had a NDE can report alterations in their perception of the self, changes in their relationship with others, and new attitudes towards life and death (Noyes et al., 2009). It is remarkable that experiences that last just some minutes can lead to numerous effects similar to those produced by long psychotherapeutic interventions.

Some studies outlined both quantitatively and qualitatively typical effects emerging after a NDE. Groth-Marnat and Summer (1998) compared quantitatively NDErs and people who had a life-threatening episode without a NDE, by asking participants to fill a questionnaire and to indicate whether they had experienced any changes in a variety of domains, after their experience. Both groups reported a change after their life-threatening experience, but the amount of changes after a NDE has been significantly greater than the one reported by the noNDE group. Furthermore, it correlated positively with the self-rated degree of pleasantness and the depth of the experience. These changes have been corroborated by significant others.

These findings have been confirmed in a longitudinal study by Van Lommel et al. (2001). In this work, they point out that two years after their accidents, NDErs increase significantly their attitude in showing their feelings, they begin to be more emphatic, and to accept other people. They are more interested in understanding themselves, the others and the meaning of life. Moreover, they increase their belief in afterlife and decrease their fear of death, with respect to people who had a cardiac arrest without a NDE.

Some qualitatively studies investigate deeply the meaning making processes of NDE. After the experience people may need for a restructuration of their personal beliefs and values about issues

such as life and death, spirituality and religion, and the relationship with other people and the divine sphere (Morris and Knafl, 2003; Wilde and Murray, 2009).

NDErs usually attribute these changes to their firsthand experience. Many of them report that their "soul" have left their body during the experience and that they have been conscious of their death. This may lead to the belief that there is life after death and to a reevaluation of personal priorities (Noyes et al., 2009).

Recently, Greyson and Khanna (2014) point out that spiritual growth after NDE is associated with the depth of the experience. A strengthened spirituality has been associated with received messages and the characters met during NDEs (Morse and Perry, 1992). Many NDErs interpret these characters like mystical figures who sent them back into their body to accomplish some higher purpose in life. This leads people to feel they are important and to have a mission on earth, so they could have a feeling of heightened self-esteem and start a new search of meaning in life. NDErs seem to be no longer concerned about their social status or material gain, and they focus on living the life in, and display a heightened awareness of, the present moment, without the distraction of concern for the future. As a manifestation of their spiritual growth and their new search of meaning and knowledge, many NDErs may invest more time in praying, meditating, and studying world religions, but this change does not necessarily coincide with a greater affiliation with religious institutions. These activities could appear meaningless for NDErs, with respect to their spiritual path. Nevertheless, some experiencers report a greater participation to institutional religious practices and activities (Noyes et al., 2009). Indeed, a study points out a positive correlation between the increase in the relevance of religion and the depth of the NDE (Steven McLaughlin and Newton Malony, 1984).

After both a pleasurable and distressing NDE, some negative aftereffects can occur. People sometimes change their worldview and have difficulties in accommodating their experience to their daily life (Noyes et al., 2009). In these cases, we may observe interruptions of work careers, broken relationships and divorces due to changes in NDErs' beliefs and values. People can feel depressed, confused, they can doubt about their mental sanity for what they lived, and they can think of being unable to function in the ordinary world (Bush, 1991; Morris and Knafl, 2003).

1.1.3 Explicative models for NDE

In 1975, Moody studied the experiences of one hundred people who had been close to death, and he provided a first description of NDE's features. After that, a number of neuroscientists, psychologists and philosophers, have tried to build up possible explanations in order to match scientific knowledge to NDE accounts. NDEs and their particular features represent a phenomenon that challenge the ordinary models used by many people and scientists to interpret the world. Notwithstanding the progress in the last 40 years in the study of NDEs (Sleutjes et al., 2014), it is still not clear how they are produced, and an universal agreement on which is the best explanatory model for understanding such phenomena is not accomplished (Greyson et al., 2009).

In spite of the open discussions about incidence, features, and aftereffects of NDE, the most controversial issue posed by such experience concerns its ontological status. Indeed, some particular NDE features⁵ can easily open many questions about the effective reality of what people lived, the relationship between brain and consciousness, and the existence of life after death (Dell'Olio, 2010; van Lommel, 2013).

Dell'Olio (2010) suggests that there are rational reasons in believing that NDEs are veridical as any other experience, but accepting NDE as something real could be a threat to our dominant naturalistic and materialistic worldview. Indeed, accepting NDE as an authentic experience has many implications in our conception of the reality (Dell'Olio, 2010; Facco & Agrillo, 2012; Facco et al., 2015; van Lommel, 2013). For example, the current dominant scientific paradigm has a monistic and materialistic conception of reality, and, in this perspective, our mind is a product of neural processes and humans can just have experience of the physical world in which they live. It follows that if we consider NDE as a something that actually happens, it means that our idea of reality should go further than classical physical conception of a materialistic universe, and that our conception of mind should change, including something that will continue in another form and/or in another dimension after bodily death. On the other side, many people could think that our scientific knowledge is sufficiently developed to interpret NDE, and that it is more reasonable to find alternative explanations instead of giving up materialism. This may lead to the idea that NDE represents just a condition of altered state of consciousness, like a dream or a hallucination (Dell'Olio, 2010; Facco & Agrillo, 2012).

⁵ For example: having an out of body experiences (OBEs), traveling into an unearthly realm, encountering and communicating with deceased people.

Within a philosophical perspective, Dell'Olio (2010) argues that there are good reasons to believe that NDE are veridical experiences, and that these phenomena provide elements that reasonably support beliefs in life after death. The author claims that, in order to be considered authentic, an experience must occur in optimal conditions, it need to be repeatable by other people in the same condition, there must be an agreement among people (in the same position) who experienced the same thing, and there must be at least a sense of phenomenological certainty of the experience. These features seem to apply to near-death experiences. Indeed, proximity of NDErs to death provides an optimal condition for the experience of early phase of death. Then, many people in the same condition (i.e. cardiac arrest and clinical death) reported this kind of experience, and there is a certain accord among accounts with respect to NDE's features. Finally, many NDErs reported the same sense of certainty about their experience, claiming that their experiences were at least as real as their daily-life experiences, and in some cases even realer.

Even though a first person perspective seems to support reality of NDE, the interpretation of NDE in a third person perspective raises many problematic issues, as it is a subjective experience occurring during a state of apparent unconsciousness, which hypothetically overlaps the death of the experiencers. We cannot observe directly NDE in a third person perspective, but many researchers assume that this experience occurs while people are classified as clinically dead, as reported by who lived this experience. Nevertheless, it is not possible to identify the precise moment in which an individual is living an NDE, and it could take place just before people death, or just after their resuscitation. Moreover, neither the exact moment of biological death cannot be determined. Not even a flat electroencephalogram (EEG) can be considered an evidence of brain inactivity because it measures just the surface brain functioning, so it would not be indicative of full-brain inactivity and some part of brain could be still working (Agrillo, 2011; Braithwaite, 2008). Thus, even when people is classified as "clinical dead", having no blood circulation, fixed dilated pupils and cessation of breathing, it not possible to determine the precise moment of the biological death and the termination of all biological functions, thus, we cannot know if during a NDE there is any biological activity (Agrillo, 2011).

Agrillo (2011) identifies two different theoretical frameworks used by researchers to interpret NDE. For the author, the main issue does not concern whether something will continue and survive after bodily death, but it concerns whether NDE is a phenomenon that could be fully explained as an amount of processes occurring within the brain or not. The first perspective includes the

"reductionist" theories, and it argues that NDE is epiphenomenon, and it can be explained by biological and/or psychological mechanisms, occurring in a dying brain, such as a metabolic breakdown, specific altered mental states, or psychological suggestions generated ex post facto. This approach supports a monistic view of reality, in which mind is conceived as a product of biological processes, and it cannot be separated from brain activities. The second perspective includes the so-called "survivalist" theories, in which NDE is intended as a complex phenomenon that cannot be explained just by biological and psychological components. The survivalist interpretation of the phenomenon presupposes that consciousness could continue to exist out of the brain, after bodily death, and that processes out of the brain should be taken into account to explain NDEs. This approach sustains a dualistic view of reality, in which mind and body are separated (Agrillo, 2011; Braithwaite, 2008; Facco et al., 2015; von Lommel, 2013).

From a reductionist point of view, the features of NDE can be interpreted as a consequence of brain functional changes during the dying process, due to psychological or physiological causes. Some theories claim that NDEs could be just a product of expectancy or a psychological reaction to the imminent threat of death (Noyes & Kletti, 1976), like hallucinations (Shermer, 2013) or false memories (French, 2001). These interpretations are based on cultural and personal differences in NDEs accounts, which could support the idea of a pure psychological construction of the experience. Nevertheless, there are some relevant elements that do not fit with this interpretation, like common core experiences among different cultures (Kellehear, 2009), similar features reported by adults and young children who could not have expectations about death, (Gabbard & Twemlow, 1984; Morse et al., 1986; Sutherland, 2009), and NDEs accounts that diverged from expectations of individuals who had them (Abramovitch, 1988). Moreover, people who had no prior information about NDEs reported similar features to the ones experienced by NDErs who were familiar with this phenomenon (Greyson and Stevenson, 1980). Furthermore, there is evidence of NDE-like experiences without any threat of death (Facco and Agrillo, 2012). Many researchers tried to identify different biochemical and neurological mechanisms to explain the occurrence of each NDE feature. Lempert et al. (1994) claim that NDE could be interpreted as a hallucination produced by a diminished supply of oxygen to the brain (anoxia). In their study, the authors induced a syncope⁶, which lasted up to 22 seconds, in healthy people, and they

⁶ Researchers induced a brief loss of consciousness by hyperventilation and Valsalva manoeuvre, which cause a sudden lowering of the blood pressure and a disruption in the sustained oxygen supply to the brain.

observed NDE-like perceptions as OBE, visual and audial perceptions, feelings of peace, presence of light, entering another world, encountering other people and a tunnel. In this vein, another theory is based on accounts of people treated with a carbon dioxide therapy (Meduna, 1950). They also reported features that occur during a NDE, such as OBE, bright light, tunnel vision, feeling of love, and harmony with God. Recently, Klemenc-Ketis et al. (2010) investigated this possibility and they found out that NDEs occur more often in people with higher levels of carbon dioxide.

The main idea of this stream of research is that anoxia can induce neural disinhibition in specific brain areas. The limbic system is associated with emotion processes and memory and its activation could underlie the life reviews occurring during NDEs (Blackmore, 1996). Then, the temporal lobe is involved in mystical experiences and its stimulation could generate hallucinations, flashbacks, and OBEs (Penfield, 1955). Britton and Botzin (2001) investigated brain functioning in people who had a NDE, and they suggested that NDErs differ from general population in the temporal lobe functioning. Other physiological theories claim that the release of endorphins or other endogenous substances during stress episodes may produce feelings of well-being like during a NDE (Blackmore, 1993).

A typical argumentation against the reductionist perspective sustains that the correlation between NDE features and brain activity does not mean anything about the cause and the development of the phenomenon, and survivalist researchers point out that NDE-like features rising from brain stimulations do not match with authentic NDE features and aftereffects (Agrillo, 2011). Indeed, even if a flat EEG does not mean for sure that all the brain is not working, it indicates the absence of the conditions that are necessary for any conscious experience, and people who had a NDE reported an enhanced mental activity, when we would expect such activity to be severely compromised. Moreover, Kellehear (2009) suggests that differences in NDE accounts among people and cultures prove that any biological interpretation can assess completely the phenomenon.

The survivalist perspective offers a different interpretation of NDE. In this case, a “dualistic” perspective is upheld: consciousness may be separable from the brain activity, and hence mind would persist out of the brain and survive bodily death (van Lommel, 2013).

In support of this position, authors underline specific characteristics of NDE that are incompatible with a reductionist interpretation: apparently non-physical veridical NDE perceptions (APVs;

Holden, 2009), visions of deceased persons not known to be deceased, clear memory, and conviction that the experience is more real than ordinary ones (Greyson, 2010).

APVs are perceptions reported by NDErs that are later corroborated by other people. Considering the situation in which they occur, these perceptions would not be the result of normal sensorial processing or logical inference taking place before, during, or after a NDE. For example, people are able to describe in detail what happened during surgery, while they were unconscious, and to obtain information about secretly hidden or lost objects and documents. Moreover, during their NDE, people can encounter someone whom they did not know to be deceased at that time. These features suggest that NDErs can have perception of an objective reality that might be confirmed, and they would support the idea that consciousness is capable of functioning apart from the physical body, and hence after clinical and biological death (Holden, 2009).

NDErs usually have clear memories and they report an extremely vivid experience. From a survivalist perspective, many authors claim that a dying brain is too unstable to store a lucid hallucination like a NDE. NDEs' memories have been shown to be unchanged over a period of two decades, differently from other kind of trauma-related memories (Greyson, 2007). Moreover, recent studies have showed that NDE memories contain more characteristics than real event and coma recalls, and imagined events. Researchers concluded that NDE memories cannot be considered as imagined event recalls and, at a neural level, they are stored as episodic memories of events experienced in a non-ordinary state of consciousness. (Thonnard et al., 2013; Palmieri et al., 2014). If stability and details of recalls could potentially support the survivalist perspective, there is a controversial issue with regard to NDEs' remembrances storing. Braithwaite (2008) pointed out that, in order to have a stored memory of any experience, there should be enough neural activity to encode and represent the memory itself to be remembered, and this could indicate that NDEs occur while the brain is still working.

Different models have been proposed to interpret NDE, but the debate is still open. Reductionist researchers argue that the NDE is a product of biological mechanisms in a dying brain and that a flat EEG does not imply that deeper brain structures are damaged (thus during a NDE the brain may be partially working). Another arguments offered by reductionists is that NDE-like features can be simulated through brain stimulation and other techniques. In this perspective, recalls of NDE are indicators of a brain that is still working. Moreover, NDErs could have hallucinations or perceive something, and then create visual recalls or false memories based on their wishes before

death. On the other hand, survivalist researchers argue that correlation between biological mechanism occurrence and NDE does not suggest anything about the cause and the development of the phenomenon. Moreover, they sustain that even though a flat EEG is not an index of full inactivity, cortical activity represents a necessary condition of conscious experience, thus only activities of deeper brain structures cannot explain the enhanced mental clarity and clear memories reported by NDErs. Within a survivalist interpretation, experiences simulated in lab through brain stimulation do not match with NDE, and some of the figures perceived by NDE are not related to people wishes or expectations. Moreover, there are some cases of blind people reporting visual experiences, and a number of apparently non-physical veridical NDE perceptions that have been later corroborated by independent informants (Agrillo, 2011). Each perspectives focus on specific features and a general model who combines and put together all data has not been accomplished yet.

1.1.4 Conclusions

People who are interviewed about their NDE usually are convinced that they lived this experience for real, and NDE data are usually based on people's reports. This kind of data have been useful to identify and describe NDE phenomenology, but they could not be enough to create an objective knowledge on the nature of this phenomenon. Recently, many researchers investigated physiological and psychological features of NDEr and noNDErs⁷ and focused on the differences among groups in order to test hypotheses and detect objective information that could explain this experience in a third person perspective. Usually psychological self-report measures have been used in these researches to assess NDE aftereffects (e.g., van Lommel et al., 2001; Greyson and Khanna, 2014), and recently some physiological measures have been adopted to compare NDErs and noNDErs (e.g., Klemenc-Ketis et al., 2010; Palmieri et al., 2014). Although the controversies about the NDE reality, it is remarkable that there are no researches using implicit measures⁸ to study psychological NDE features and aftereffects, in order to reduce participants' bias and to obtain more objective data. Indeed, self-report measures could be influenced by the meanings that people attribute to NDE. In this vein, NDErs could attribute specific meaning to their experience

⁷ People who did not have a NDE.

⁸ Implicit measures have been defined as a method to investigate unconscious representation, in which participants are unaware of what is being assessed, and, more in general, in a procedure that does not affect participants' responses (Reis & Judd, 2014).

and think that they have to react or behave in some specific way, in order to fit the new role of a person who had a life-threatening experience and report to have seen something beyond life. It follows that this new image of themselves could lead NDErs to show transformations that may depend just on the meanings they associate to their experience, regardless of the reality of their NDE, because they lived it as a real one at a phenomenological level (Palmieri et al., 2014). Implicit measures can help researchers in investigating psychological features of NDErs in a third person perspective, without biases generated by people's ideas about this experience (like for physiological measures). In this vein, finding psychological differences between NDErs and noNDErs, beyond the level of conscious thoughts and meanings, would be a precious information about near-death experience since it would represent a more objective proof (in a third person perspective) that something actually happened deeply in people psychological structure, beyond their opinions and convictions about NDE.

In this study, for the first time, both psychological self-report and implicit measures will be adopted in order to explore NDE aftereffects and NDErs' orientation toward death.

1.2 Death Anxiety

1.2.1 Death anxiety features

Fear of death is a universal characteristic in the human condition. Humans are capable of abstract thinking and self-awareness, and so they have the cognitive capacities to contemplate their own and others' death. The juxtaposition of the biological inclination toward self-preservation with the awareness of own mortality produces psychological reactions that produce fear of death (Becker, 1973). The term "*Death anxiety*"⁹ is usually applied to conceptualize these fearful reactions generated by the awareness of death (Lehto & Stein, 2009).

Death anxiety is a multidimensional construct related to the awareness of death and dying, and many authors proposed different models aimed at describing and interpreting this human condition (Becker, 1973; Florian & Krevetz, 1983, Greenberg et al., 1986; Kelly, 1955; Neimeyer, 1994; Yalom, 1980). Lehto and Stein (2009), in their recent review, described death anxiety as including cognitive, emotional and motivational components, and as being affected by developmental stage

⁹ Usually (as in this work) the term "*fear of death*" has been used as synonymous. Nevertheless, "fear" and "anxiety" have also been distinguished. Death anxiety refers to a complete annihilation and it is related to a mental or spiritual awareness of the loss of existence, whilst fear of death refers more to beliefs that death is frightening and it is related to physical aspects of death (Cicirelli, 2006).

and sociocultural variables. In a neuro-psychological perspective, they highlighted the role of different brain structures associated with implicit (nonconscious) and explicit (conscious) fear memories. In the case of death threat, these structures would be activated simultaneously, leading to emotional reactions to death that include both unconscious and conscious features (Florian et al., 1984; LeDoux, 2008; Greenberg et al., 1994). Nevertheless, experientially, death anxiety usually is not a part of conscious experience and many studies, grounded on Terror Management Theory (see paragraph 1.3), showed that a reminder of death leads to an enhanced awareness of death and consequently to an increment of death anxiety (For a review see Burke et al., 2010). When people are reminded of their mortality, they activate defenses such as distraction or repression to deal with threatening thoughts. These defenses can hold the fear of death out of awareness, but the repressed death concerns can unconsciously influence cognitions, affects, and behaviors, as they operate below the level of awareness. Therefore, a split between implicit and explicit reactions to death occurs, and a differentiation between conscious and unconscious death anxiety is needed, because discrepancies can exist between these manifestations. Some death-related concerns could appear below the level of awareness, while they cannot be found in a person's conscious report. (Mikulincer & Florian, 2007; Pyszczynski et al., 1999).

Cognitive representations, meanings relative to death, and attitudes toward death and dying can affect the perceived threat of death and, consequently, emotional arousal and coping strategies. In a constructivist perspective, death is incompatible with living, but it can be integrated into people's core cognitive structures, generating images and ideas regarding the dying process, and beliefs about death, the self and others after death, that can influence general reactions and attitudes toward death (Kelly, 1995; Neimeyer et al., 2002). Developed throughout cumulative life experiences, death attitudes may predict human reactions to death better than other socio-demographic variables (Neimeyer et al., 2004). For example, beliefs in afterlife represent a variable that explain the relationship between religiosity and death anxiety (Fortner & Neimeyer, 1999). Another example of cognitive component that affects death anxiety is represented by the tendency in anticipating a state in which the self does not exist anymore. By anticipating the future, people activate a death reminder that can generate to an increase of death anxiety (Tomer & Eliason, 1996).

Some socio-demographical variables are predictors of the levels of death anxiety. Age and gender resulted to be significant variables in affecting death anxiety, which has a peak in younger adults

(during their 20s), decreases in later adulthood, and then stabilizes in elderly people (Cicirelli, 1998; Fortner & Neimeyer, 1999; Russac et al., 2007). Women usually have greater fear of death than men, and middle-aged women display a peak of high fear of death during their 50s (Cicirelli, 1998; Pierce Jr et al., 2007; Russac et al., 2007).

Meanings related to death are different among cultures, thus sociocultural context is another factor that can potentially affect death anxiety (Kubler-Ross, 2002). In Western societies, for example, death is often denied, and reminders of death such as disability, aging, illness are usually avoided in order to reduce death awareness and then death anxiety (Martz & Livneh, 2003; Schumaker et al., 1988). Other studies observed some differences in the levels of death anxiety among different populations. Abdel-Khalek and Tomas-Sabado (2005) used three scales to assess death anxiety and found that Egyptian female students exhibit lower death anxiety in comparison with Spanish participants. In another study, Japanese respondents report higher death anxiety scores than Australian ones. Moreover, into the Australian group emerged a gap between women, and men (the former shown higher levels of death anxiety), where in the Japanese sample no gender-based difference has been registered (Schumaker et al., 1991). These findings demonstrate that there could be differences among populations in dealing with death concerns.

Religious affiliation could represent another dimension affecting death anxiety levels. The structure of meanings offered by a religion may protect people by fear of death, for example, by supporting the existence of an afterlife, and reducing anxiety related to this inevitable event (Harding et al., 2005; Vail et al., 2010). In a recent study, Christians, Muslims, and non-religious people have been compared and the groups differed in death anxiety levels. Christians reported the lowest level of fear of death followed by non-religious group, and Muslims reported the highest one (Morris & McAdie, 2009). These findings suggest that religions, and their meanings, could moderate the attitude toward death.

Even though fear of death is a common aspect of human life, which is initiated by the awareness of one's own death, some conditions may contribute to highlight awareness of humans' mortality and to alter levels of death anxiety (Lehto & Stein, 2009). For example, higher levels of death anxiety have been found in people living in a stressful environment, such as following an invasion in their country (Abdel-Khalek, 2004). Moreover, diagnosis of a life-threatening disease can increase death anxiety. In a study with young men affected by Hodgkin's disease or testicular cancer, more recently diagnosed individuals reported higher levels of death anxiety (Cella & Tross,

1987). In a qualitative study, Adelbratt and Strang (2000) founded out that patients with brain tumors felt a constant sense of threat and tried to avoid death thoughts, but their symptoms worked as a reminder activating death anxiety. Others terminally ill patients scored low in death anxiety measures, indicating a process of acceptance of the inevitability of death that are related to beliefs of a rewarding afterlife (Smith et al., 1983-1984).

1.2.2 Models and measures of orientations toward death

Death anxiety has been measured using numerous self-report inventories, and the conceptualization and operationalization of the fear of death have been often ambiguous and contradictory (Mikulincer & Florian, 2007). Many tools are self-report scale based on a unidimensional conceptualization of death anxiety, in which all the items are averaged in a single score without any differentiation among fear of one's own death, fear of the dying process or fear of the death of others, etc. (Templer, 1970; Conte et al., 1982). Nevertheless, other scholars proposed multifaceted ways to assess different components of death attitude (Collett & Lester, 1969; Florian & Kravetz, 1983; Hoelter, 1979; Wittkowski, 2001).

The Death Anxiety Scale (DAS; Templer, 1970) is one of the most used scales and it is based on an unidimensional conception of fear of death, although recently a two-factors structure that includes a psychological (internal) and a life experience (external) component of fear of death has been introduced (Tomer, 1992).

The Death Anxiety Questionnaire (DAQ; Conte et al., 1982) contains items that cover a wide range of attitudes towards dying and death, such as fear of the unknown, suffering, loneliness, and personal extinction. Even though the items are organized in different factors, the authors suggested a unitary score, which is obtained by summarizing all single items' scores.

The Collett-Lester Fear of Death Scale is based on a bi-dimensional model, in which fear of death itself is distinguished from fear of dying, and fear of personal death is distinguished from fear of others' death (Collett & Lester; 1969).

Hoelter (1979) suggested a number of meanings that people can associate to their own death, that include concerns related to the decay of their body, the failure to complete life goals, the sufferance of their families and friends, and the worries about what happens after one's own death. The author proposed the Multidimensional Fear of Death Scale (MFODS), which is based on eight factors:

fear of the dying process, fear of the dead, fear of being destroyed, fear for significant others, fear of the unknown, fear of conscious death, fear for body after death, and fear of premature death.

Florian and Kravetz (1983) proposed the Fear of Personal Death Scale (FPDS), a self-report questionnaire based on a tri-dimensional model of the fear of death that includes intrapersonal, interpersonal, and transpersonal meanings that people can attribute to their own death. The intrapersonal aspect contains concerns about the consequences of death for one's mind and body, and includes two factors related to fear of loss of self-fulfilment and self-annihilation. The interpersonal component comprises concerns related to the hurting effects of one's own death on interpersonal interactions and close relationships, and contains two other factors related to the fear of loss of social identity and the consequences to others. The transpersonal dimension includes personal worries related to what will happen to oneself after death, and it also consists of two factor that are related to the fear of the transcendental unknown consequences of death, and the fear to receive a punishment.

Wong, Reker and Gesser underlined that inclinations toward death and dying do not need to be negative, and they developed a five-factors-based instrument including three subscales related to death acceptance, a measure of fear of death, and a factor related to death avoidance (Gesser et al., 1988; Wong et al., 1994).

More recently, Wittowski (2001) provided the Multidimensional Orientation toward Dying and Death Inventory (MODDI-F) as an expansion of Collett and Lester's model. The author adds the distinction between fear and acceptance as a crucial issue to understand people's dispositions toward death and dying. The MODDI-F is grounded on a factor-analytically-based model that includes three dimensions: fear-acceptance, death-dying, self-others.

Because death anxiety may be unconscious, researchers have developed different way to assess implicit death anxiety. Implicit Association Test (IAT) has been applied measuring death valence (bad vs. good), death anxiety (anxious vs. calm), and denial (others vs. self) (Bassett & Dabbs, 2003).

Florian (et al., 1984) created a rating scale to analyze four Thematic Apperception Task (TAT) cards that are related to death. Participants' responses were content analyzed and coded along six scales that include the centrality of death, denial, depression, anxiety, aggression, and guilt.

A procedure to assess reactions to death stimuli has been developed (see paragraph 1.3), starting from the assumptions of Terror Management Theory (Greenberg et al., 1986; Pyszczynski et al.,

1999), In this vein, people are primed with death-related contents (mortality salience condition) and then they complete a task to assess cognitive, behavioral, and affective variables. Participants' responses are compared with a control group, which is exposed to a neutral or negative (but not death-related) prime, in order to highlight differences between reactions to death-related stimuli and other, even negative, stimuli (For a review see Burke, 2010). This last procedure has been applied in hundreds experiments and it is grounded on a solid theoretical framework. In the following paragraphs, Terror Management Theory will be introduced and then integrated to the literature on NDE (see paragraph 1.4.3), in order to reconstruct the theoretical background that guides this investigation of unconscious attitude toward death in people who had a NDE.

1.3 Terror Management Theory

1.3.1 Theoretical background

Terror Management Theory (TMT) proposes a theoretical framework for studying the effects of death concerns on human behaviors and cognitions (Greenberg, Pyszczynski, & Solomon, 1986). TMT is supported by over 400 empirical study conducted in 16 countries, and it is rooted on insights outlined by Becker's multidisciplinary work (1973), in which anthropology, evolutionary biology, philosophy, psychoanalysis, and sociology have been combined. TMT posits that humans are animals oriented toward self-preservation, and they have cognitive abilities of self-reflection, causal analysis, and future anticipation that permit awareness of the inevitability of death. The juxtaposition of death awareness and the instinct of self-preservation generate a status of anxiety, and terror that must be managed continuously (Greenberg & Arndt, 2011).

TMT provides a dual process model that describes distinct reactions toward conscious and nonconscious, but accessible, death thoughts (Pyszczynski et al., 1999). When death thoughts are under focal attention, at a conscious level, *proximal defences* arise: people apply avoidant or proactive strategies, either consciously or unconsciously, to deny, suppress, or distract themselves from death-related concerns and put any death thoughts out of consciousness. As time goes by or after a subliminal/supraliminal induction, death thoughts go out from focal attention, but they still remain active at an unconscious level, increasing death anxiety. Anxiety is managed by sustaining values, beliefs, and meanings that deny the transient and precarious nature of human existence. This process may takes place either literally, such as believing in reincarnation or afterlife, or symbolically, such as believing that some valued parts of themselves will continue after their

biological cessation, having children, amassing great fortunes, or being part of a great tribe or nation that will continue after one's own death (Lifton, 1973; Martin, 1999). Cultural worldviews serve to this function by providing a system of values and meanings that put order in the world (Greenberg et al., 1992). Thus, people are motivated to maintain faith in their cultural worldview and to satisfy cultural prescriptions, in order to be a valuable contributor to a meaningful universe (that is how TMT conceptualizes self-esteem; Greenberg & Arndt, 2011). As culture and self-esteem (cultural-based) serve an anxiety-buffering function and protect people from the terror of death, people strive for self-esteem and defend their cultural worldview (Solomon et al., 1991).

TMT researchers pointed out that after a conscious contemplation of one's own death, people act in order to suppress death thoughts and prevent death anxiety. This process of suppression reduces the presence of death thoughts at conscious level, but suppressed concerns become more accessible at an unconscious level after a delay, when suppressive activities cease (Wegner, 1994). The increase in the death-thought accessibility (DTA) at unconscious level cannot be managed through avoidant or proactive strategies (such as suppression or healthy behaviors aimed at postponing death), and people must deal with anxiety by applying automatic defensive mechanisms, which are worldview defense and self-esteem striving. Thus, proximal defenses arise to reduce death concerns, resulting in a reduction of DTA, and distal defenses emerge as DTA increase at unconscious level (see Hayes et al., 2010 for a review). Using a specific method to assess DTA (see paragraph 2.2.4), Greenberg et al. (1994) demonstrated that reminding people's mortality provokes immediate death-thought suppression and low DTA, whilst after a delay DTA increases. From these assumptions, TMT authors derived testable hypotheses that find evidence in hundreds of studies (Greenberg & Arndt, 2011):

a) Reminding people of their mortality¹⁰ lead immediately to avoidant strategies (proximal defenses), and, after a delay, to striving for self-esteem and increasing defensive reactions for their worldview (distal defenses). A study that assesses both proximal and distal defenses illustrates this distinction, and found that these defenses can work in an opposite way. Participants have been reminded of their death, and then answered question about their intentions to suntan. They reported lower intentions to suntan immediately after a death reminder (that represents a condition of mortality salience - MS), suggesting that they were trying to reduce their vulnerability and the threat for health. After a delay, participants increased their intentions to tan, showing an effort to

¹⁰ Putting individuals in a condition of Mortality Salience (MS).

bolster their self-esteem based on contemporary beauty models (Greenberg & Arndt, 2008). In people who sustain specific values, death reminders enhance the demonstration of these values, such as: displaying physical strength, focusing on appearance, desire for fame and wealth, and increase in donations to valued charities (Greenberg et al., 2008). Moreover, death reminders lead to positive reactions toward one's own cultural worldview and others people who support it, and, at the same time, negative reactions toward those who challenge one's own perspective or sustain another worldview. For example, Christians have been found to have more favorable reactions toward Christian fellows and a less favorable attitude toward Jewish targets (Greenberg et al., 1992).

b) The reinforcement of anxiety-buffering structures (cultural worldview and self-esteem) reduce anxiety, defensive reactions in response to death reminders, and death-thought accessibility (Harmon-Jones et al., 1997). Boosting self-esteem reduces self-reported anxiety in response to death stimuli, and physiological arousal in response to the threat of physical pain (Greenberg et al., 1993; Greenberg, et al., 1992). Moreover, when people have the opportunity to defend their cultural worldview or enhance their self-esteem after MS, observed DTA does not differ among people who are and who are not reminded of their mortality (Arndt et al., 1997; Mikulincer & Florian, 2002).

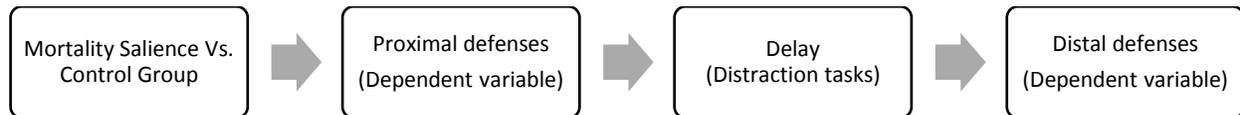
c) Threatening anxiety-buffering structures increase anxiety and bring death-related material close to consciousness (Hayes et al., 2010; Schimel et al., 2007). For example, after being exposed to anti-creationist arguments, religious people who believe in creationism report higher levels of DTA, with respect to who believe in evolutionism, indicating that the threat of one's own worldview increase the activation of death-related concerns (Schimel et al., 2007).

1.3.2 Empirical features of TMT studies

Several studies have tested and corroborated TMT assumptions, by operationalizing all the concepts included in the theory in a variety of ways (Burke et al., 2010; Greenberg & Arndt, 2011). Prototypical TMT experiments consist in a comparison between groups to assess the differences in the psychological reactions (proximal and distal defenses) to death stimuli. In these experiments, subjects in the treated (experimental) group are assigned to the so-called "*mortality salience*" (MS) condition, through which subjects are exposed to death stimuli, and that represents the independent variable. Proximal defenses (dependent variable) are observed immediately after the death

reminder, whilst distal defenses (dependent variable) are assessed after a delay (usually a distraction task), when death-thoughts induced by the manipulation are no longer in focal attention but still active unconsciously (see Figure 1).

Figure 1. TMT experimental structure



Under MS condition, death-related concerns are activated in a number of ways. To induce MS, the majority of the studies used the Mortality Attitudes Personality Survey (Rosenblatt et al., 1989). This survey consists of two open-ended questions asking people to write about what would happen during their own death and their emotions when they think about this event. Other MS manipulations include subliminal primes, in which during a computer task death-related words are flashed for a matter of milliseconds, so people cannot perceive consciously the stimulus. Other studies used specific death anxiety scales, such as DAS, DAQ or FPDS (see paragraph 1.2.2), which assess attitudes toward death and dying by inducing conscious contemplation of death. Finally, another way to manipulate MS includes material related to death, such as videos, slides, imagines or stories, or being closed to a cemetery. There are no significant differences among MS manipulations in producing the activation of psychological defenses (Burke et al., 2010).

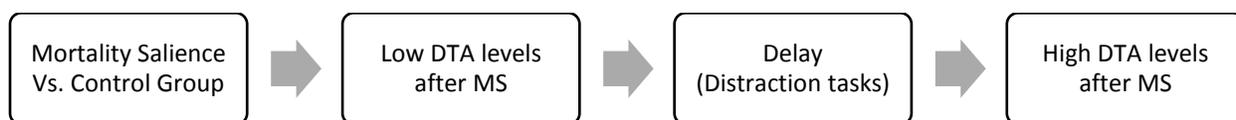
In the control group, participants usually receive other negative primes related to physical pain, dental pain, social anxiety, social exclusion, or non-negative manipulations related to food preferences, watching TV, listening to music, etc.. It is interesting to notice that the estimated effects of MS treatments do not vary in statistically significant way according to the treatment administered to the control group. More specifically, MS effect is robust to the use of either negative or nonnegative topics in the control conditions. This suggests that death owns something qualitatively different from other threats. The only category of control topic that has shown a reduction of MS effect concerns “meaning threat”, suggesting that this topic may involve mechanisms similar to death ones (Burke et al., 2010). Nevertheless, evidence suggest that conscious death reminders constitute a unique psychological threat (Hayes et al., 2010).

The delay between MS induction and the dependent variable is necessary to observe distal defenses¹¹. Typically, participants have to complete a task (or more than one), such as completing a questionnaire or solving a puzzle. In the majority of cases, the delay task is a mood checklist (such as the Positive and Negative Affective Schedule; PANAS; Watson et al., 1988), but may include also innocuous filler surveys or word search puzzles (Burke et al., 2010). Usually, mood checklists serve also to assess any affective reactions to MS inductions that could explain MS effect (Rosenblatt et al., 1989). Experiments with multiple delay tasks or with longer delays produce significantly larger MS effects than experiments with a single or shorter delay task or no delays at all (Burke et al., 2010). Thus, as time goes by and people get distracted from death-related thoughts, the more these concerns operate at unconscious level, the higher is the distal defenses activation.

The dependent variable has been assessed in several ways in order to catch the various effects of worldview defense and self-esteem striving. Dependent variables used in previous studies are: attitudes toward elements (other individuals, countries, ideas, behaviors etc.) that may threaten or support a specific worldview; specific behaviors, such as seat choice, smoking, donation charity, or driving speed in a simulator; cognition related to worldview and self-esteem, such as confirmation bias or self-serving attributions; affect or mood in response to an event that threatens one's worldview (Burke et al., 2010).

Another typical way that has been used to assess MS effect is evaluating DTA levels (Hayes et al., 2010). As reported above, MS induction (and anxiety-buffering structures threats) generates an increase of death concerns presence that need to be managed in order to reduce anxiety. If death concerns appear at conscious level, people activate proximal defenses, and lower DTA levels can be observed. After a delay, people activate distal defenses because suppressed death concerns become accessible at unconscious level, and DTA levels increase (see Figure 2).

Figure 2. TMT experimental structure focused on DTA levels



¹¹ Distal defenses are based on anxiety-buffering functions of cultural worldview and self-esteem, and they arise when death concerns are out of consciousness.

Typically, DTA is assessed by a word-stem completion task (see paragraph 2.2.4). An example can be making a word from “C O F F _ _”. People would be more likely to write “*coffee*”, if they have been exposed to a neutral stimuli, or “*coffin*”, if they have treated with death stimuli. In this way, the number of reported death-related words are a reliable measure of individuals’ DTA level (Greenberg et al., 1994).

1.4 Connecting the dots: loss of fear of death after a NDE

1.4.1 Loss of fear of death and interpretations of the process

In the previous paragraphs, we described NDE as a phenomenon in which individuals live an extraordinary experience that includes several features and leads to deep psychological and social aftereffects. Moreover, we introduced the concept of “death anxiety” and then we focused on TMT, as a specific paradigm in which both conscious and unconscious reactions toward death are investigated.

Death anxiety is generally considered a fundamental part of human condition, but it seems that who had a NDE develop a new orientation toward death and could reduce or eliminate their own fear of death. Changes on death-attitude cannot be explained just by the experience of being close to death, as people who lived a life-threatening episode without a NDE did not exhibit the same transformation. Thus, NDE necessarily contains specific elements that provide a basis for instantaneous transformations that produce a reduction of death anxiety (Tassell-Matamua & Lindsay, 2016).

Many researchers, using qualitative approaches, found that NDErs report a reduction of fear of death from 80% to 100% of the cases, after their experience, whilst a decrease of death anxiety is reported in a range from 2% to 42% in people who had been close to death without a NDE (Flynn, 1986; Sabom, 1982; Sutherland, 1982; Ring, 1984). Moreover, NDErs scored lower in fear of death, than control groups in a number of quantitative studies (Greyson, 1992, 1994; Groth-Marnat & Summer, 1998; von Lommel et al., 2001). Interestingly, Greyson (1992) found that death threat¹² correlates negatively with NDE depth, suggesting that a deeper NDE could lead to a greater reduction of death threat. Then, using the Death Attitude Profile (Gesser et al., 1987-1988; Wong

¹² Death threat was assessed using the Threat Index (Krieger et al., 1974; Neimeyer et al., 1983). Death threat is operationalized as the disposition of an individual to place one’s own self and one’s own death on the same poles of a group of bipolar construct (e.g. predictable-random, empty-meaningful, bad-good, etc.). Death threat is represented by the discrepancy between self and death.

et al., 1994), a quantitative study reported higher levels of approach-oriented acceptance of death in NDErs, indicating that NDErs represent death as a transition to a pleasant state (Greyson, 2003). Even though it is well known that NDErs generally report lower fear of death after their NDE, further researches are needed to understand how death anxiety may be related to other NDE aftereffects and how NDErs reduce their fear of death (Tassell-Matamua & Lindsay, 2016). There are no empirical studies focusing on the processes underlying changes in death attitude, but a number of scholars attributes this loss to a strengthened belief in the afterlife, and to representations of death as a passage to another phase of the existence, rather than pure annihilation (Greyson & Stevenson, 1980; Moody, 1975; Ring, 1984; van Lommel et al, 2001). Nevertheless, it is not yet clear whether strengthened afterlife beliefs are the cause of changes in the attitude toward death or just a correlational factor. (Tassell-Matamua & Lindsay, 2016).

Changes in death attitude could be promoted by specific components of NDE or aftereffects occurring immediately after the experience. In their recent review, Tassell-Matamua and Lindsay (2016) proposed four elements of NDE that may lead individuals to a transformation of their own selves and structure of meanings, and thus to a reduction of death anxiety. These four aspects include: *OBEs*, that could induce people to think that the self can survive the bodily death, and increase beliefs in an afterlife; *positive emotions* that could lead to a change of typically negative expectations about death and the dying process; *meet of deceased relatives*, which could induce NDErs to think that after death they will continue to exist as their relatives do; finally, the experience of a *bright light* is often interpreted as the encounter of God or some kind of universal energy that can convey the feeling of being part of a universal plan that does not stop with their death.

Some NDE aftereffects seem to be related to reduced fear of death (Tassell-Matamua & Lindsay, 2016). Indeed, NDErs report a sense of heightened self-esteem (Noyes et al., 2009; Greyson, 2013) that may affect their levels of death anxiety and their reactions toward death concerns (Davis et al. 1983; Harmon-Jones et al., 1997). Self-esteem represents an anxiety-buffering function (Pyszczynski et al. 2004, Greenberg & Arndt, 2011). NDErs could develop a sense of being special for having been rescued by a cosmic force, enhance their self-esteem, and then reduce their fear of death (Noyes et al., 2009). Moreover, high levels of *mindfulness* have been associated with low defensive reactions to death reminders (Niemi et al., 2010), and many NDErs speak about their living on the present moment free of concerns about the future. This may imply that they could

have mindful abilities that permit a radical focus on the present and to reduce fear of death (Wren-Lewis, 1994). Indeed, trait mindfulness involves an enhanced receptivity to internal and external stimuli as they occur, it relates negatively to neuroticism and positively to self-esteem (Brown & Ryan, 2003; Niemiec et al., 2010), which have been found to increase and diminish worldview defenses respectively (Goldenberg et al., 1999; Harmon-Jones et al., 1997). According to TMT assumptions, high self-esteem, a reduction of those cognitive processes that anticipate one's own death, and a focus on the present moment could result in a better processing and acceptance of MS, which would not have to be suppressed, and thus in a reduction of existential anxiety.

1.4.2 Conscious/unconscious death anxiety and death representations in NDErs

Death anxiety is a multidimensional construct (see paragraph 1.2), and a full understanding of NDErs' orientation toward death should include a variety of measures to achieve a complete picture. For example, existent literature on NDErs' fear of death is based on people's reports and self-report scales, and there are no information about unconscious orientation toward death after a NDE.

As reported above, there is evidence that a distinction between explicit death anxiety (conscious; i.e., provided by self-reports on death anxiety scales) and implicit death one (unconscious; e.g., heightened DTA in response to a MS induction after a delay and distraction) exists. Indeed, Greenberg et al., (1995, Study 3) found that participants who reported low death anxiety on the Death Anxiety Questionnaire (Conte et al., 1982) subsequently responded more defensively to a MS induction¹³ than participants who reported high explicit death anxiety. This means that low scores on a self-report may indicate the enactment of avoidant strategies aimed at suppressing death concerns. Hypothetically, some NDErs could act as they do not fear death. Indeed, after their intensive experience, they go through a transition in their identity and worldview, and they could play the part of who transcend their own fear of death, as prescribed by their new role in the society. In order to understand the orientation toward death, it is important to investigate the death representations of NDErs, as changes on the cognitive representations of death could lead to a reduction of emotional response to death concerns (Kelly, 1995; Neimeyer et al, 2002). For example, Testoni (et al., 2015) found that people that represent death as annihilation exhibit higher scores of hopelessness and lower scores of resilience with respect to people who have a

¹³ In the form of denigrating someone who did not adhere to their cherished beliefs.

representation of death as a passage. To the best of our knowledge, there are no existing study analyzing the relationship between death representation and the level of fear of death in NDErs. Investigating NDErs reactions to conscious/unconscious death concerns and NDErs' death representations is needed to get new insights and to understand how people deal with death after a NDE.

1.4.3 Terror Management Theory and Near Death Experience

TMT theoretical assumptions (see paragraph 1.3.1) describe processes occurring consciously and unconsciously to manage death anxiety, and TMT could be a useful framework to understand how NDErs deal with death concerns at both conscious and unconscious levels. Interestingly, literature on NDE and TMT is not yet well integrated, and some NDE researchers claimed that TMT assumptions could be incomplete, or could not be able to explain NDE transformative effects, if only NDE phenomena are taken into account (Tassell-Matamua & Lindsay, 2016). Nevertheless, TMT offers many chances to build up and test hypotheses that permit to investigate NDErs reactions to death stimuli.

According to TMT basilar prepositions (Becker, 1973; Greenberg et al. 1986; Greenberg & Arndt, 2011), death anxiety arises from the just-position of self-preservation instinct and humans' awareness of their own mortality. Thus, a definitive resolution of death anxiety may be connected with two issues: a) a decline of existential conflict, hypothetically due to a decrease of self-preservation instinct or a reduction of one's own mortality awareness; b) the acquisition of strong anxiety-buffering structures (such as a strong experience-based belief of afterlife or a enhance self-esteem).

To evaluate the likelihood of the first issue, it is necessary to consider that: *i*) suicide survivors who had a NDE are less likely to develop suicidal ideations or to reattempt suicide, than those people who survived a suicide attempt without NDE; *ii*) NDErs express strong objections to the concept of suicide (Greyson, 1992). Moreover, NDErs often reported greater appreciation of and zest for life (Greyson, 2013). These findings suggest that after a NDE there is not a reduction of self-preservation instinct, but conversely, NDErs seem to be more involved into their lives with a new sense of purpose (Greyson, 2013). On the other hand, NDErs could develop mindful abilities (or other psychological skills) that lead people to focus on the present moment, avoiding personal projections in the future, and consequently eluding any kind of existential conflict. Since there are

not quantitative studies assessing this kind of skills in NDErs, this hypothesis remains an option that needs to be investigated.

Another option is that NDErs may maintain an existential conflict, but they develop efficacious defense mechanisms to manage death anxiety. In this vein, the strong beliefs associated with NDE could represent a structure of meanings that help NDErs in dealing with death concerns. Representation of death as a passage may serve to obtain a kind of literal immortality, and NDErs could have stronger beliefs in afterlife than noNDErs, leading to a low anxiety in front of death concerns.

Conversely from claims of Tassell-Matamua and Lindsay (2016), TMT's assumptions may be fully capable to take into account the processes underlining NDErs' reactions to death, and within this theoretical framework, it is possible to operationalize all the variables that could explain this phenomenon.

1.5 Experimental hypotheses

1.5.1 General aims

This study is grounded on the theories and the ideas reported in Chapter 1. It aims at investigating conscious/unconscious death anxiety and death representations in people who had a NDE. Moreover, specific death-related variables (i.e. self esteem and mindfulness) will be assessed to better understand the relationship between NDE and death anxiety.

1.5.2 Hypothesis 1: NDErs have lower fear of death and higher acceptance of death than noNDErs

NDErs reported to have less fear of death after their NDE, and studies using self-report scales shown lower scores of death anxiety in NDErs than in noNDErs (Greyson, 1992, 1994; Groth-Marnat & Summer, 1998; von Lommel et al., 2001). Thus, we hypothesize that participants who had a NDE score lower in fear of death scale, and higher on acceptance scales, than participant who did not had a NDE. In order to evaluate quantitatively death orientation toward death, we will use the Death Attitude Profile-Revised (DAP-R; Wong et al., 1994), which has already been used to investigate NDErs' death attitude in comparison with people who had a cardiac arrest without a NDE showing that NDErs have more acceptance of death and that there is no difference between groups in fear of death scores (Greyson, 2003).

1.5.3 Hypothesis 2: NDErs have lower unconscious death anxiety than noNDErs

Since a global resolution of existential anxiety necessarily includes both conscious and unconscious levels, NDErs should present lower unconscious death anxiety with respect to noNDErs. Unconscious death anxiety can be assessed by measuring DTA¹⁴ after a MS induction. We hypothesize that (as in previous research) noNDErs will exhibit low DTA immediately after a MS induction, but high DTA after the delay and distraction (Greenberg et al., 1994). Then, we hypothesize to observe an opposite pattern in NDErs, which will have high DTA immediately after a MS induction, but low DTA after delay and distraction. Indeed, Niemiec et al. (2010) proposed that high levels of DTA immediately after MS induction are indicative of low death anxiety and, consequently, there is no need to use any proximal defense to suppress conscious death thoughts. In the same way, low DTA after a delay and distraction indicates that no distal defense is needed. If this pattern of results is obtained, it would suggest that NDEs reduce unconscious (implicit) death anxiety.

1.5.4 Hypothesis 3: NDErs have a different death representation with respect to noNDErs

Death representation may be associated to attitude toward death, and we hypothesize that NDErs represent death mostly as a radical passage to another level of existence, whilst participants who do not have a NDE represent death as annihilation. Death representation will be operationalized both quantitatively (using the Testoni Death Representation Scale; Testoni et al., 2015) and qualitatively (using an open-ended question).

1.5.5 Hypothesis 4: Conscious and unconscious death anxiety is related to death representations

Conscious and unconscious death anxiety could be related in a number of ways, and different patterns could be observed. a) Participants score low on both conscious anxiety¹⁵ and unconscious anxiety¹⁶ showing a global low death anxiety. b) Participants score high on both conscious and unconscious anxiety¹⁷ showing a global high death anxiety. c) Participants score low on conscious anxiety and high unconscious anxiety possibly indicating a defense mechanism of suppression of

¹⁴ Death-Thought Accessibility.

¹⁵ Assessed with Death Attitude Profile-Revised (DAP-R; Wong et al., 1994).

¹⁶ High DTA after MS and low DTA after a delay.

¹⁷ Low DTA after MS and high DTA after a delay.

conscious fear of death¹⁸. We hypothesize that NDErs will report mostly pattern “a”, whilst noNDErs will report mostly patterns “b” and “c”.

Death representations could be related to death anxiety in a number of ways, for example one could have a representation of death as a passage because he/she is very scared about death, and needs a structure of meaning to manage his/her anxiety. Someone else could have a representation of death as total annihilation and has a lack of structure of meaning to deal with death (and thus reports high level of anxiety), but he/she could be genuinely resigned at the idea of his/her death, scoring low on death anxiety. By associating death representation with conscious/unconscious patterns of death anxiety, we will be able to explore what is the valence of death representation in NDErs and noNDErs. Since, to the best of our knowledge, these components of orientation toward death have not yet been studied together, it is not possible to establish an *a priori* hypothesis for NDErs and other participants.

1.5.6 Hypothesis 5: NDErs have higher self-esteem than noNDErs

Self-esteem has been defined as furnishing an anxiety-buffering function for death concerns (Greenberg et al., 1986; Greenberg & Arndt, 2011). Indeed, high levels of self-esteem have been associated with low levels of death anxiety (Harmon-Jones et al., 1997). Thus, we hypothesize that participants with high self-esteem will report low death anxiety, and that NDErs will report higher levels of self-esteem than the control group. Self-esteem will be operationalized using the Rosenberg Self-Esteem Scale (Rosenberg, 1965), one of the tools most used to assess self-esteem.

1.5.7 Hypothesis 6: NDErs have higher mindfulness abilities than noNDErs

High trait mindfulness has been associated with a reduction of proximal and distal defenses (Niemic et al. 2010) and NDErs seem to develop a more heightened awareness on the present moment (Wren-Lewis, 1994; Noyes et al., 2009; Tassel-Matamua & Lindsay, 2016). Thus, we hypothesize that participants with high mindfulness scores will report low death anxiety, and that NDErs will report higher levels of mindfulness than the control group. Mindfulness will be

¹⁸ Logically, it could be possible to observe a pattern with high conscious death anxiety and low unconscious death anxiety. This would be a strange pattern in which an individual would report consciously high anxiety were implicit measure (hypothetically not biased by social expectancies) would indicate low anxiety. We think that the occurrence of a pattern like that could indicate, for example, other psychosocial needs of the respondent, such as a communication that one is needed of attentions.

operationalized using the Five Facet Mindfulness Questionnaire (Bear et al., 2006), that assesses five different mindfulness components, and it is recommended in a recent review in which different assessments of mindfulness have been compared (Sauer et al., 2013).

Chapter 2

Methods

2.1 Participants

Participants were 206 volunteer individuals who completed an anonymous online survey. Among the participants, 109 (52.91%) reported to have lived a NDE and completed the NDE Scale (Greyson, 1983; see paragraph 2.2.7), whereas 97 (49.09%) did not report any NDE.

Participants were 147 female (71.36%) and 59 male (28.64%) with a mean age of 52.14 (range = 18 to 82 years; SD = 13.68). 73.66% were born in the United States of America, and 26.34% in other countries (Europe, Canada, Australia, South Africa, South America)¹⁹. 86.83% of the participants identified themselves as White. In terms of religious identification, 36.90% identified themselves as Christian, 26.21% responded other identifications, including Jewish, Buddhist and other minor religious institutions, 23.30% were not affiliated to any religion or agnostic, and 13.59% indicated “other” and were classified as “Spiritualists” (as they defined themselves).

As NDErs could have some difficulties in sharing their experience, mainly because of others’ judgment (Morris & Knafl, 2003), they represent a population that could be difficult to access (Schroeter-Kunhardt, 1993). In order to reach people who had a NDE, we used advertisements (see appendix A) on web pages of associations of people who had a NDE or are interested in NDE²⁰, social network pages on NDE-related topics²¹, and other NDE support groups²². The study advertisements included a web link to the anonymous survey. Before filling the questionnaire, participants had to read and sign the informed consent form (Appendix B). Volunteers from NDE associations and social networking sites have not been compensated. The Institutional Review Board at Skidmore College (Saratoga Springs, New York) has approved the study²³.

¹⁹ All participants speak English and they were asked to indicate whether they speak English as first and best language, in order to include this variable into regressions as possible confounding factor (see Chapter 3).

²⁰ “Near Death Experience Research Foundation (NDERF)” website.

²¹ Advertisements of the study have been posted on the following Facebook pages: “Near Death Experience”; “Near Death Experience bring us together”; “Near Death Experience and beyond”; “Our Near Death Experience and beyond”; “Near Death Experience and astral travel”; “NDE BOOKS, STORIES, AUTHORS & FRIENDS”; International Association for Near-Death Studies (IANDS); “Near Death Research”.

²² Through the “International Association for Near Death Studies (IANDS)”, it has been possible to send the study advertisement to a number of IANDS local groups (and their members) operating in USA, Canada, Australia, South Africa, and Europe.

²³ Protocol number: 1602-503.

2.2 Measures

2.2.1 Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; Appendix D) has been used to assess participants' self-esteem. It is a widely used self-report instrument, which is composed by 10 items assessing self-esteem as a uni-dimensional construct. All items are answered using a 4-point Likert scale format ranging from 1 (strongly disagree) to 4 (strongly agree). The RSES items measure both positive (e.g., *"On the whole, I am satisfied with myself"*) and negative (e.g., *"I feel I do not have much to be proud of"*) feelings about the self. Scores are obtained by reversing negative items (items 2, 5, 6, 8, 9) and summing all ten items. Scores range from 10 to 40 and higher scores indicate higher levels of self-esteem.

2.2.2 Five Facet Mindfulness Questionnaire

The Five Facet Mindfulness Questionnaire (FFMQ; Bear et al., 2006: Appendix E) is a 39-item scale that assess five components of mindfulness, that is conceptualized as a multidimensional. Items are answered using a 5-point Likert-type scale ranging from 1 (never or very rarely true) to 5 (very often or always true). The subscales of the FFMQ include:

- a) *Observing* (items 1, 6, 11, 15, 20, 26, 31, 36), the abilities of attending/noticing one's own thoughts, feelings and emotions (e.g., *"When I'm walking, I deliberately notice the sensations of my body moving"*);
- b) *Nonreactivity* (items 4, 9, 19, 21, 24, 29, 33), the capacity of not reacting to inner experience (e.g., *"Perceive my feelings and emotions without having to react to them"*);
- c) *Acting with awareness* (items 5R, 8R, 13R, 18R, 23R, 28R, 34R, 38R), being able to act paying attention and avoiding distractions and automatisms (e.g., *"When I do things, my mind wanders off and I'm easily distracted"*);
- d) *Describing* (items 2, 7, 12R, 16R, 22R, 27, 32, 37), the capacity of finding words to label personal thoughts, feelings, and emotions (e.g., *"I'm good at finding words to describe my feelings"*);
- e) *Nonjudging* (items 3R, 10R, 14R, 17R, 25R, 30R, 35R, 39R), having a nonjudgmental attitude toward the experience (e.g., *"I criticize myself for having irrational or inappropriate emotions"*).

Scores for subscales are obtained by averaging all the items included in each scale (items with “R” have to be reversed). Higher scores indicate higher levels of mindfulness.

2.2.3 Death Attitude Profile-Revised

The Death Attitude Profile-Revised (DAP; Wong et al., 1994; Appendix F) is a 32-item scale that assesses attitudes toward death including fear, avoidance, and acceptance of death. Items are answered using a 7-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a neutral mid-point (undecided). The subscales of the DAP-R include:

- a) *Fear of Death* (items 1,2,7,18,20,21,32), negative feelings and thoughts about death and the dying process (e.g., “*The prospects of my own death arouses anxiety in me*”).
- b) *Death Avoidance* (items 3,10,12,19,26), defense mechanisms are used to keep death concerns away from awareness and to reduce death anxiety (e.g., “*I avoid death thoughts at all costs*”).
- c) *Neutral Acceptance* (items 6,14,17,24,30), death is considered as an integral part of life, and there is a kind of indifference attitude toward death (e.g., “*Death should be viewed as a natural, undeniable, and unavoidable event*”).
- d) *Approach Acceptance* (items 4,8,13,15,16,22,25,27,28,31), death is seen as a passage to an afterlife (e.g., “*I believe that I will be in heaven after I die*”).
- e) *Escape Acceptance* (items 5,9,11,23,29), death appears as a way to escape from suffering and pain (e.g., “*Death will bring an end to all my troubles*”).

For each subscale, a mean scale score can be obtained by dividing the total scale score by the number of items forming each scale. Higher scores indicate higher levels of each attitude assessed by subscales.

2.2.4 Death-Thought Accessibility Measure

The Death-Thought Accessibility (DTA; Greenberg et al., 1994; Hayes et al., 2010; Appendix G) is assessed by a word-fragment completing task, in which participants have to complete a set of 20 ambiguous word fragments by filling in two missing letters. Six of the 20 words can be completed as either neutral or death-related words. For example, participants could complete the fragment G R A _ _ as either *grave* or *grape*. By observing how many fragments are completed with death-related words, it is possible to infer whether death concerns are more or less accessible

to the respondent. The death-related options include the following 6 words: *coffin*, *grave*, *dead*, *skull*, *corpse*, and *stiff*. Scores are obtained by summing the word-fragments completed with death related words (scores range from 0 to 6).

2.2.5 State Trait Anxiety Inventory

The State Trait Anxiety Inventory (STAI Form Y-1; Spielberger, 1983; Appendix H) is a 20-item uni-dimensional scale widely used to assess state anxiety. All items are answered using a 4-point Likert-type scale format ranging from 1 (not at all) to 4 (very much so). Participants have to rate each statement to indicate how they feel in the present moment. Items include both low anxiety statements (e.g., “*I feel calm*”) and high anxiety statements (e.g., “*I feel frightened*”). Scores can be obtained by reversing low anxiety statements (items 1, 2, 5, 8, 10, 11, 15, 16, 19, 20), and summing all the twenty items. Scores range from 20 to 80 and higher scores indicate higher levels of state anxiety.

2.2.6 Qualitative analysis of death representations

In order to investigate death representations, participants have answered to an open-ended question about the definitions of death. Content analysis of the answers has been applied following indications prescribed by Creswell (2009) and Flick (2009), and for each answer has been attributed one (or more) code(s) to identify a specific definition of death. Answers that could be included in more than a category received multiple codes. Content analysis has been conducted in a blind condition, in which the researcher did not know whether definitions were provided by noNDE or NDErs. Answers were constantly re-examined to ensure that the codes related to the data. Initially, categories have been grounded on the recent study of Mazur (2011), who described how native speakers of English conceptualize the conception of death (a list of categories described by Mazur is reported in Appendix Q), and on ontological representations of death defined as passage or annihilation (Testoni et al., 2015,). Then, categories have been adapted to raw textual material, in order to highlight specific participants’ definitions of death.

2.2.7 Testoni Death Representations Scale

The Testoni Death Representations Scale (TDRS; Testoni et al. 2015; Appendix K) is a 6-item self-report designed to assess death representations. Items are answered on a 5-point Likert scale

from 1 (strongly disagree) to 5 (strongly agree). There are items that describe death as annihilation (e.g., “*After I die I will not exist anymore, so I will not experience anything*”) or as a passage (e.g., “*After I die I will continue to exist and will remember this life’s experiences*”). TDRS scores are obtained by reversing items 1, 5, 6, and summing all six item up. Scores range from 6 to 30, and indicate different death representations: lower scores indicate that the individual represents death as a passage, whereas people with higher scores represent death as total annihilation.

2.2.8 Near Death Experience Scale

The Near Death Experience Scale (NDE Scale; Greyson, 1983; Appendix M) is a 16 multiple-choice-item self-report developed to assess NDE, and differentiate people who had a NDE from those who had not. Items include different NDE features that are divided into four subscale related to *cognitive* components (items 1, 2, 3, 4; e.g., “*Were your thoughts speeded up?*”), *affective* components (items 5, 6, 7, 8; e.g., “*Did you have a feeling of peace or pleasantness?*”), *paranormal* components (items 9, 10, 11, 12; e.g., “*Did scenes from the future come to you?*”), and *transcendental* components (items 13, 14, 15, 16; e.g., “*Did you seem to enter some other, unearthly world?*”). For each item, respondents can choose between three options: the first one is always “*No*” (value = 0), which indicate the absence of the NDE component; the second (value = 1) represents a weak presence of the NDE feature; the third option (value= 2) indicates a strong presence of the NDE component. Subscales’ scores range from 0 to 32, and a score of 7 or greater²⁴ is used as a criterion to establish the presence of a NDE. Moreover, higher scores indicate the presence of more NDE features, hence a deeper NDE.

2.3 Procedure

The study has been conducted online using Qualtrics survey software²⁵. Participants entered the survey page through the link²⁶ found into the advertisements in social network pages or received by IANDS local groups (for a deeper description of participants recruitment, see paragraph 2.1). Firstly, participants have been solicited to read and accept the informed consent (Appendix A).

²⁴ This cut-off has been obtained by subtracting 1 SD (SD=7,84) to the mean (M=15,01) of the NDE scale (Greyson, 1983).

²⁵ Privacy information for Qualtrics software have been provided to the participants and can be found at <http://www.qualtrics.com/privacy-statement>.

²⁶ For a preview of the survey, follow the link https://skidmore.qualtrics.com/jfe/preview/SV_8CAH1IxugUPXVpr.

They have been told they would have participated in a study on the relationship between a number of personality variables and the attitudes towards life experiences. Then, all the participants read the instructions for the survey (Appendix B), and completed the Rosenberg Self-Esteem Scale (Rosenberg, 1965; Appendix D) and the Five Facet Mindfulness Questionnaire (Bear et al., 2006; Appendix E). At this point participants have been automatically (and randomly) assigned to three groups: a *MS-Immediate* condition to assess proximal defenses; a *MS-Delayed* condition to investigate distal defenses, and a *no-MS* condition as control group.

Initially, individuals have been randomly assigned to either the *MS* or *no-MS* control condition. *MS* participants (both *MS-Immediate* and *MS-Delay*) had to complete the Death Attitude Profile - Revised (Wong et al., 1994; Appendix F) as a *MS* induction (and as a measure of conscious death anxiety and other attitude toward death), whereas control participants (*No-MS*) have been asked to fill this measure after the dependent variable (DTA) is collected. Then, *MS* participants have been randomly assigned to either the Immediate or Delayed condition. In the Immediate condition, after the DAP-R, participants completed the DTA measure (Appendix G).

In the delayed condition, participants filled the State Trait Anxiety Inventory (STAI Form Y-1; Spielberger, 1983; Appendix H)²⁷. This has been followed by a short literary passage (Appendix I), which served as a delay/distraction²⁸. Afterwards, participants had to read the literary material and to answer to two questions about the writer and the content of the passage. These respondents then perform the word fragment completion task to assess DTA. Individuals assigned to the *MS-Immediate* condition filled the STAI Form Y-1 and read the literary passage materials after the task that allows to capture DTA. *No-MS* participants completed the DAP at this point in the procedure, after they completed DTA assessment, STAI Form Y-1 and literary passage materials. In order to investigate “death” representations, all the participants answered to an open-ended question about the definition of “Death” (Appendix J), and then they filled the Testoni Death Representation Scale (TDRS; Testoni et al., 2015; Appendix K).

Then, participants responded to demographic questions (e.g., age, gender, etc.; Appendix L), and those who claimed they had a NDE were asked to fill the Near Death Experience Scale (Greyson, 1983; Appendix M).

²⁷ STAI Form Y-1 serve both as delay/distraction task (to put death thought out of consciousness) and to assess feelings after manipulations.

²⁸ Previous research demonstrating that worldview defense is initiated only when thoughts of death are no longer in focal attention (Greenberg, et al., 1994).

Finally, a number of questions have been submitted to determine the extent to which participants may have been aware of the purpose of the study, to verify whether they have been distracted during the survey, and the source in which they found the survey (Appendix N). At the end, participants received a debriefing statement (Appendix O) and they have been thanked for their participation. For an overview of experimental conditions, see Table 1.

Table 1. Summary of procedure by conditions (for NDE and noNDE GROUPS)

	No-MS (Control Group)	MS – Immediate (Proximal Defenses)	MS – Delayed (Distal Defenses)
<i>NDErs vs noNDErs</i>	Informed consent Instructions Self-Esteem Scale Mindfulness Questionnaire • <i>Death Thought Accessibility</i> █ State/Trait Anxiety Inventory █ Literary passage ➤ <i>Death Attitude Profile (MS)</i> Open-ended questions Death Representation Scale Demographic questions NDE Scale Suspicious probe Debriefing	Informed consent Instructions Self-Esteem Scale Mindfulness Questionnaire ➤ <i>Death Attitude Profile (MS)</i> • <i>Death Thought Accessibility</i> █ State/Trait Anxiety Inventory █ Literary passage Open-ended questions Death Representation Scale Demographic questions NDE Scale Suspicious probe Debriefing	Informed consent Instructions Self-Esteem Scale Mindfulness Questionnaire ➤ <i>Death Attitude Profile (MS)</i> █ State/Trait Anxiety Inventory █ Literary passage • <i>Death Thought Accessibility</i> Open-ended questions Death Representation Scale Demographic questions NDE Scale Suspicious probe Debriefing

- *Death Thought Accessibility*: Dependent Variable
- █ State/Trait Anxiety Inventory and Literature passage: Distraction Tasks
- *Death Attitude Profile (MS)*: Mortality Salience Induction

2.4 Statistical Analysis

The t-tests and Pearson χ^2 test were used to investigate whether there is any difference, between subjects who lived a NDE and those who had not, along observable socio-demographic dimensions, RSES, FFMQ, DAP-R, TDRS, and categories emerged from qualitative analysis. In order to assess the associations among the variables, correlation coefficients were estimated on the whole sample and, then, separately for NDErs and non-NDErs. Then, in order to explore the effect of NDE on RSES, FFMQ, DAP-R, and TDRS, alternative specifications of ordered logistic regressions have been run. Ordered logistic regression has been chosen since dependent variables are interval. Subsequently, linear regressions has been conducted to investigate and compare the

effect of experimental conditions (no-MS, MS-Immediate, MS-Delayed) between groups. The significance level (α) is fixed at 0.05.

Chapter 3

Results

3.1 Participants and Near Death Experience

Participants were asked to declare whether they had or not a NDE, and then they have been divided into two groups (NDE and noNDE groups). Those who reported to have had a NDE completed the NDE scale. Scores on the NDE scale ranged from 2 to 32, with a mean of 19.64 (SD = 6.54). Data for NDE features and subscales have been reported in Table 2.

Table 2. NDE features and components reported by participants.

<i>Question</i>	<i>1^a</i>	<i>2^b</i>	<i>%^c</i>	<i>Subscale</i>
Did time seem to speed up or slow down?	14	77	85.04	Cognitive component Mean = 4.06 SD = 2.22 Range = 0-8
Were your thoughts speeded up?	22	31	49.53	
Did scenes from your past come back to you?	22	22	41.12	
Did you suddenly seem to understand everything?	26	50	71.03	
Did you have a feeling of peace or pleasantness?	10	90	93.46	Affective component Mean = 6.01 SD = 2.14 Range = 0-8
Did you have a feeling of joy?	25	67	85.98	
Did you feel a sense of harmony or unity with the universe?	15	75	84.11	
Did you see, or feel surrounded by, a brilliant light?	23	59	76.63	
Were your senses more vivid than usual?	25	71	89.71	Paranormal components Mean = 4.37 SD = 1.96 Range = 0-8
Did you seem to be aware of things going on elsewhere, as if by extrasensory perception (ESP)?	18	39	53.27	
Did scenes from the future come to you?	29	10	36.45	
Did you feel separated from your body?	35	67	95.33	
Did you seem to enter some other, unearthly world?	22	73	88.79	Transcendental component Mean = 5.21 SD = 2.20 Range = 0-8
Did you seem to encounter a mystical being or presence, or hear an unidentifiable voice?	14	75	83.18	
Did you see deceased or religious spirits?	21	51	67.29	
Did you come to a border or point of no return?	35	41	71.03	

^a“1” indicates the number of participants’ NDE in which the feature was weakly present; ^b“2” indicates the number of participants’ NDE in which the feature was strongly present; ^c“%” indicates the total presence of the feature on 107 participants.

Seven individuals who declared to have had a NDE obtained a score lesser than 7 in the NDE scale, and they have been included in the noNDE group (Greyson, 1983; Greyson & Khanna, 2014). Finally, for comparative analyses, 102 participants were included in the NDE group, and 104 people were included in the noNDE group.

Data comparing demographic variables between NDE and noNDE groups are presented in Table 3. The two groups were statistically indistinguishable in terms of gender, home country, ethnicity,

level of religiosity, religious identification, marital status, and education. Significant differences occurred only in term of age.

Table 3. Comparison between noNDErs' and NDErs' demographical data.

<i>Variable</i>	<i>noNDErs</i>	<i>NDErs</i>	<i>Statistic</i>	<i>p</i>
Age	50.12 (± 15.55)	54.22 (± 11.14)	t = -2.17, df = 204	0.03*
Religiosity	4.23 (± 3.13)	4.55 (± 03.74)	t = -0.67, df = 205	0.50
Gender			$X^2 = 0.01$, df = 1	0.95
Female	74	73		
Male	30	29		
Country			$X^2 = 3.46$, df = 1	0.06
Born in USA	70	81		
Other	33	21		
Ethnicity			$X^2 = 1.12$, df = 1	0.29
White	92	86		
Other	11	16		
Religious identification			$X^2 = 6.07$, df = 3	0.11
Christian	44	32		
Spiritualist	27	21		
None	23	31		
Other	10	18		
Marital status			$X^2 = 4.34$, df = 4	0.31
Married or domestic partnership	59	48		
Widowed	3	5		
Divorced/Separated	21	32		
Single, never married	20	16		
Other	1	1		
Education			$X^2 = 7.48$, df = 5	0.18
Did not complete High School	3	3		
High School/GED	11	8		
Some College	29	41		
Bachelor's degree	27	28		
Master's Degree	28	14		
Advanced graduate work or Ph.D	6	8		

Demographical analysis had 1 missing in NDErs group (variable Age), and 1 missing in noNDErs group (variable Country and Ethnicity). * p < 0.05

3.2 Self Esteem and Near Death Experience

Scores on the RSES ranged from 15 to 40, with a mean of 31.59 (SD = ± 5.48). The scale resulted to be reliable, with a Cronbach's α of 0.89. Self-esteem scores were significantly higher (t(206) = -2.54, p = .012) for NDErs (M= 32.56, n = 102, SD = ± 5.40), than for those who did not have a NDE (M = 30.64, n = 104, SD = ± 5.42). Self Esteem correlates positively only with the affective

component of NDE scale ($r = 0.27$, $n = 107$, $p < 0.05$), whilst correlations with other subscales are low.

Ordered logistic regression was used to test the effect of having had a NDE on self-esteem scores. In a second step, we added control variables (such as, age, gender, ethnicity, country, religiosity, religious identification, marital status, education) that represent potential confounding variables on the relationship between the dependent variable (self-esteem) and independent variable of interest (NDE). As reported in Table 4, NDE has a positive and statistically significant effect ($p < 0.01$) on self-esteem level, which is robust to the inclusion of socio-demographic controls.

Table 4. NDE effect on Self-Esteem scores.

<i>Variable</i>	<i>RSES</i>	<i>RSES</i>
NDE	0.669** (0.247)	0.638* (0.276)
Age	No	Yes
Gender	No	Yes
Ethnicity	No	Yes
Country	No	Yes
Religiosity	No	Yes
Religious identification	No	Yes
Marital status	No	Yes
Education	No	Yes
Observations	206	203

Note: dependent variable is self-esteem score on Rosenberg Self-Esteem Scale (RSES). This table shows the estimates of ordered logistic regressions testing whether having a Near Death Experience (NDE) affect subjects' self-esteem (first column). In second column, control for potentially confounding demographical variables (age, gender, ethnicity, country, religiosity, religious identification, marital status, education) have been added to verify robustness of the estimates. Robust standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$

3.3 Mindfulness and Near Death Experience

Table 5 shows the mean, the standard deviation and the range of each subscale of FFMQ for the whole sample, and the Cronbach's α for each subscale. Internal consistency of all five FFMQ subscales was satisfactory, ranging from 0.82 (observe subscale) to 0.93 (nonjudge subscale).

Table 5. Descriptive statistics and scale reliabilities (α) of Five Facet Mindfulness Questionnaire.

<i>Subscale</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Range</i>	<i>α</i>
Observe	3.79	± 0.66	1.63 – 5	0.82
Describe	3.88	± 0.73	1.86 – 5	0.89
Awareness	3.45	± 0.70	1.38 – 5	0.88
Nonjudge	3.64	± 0.93	1 – 5	0.93
Nonreact	3.38	± 0.72	1.57 – 5	0.83

As reported in Table 6, and shown in Figure 3, scores were significantly higher for NDErs than for noNDErs in all the subscales of FFMQ except Describe subscale, indicating higher levels of mindfulness abilities in people who had a NDE.

Table 6. Comparison between noNDErs' and NDErs' Five Facet Mindfulness Questionnaire scores.

<i>Subscale</i>	<i>noNDErs</i>	<i>NDErs</i>	<i>t</i>	<i>p</i>
Observe	3.56 (± 0.59)	4.03 (± 0.64)	-5.50	< 0.001 ***
Describe	3.79 (± 0.71)	3.98 (± 0.74)	-1.92	0.06
Awareness	3.33 (± 0.65)	3.58 (± 0.74)	-2.64	< 0.01 **
Nonjudge	3.45 (± 0.94)	3.83 (± 0.88)	-2.94	< 0.01 **
Nonreact	3.18 (± 0.66)	3.58 (± 0.72)	-4.06	< 0.001 ***

*** p < 0.001; ** p < 0.01

Figure 3. Comparison between noNDErs' and NDErs' Five Facet Mindfulness Questionnaire scores.

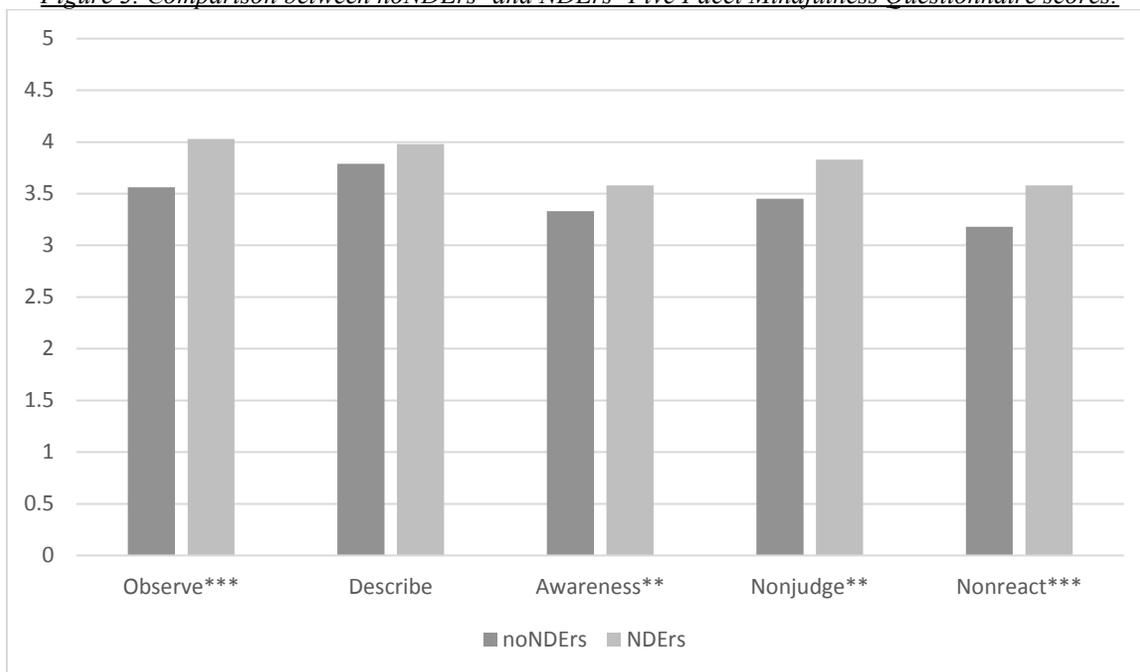


Figure 3 shows noNDErs' and NDErs' Five Facet Mindfulness Questionnaire scores on each subscale. *** p < 0.001; ** p < 0.01

Correlation between mindfulness scores and NDE scale scores are reported in Table 7. Total score on NDE scale positively correlates with Nonjudge subscales of FFMQ. Affective component of NDE positively correlates with Describe and Nonjudge FFMQ subscales. Moreover, transcendental component of NDE correlates with Describe FFMQ subscale.

Table 7. Correlations between NDE scale and Five Facet Mindfulness Questionnaire scores.

Five Facet Mindfulness Questionnaire Subscale	Near Death Experience Scale Subscale				
	Cognitive	Affective	Paranormal	Transcendental	Total
Observe	-0.01	-0.02	0.04	0.02	0.01
Describe	0.08	0.25*	0.06	0.17	0.18
Awareness	0.10	0.10	-0.03	0.02	0.06
Nonjudge	0.11	0.25*	0.10	0.12	0.19*
Nonreact	0.12	0.16	0.05	0.08	0.13

* p < 0.05

Ordered logistic regression was used to verify whether NDE has an effect on mindfulness subscales levels (see Table 8). Potential confounding factors have been added as controls to check the robustness of the estimates (see right column for each subscale). Results show that having a NDE has a positive effect on all mindfulness components. The inclusion of demographical controls does not affect the effect of NDE on Observe, Awareness, Nonjudge, and Nonreact subscale, but it eliminates the effect on the Describe component.

Table 8. NDE effect on Mindfulness scores.

Variable	Observe		Describe		Awareness		Nonjudge		Nonreact	
NDE	1.395 ** (0.255)	1.444 ** (0.285)	0.496 * (0.245)	0.463 (0.290)	0.574 * (0.245)	0.576 * (0.272)	0.736 ** (0.244)	0.763 ** (0.271)	0.993 ** (0.253)	0.993 ** (0.276)
Age	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Gender	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Ethnicity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Country	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Religiosity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Religious identification	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Marital status	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	206	203	206	203	206	203	206	203	206	203

Note: dependent variables are mindfulness scores on Five Facet Mindfulness Questionnaire (FFMQ) subscales. This table shows the estimates of ordered logistic regressions testing whether having a Near Death Experience (NDE) affect subjects' mindfulness components (left column for observe, describe, awareness, nonjudge, nonreact subscales). In the right columns, control for potentially confounding demographical variables (age, gender, ethnicity, country, religiosity, religious identification, marital status, education) have been added to verify robustness of the estimates. Robust standard errors in parentheses. ** p<0.01; * p<0.05

3.4 Death Attitudes and Near Death Experience

Scores for DAP subscales have been reported in Table 9. Internal consistencies of all the subscales were satisfactory (α range from 0.89 to 0.93), but Cronbach's α for natural acceptance subscale was relatively low ($\alpha = 0.36$)²⁹.

Table 9. Descriptive statistics and scale reliabilities (α) of Death Attitude Profile-Revised.

<i>Subscale</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Range</i>	<i>α</i>
Fear of Death (FOD)	2.47	± 1.55	1 – 7	0.91
Death Avoidance (DA)	2.11	± 1.31	1 – 7	0.89
Natural Acceptance (NA)	5.74	± 0.79	2.8 – 7	0.36
Approach Acceptance (AA)	5.64	± 1.29	1 – 7	0.93
Escape Acceptance (EA)	4.51	± 1.53	1 – 7	0.93

As reported in Table 10, and shown in Figure 5, scores were significantly lower for NDErs than noNDErs in Fear Of Death, whilst NDErs scored higher in Natural Acceptance and Approach Acceptance. No differences between groups emerged in Escape Acceptance.

Table 10. Comparison between noNDErs' and NDErs' Death Attitude Profile-Revised scores.

<i>Subscale</i>	<i>noNDErs</i>	<i>NDErs</i>	<i>t</i>	<i>p</i>
Fear of Death (FOD)	3.03 (± 1.68)	1.84 (± 1.13)	5.96	< 0.001 ***
Death Avoidance (DA)	2.28 (± 1.50)	1.93 (± 1.05)	1.90	0.06
Natural Acceptance (NA)	5.62 (± 0.77)	5.86 (± 0.80)	-2.25	0.03 *
Approach Acceptance (AA)	5.40 (± 1.41)	5.88 (± 1.12)	-2.72	< 0.01 **
Escape Acceptance (EA)	4.53 (± 1.42)	4.48 (± 1.65)	0.23	0.82

*** p < 0.001; ** p < 0.01; * p < 0.05

²⁹ Also Wong (et al., 1994) found a relatively low Cronbach's α (0.65) for Natural Acceptance subscale, with respect of other scales of DAP. Moreover, Clements and Rooda (2000) suggested that this subscale may not be measuring a unitary construct.

Figure 5. Comparison between noNDErs and NDErs on Death Attitude Profile-Revised scores.

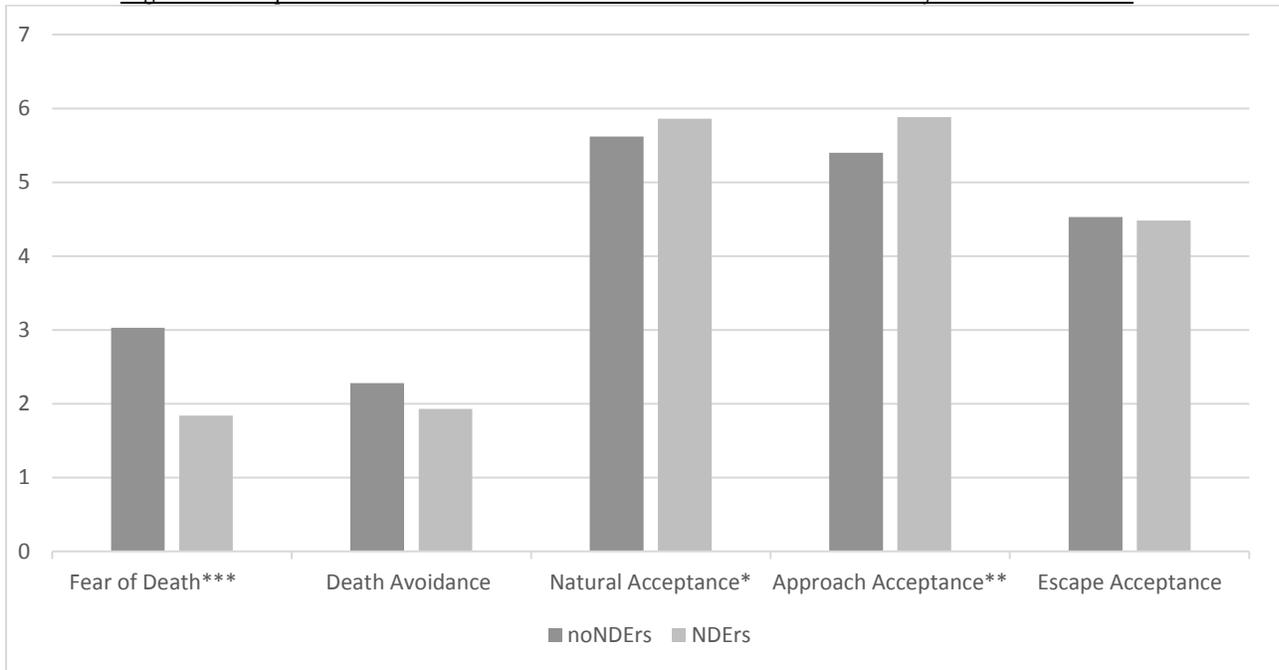


Figure 5 shows noNDErs' and NDErs' Death Attitude Profile-Revised scores on each subscale.
 *** p < 0.001; ** p < 0.01; * p < 0.05

Correlation between scores on DAP-R and NDE scales are reported in Table 11. All the NDE subscales have a negative correlation with Fear Of Death and Death Avoidance DAP-R subscales. Approach Acceptance correlates positively with transcendental NDE components and with NDE total score. Moreover, there is a positive correlation between Natural Acceptance and NDE total score.

Table 11. Correlations between NDE scale and Death Attitude Profile-Revised scores.

<i>Death Attitude Profile-Revised Subscale</i>	<i>Near Death Experience Scale Subscale</i>				
	Cognitive	Affective	Paranormal	Transcendental	Total
Fear of Death (FOD)	-0.25*	-0.30*	-0.19*	-0.39*	-0.37*
Death Avoidance (DA)	-0.28*	-0.31*	-0.24*	-0.26*	-0.35*
Natural Acceptance (NA)	0.17	0.15	0.16	0.11	0.19*
Approach Acceptance (AA)	0.09	0.16	0.06	0.28*	0.20*
Escape Acceptance (EA)	-0.11	0.10	-0.02	0.17	0.05

* p < 0.05

In order to test the effect of NDE on death attitudes, alternative specification of ordered logistic regressions have been run (see Table 12). Potential confounding variables have been added as controls to verify robustness of the estimates (see right column for each subscale). Estimates

demonstrate that having a NDE reduces Fear Of Death, but it does not affect Death Avoidance. Moreover, NDE has a positive relation with Approach and Natural Acceptances, and there is not any effect on Escape Acceptance. The inclusion of socio-demographic controls does not influence the effect of NDE on DAP-R subscales.

Table 12. NDE effect on Death Attitudes.

Variable	Fear of Death		Death Avoidance		Natural Acceptance		Approach Acceptance		Escape Acceptance	
NDE	-1.493 **	-1.479 **	-0.304	-0.192	0.528 *	0.633 *	0.658 **	0.515 *	-0.047	-0.288
	(0.257)	(0.305)	(0.245)	(0.258)	(0.244)	(0.250)	(0.243)	(0.268)	(0.248)	(0.262)
Age	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Gender	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Ethnicity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Country	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Religiosity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Religious identification	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Marital status	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Education	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	206	203	206	203	206	203	206	203	205	202

Note: dependent variables are scores on Death Attitude Profile-Revised (DAP-R) subscales. This table shows the estimates of ordered logistic regressions testing whether having a Near Death Experience (NDE) affect subjects' death attitude (left column for fear of death, death avoidance, natural acceptance, approach acceptance, escape acceptance subscales). In the right columns of each subscale, control for potentially confounding demographical variables (age, gender, ethnicity, country, religiosity, religious identification, marital status, education) have been added to verify robustness of the estimates. Robust standard errors in parentheses. ** p<0.01; * p<0.05

3.5 Death Thought Accessibility and Near Death Experience

DTA has been assessed under three different conditions in order to investigate proximal and distal reactions to death stimuli in comparison with a control condition. NDErs and noNDErs have been automatically divided into three groups (*No-MS*, *MS-Immediate*, *MS-Delayed*), in a 3 X 2 between subjects design (see Table 13).

Table 13. Experimental design and number of participants for each condition.

Group	Condition		
	<i>No-MS</i>	<i>MS-Immediate</i>	<i>MS-Delayed</i>
NoNDE	37	30	36
NDE	32	35	33

MS = mortality salience; NDE = near death experience.

T-tests for anxiety scores and DTA levels are reported in Table 14. No significant differences emerged between group among the conditions.

Table 14. Comparison between noNDErs' and NDErs' Death Attitude Profile-Revised scores.

Variable	Condition	noNDErs	NDErs	t	p
Anxiety	No-MS	34.30 (± 13.24)	31.56 (± 12.60)	0.87	0.38
Anxiety	MS-Immediate	37.39 (± 14.39)	31.28 (± 12.46)	1.86	0.07
Anxiety	MS-Delayed	36.31 (± 15.44)	31.85 (± 10.60)	1.40	0.17
DTA	No-MS	0.76 (± 0.89)	0.65 (± 0.87)	0.47	0.64
DTA	MS-Immediate	1.13 (± 1.01)	0.66 (± 0.64)	2.31	0.02*
DTA	MS-Delayed	0.58 (± 0.81)	0.42 (± 0.56)	0.94	0.35

DTA = Death Thought Accessibility. * p < 0.05

Death thought accessibility levels for each group and condition are displayed in Figure 6. A series of t-tests revealed that noNDErs' DTA is higher in *MS-Immediate* condition (M = 1.13, n = 30, SD = ±1.01) than in *MS-Delayed* condition (M = 0.58, n = 36, SD = ±0.81) ($t(66) = 2.46, p = 0.02$). Moreover, there were no difference in DTA levels between *MS-Immediate/No-MS*, and *MS-Delayed/No-MS*, for both noNDE and NDE groups.

Figure 6. Death-thought accessibility as a function of near-death experience, and MS condition.

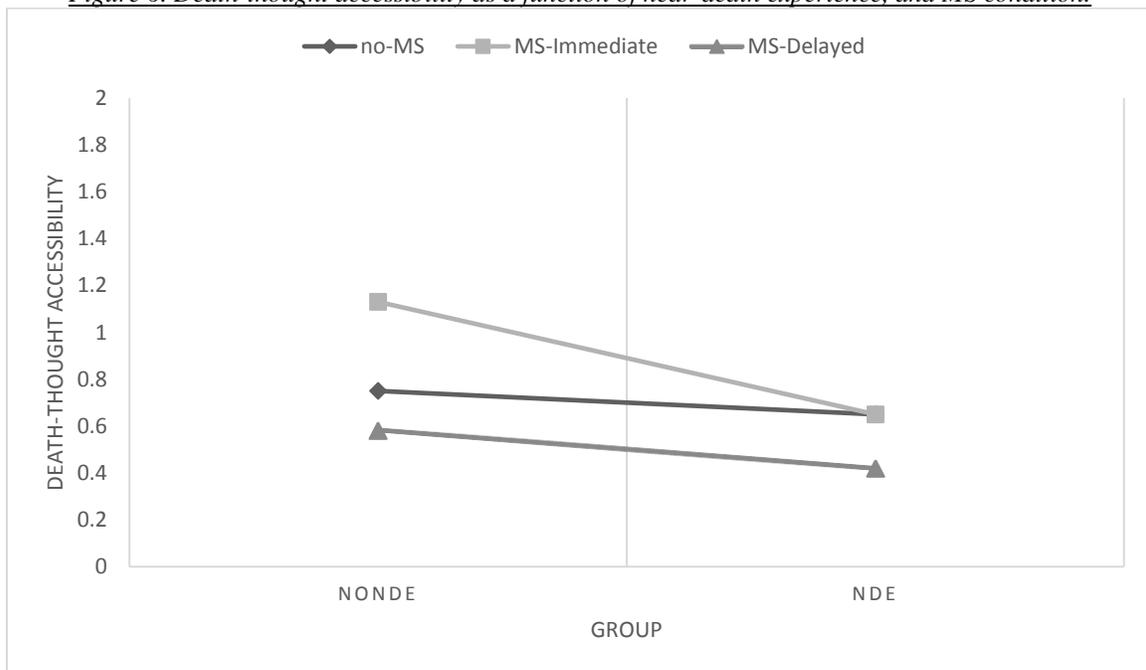


Figure 6 shows levels of DTA (Death Thought Accessibility) for each group (noNDErs and NDErs) in each condition (Control, Delayed, and Immediate). MS = Mortality Salience; NDE =Near Death Experience.

Results from linear regressions are reported in Table 15. This table shows that the *MS-Immediate* treatment does not affect participants' DTA level, irrespective of whether they had or had not a NDE. *MS-Delayed* condition had a significant negative effect on NDErs' DTA levels only when

control variables, such as distraction, source of the study (see Appendix O) and language (see Appendix L), have been added to the regression. No significant effects of *MS-Delayed* has emerged when we considered the noNDE group. The results from postestimation Chow test, which compares the coefficients of the independent variables of interest, provided evidence of a significant difference between *MS-Immediate* and *MS-Delayed* conditions for NDE group, with higher DTA levels observed under the *MS-Immediate* condition rather than the *MS-Delayed*. No significant differences emerged between the effects of *MS* conditions among NDE and noNDE groups. This result indicates that both NDEs and noNDEs show similar reactions after the exposure to MS (mortality salience stimuli).

Table 15. Condition effect for noNDEs and NDEs on Death Thought Accessibility.

Variable	Death Thought Accessibility							
	noNDE	NDE	noNDE	NDE	noNDE	NDE	noNDE	NDE
MS-Immediate	0.377 (0.235)	0.001 (0.187)	0.079 (0.235)	0.053 (0.192)	0.166 (0.224)	0.030 (0.196)	0.201 (0.226)	0.015 (0.190)
MS-Delayed	-0.173 (0.199)	-0.232 (0.181)	-0.347 (0.217)	-0.293 (0.203)	-0.284 (0.241)	-0.391 (0.216)	-0.266 (0.241)	-0.405 (0.216)
Age	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Gender	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Ethnicity	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Religiosity	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Religious identification	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Education	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Anxiety	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Distraction	No	No	No	No	Yes	Yes	Yes	Yes
Study source	No	No	No	No	Yes	Yes	Yes	Yes
Language	No	No	No	No	No	No	Yes	Yes
Constant	0.757** (0.147)	0.656** (0.153)	2.347* (0.980)	0.854 (0.579)	1.832 (1.068)	0.657 (0.596)	1.761 (1.072)	0.930 (0.694)
Observations	103	100	101	99	100	98	100	98
MS-I = MS-D	p = 0.018	p = 0.113	p = 0.098	p = 0.035	p = 0.072	p = 0.012	p = 0.061	p = 0.013
MS-I (noNDE) = MS-I (NDE)	p = 0.206		p = 0.923		p = 0.956		p = 0.458	
MS-D (noNDE) = MS-D (NDE)	p = 0.826		p = 0.836		p = 0.856		p = 0.614	

Note: dependent variable is Death Thought Accessibility (DTA) in each condition and group. This table shows the estimates of linear regressions testing whether MS-Immediate and MS-Delayed conditions affect noNDE and NDE subjects' DTA (first and second columns). Then, control for potentially confounding variables (age, gender, ethnicity, country, religiosity, religious identification, marital status, education, anxiety levels, distraction during the study, source of the study, English as best/first language) have been added to verify robustness of the estimates. Robust standard errors in parentheses. On the bottom part of the table, results from postestimation Chow test are reported to compare conditions' coefficients. MS = mortality salience; MS-I = MS-Immediate; MS-D = MS-Delayed. ** p<0.01; * p<0.05

3.6 Death Representations and Near Death Experience

Data on death representation are obtained from the TDRS, a scale that investigates quantitatively the ontological representation of death, and from the content analysis of the open-ended question about the definition of death.

Scores on the TDRS ranged from 6 to 30, with a mean of 10.82 (SD = ±4.72). Internal consistency of the TDRS was good, with a Cronbach’s α of 0.83. TDRS scores were significantly higher ($t(206) = 3.95, p < .001$) for noNDErs, with a mean of 12.06 ($n = 104; SD = \pm 5.16$), than for those who had a NDE ($M = 9.54, n = 102, SD = \pm 3.86$). This result suggests that NDErs represent death as a passage in larger extent than noNDErs. Moreover, NDE total score have a weak, but significant and negative correlation with TDRS ($r = -0.17, n = 107, p < 0.10$), indicating that the more NDE is deep, the more the death is represented as a passage.

Ordered logistic regression was used to test the effect of having had a NDE on death representations. Then, potentially confounding factors have been added as controls. As reported in Table 16, NDE has a negative effect on TDRS level, confirming that having a NDE affects death representation in a way that it is intended like a passage, rather than annihilation. The effect is robust to the inclusion of socio-demographic controls.

Table 16. NDE effect on Death Representation.

<i>Variable</i>	<i>TDRS</i>	<i>TDRS</i>
NDE	-0.984** (0.250)	-0.788* (0.282)
Age	No	Yes
Gender	No	Yes
Ethnicity	No	Yes
Country	No	Yes
Religiosity	No	Yes
Religious identification	No	Yes
Marital status	No	Yes
Education	No	Yes
Observations	206	203

Note: dependent variable is self-esteem score on Testoni Death Representation Scale (TDRS). This table shows the estimates of ordered logistic regressions testing whether having a Near Death Experience (NDE) affect subjects’ death representation (first column). In second column, control for potentially confounding demographical variables (age, gender, ethnicity, country, religiosity, religious identification, marital status, education) have been added to verify robustness of the estimates. Robust standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$

Content analysis of answers to open-ended question about death revealed a variety of categories used to represent death (death definitions are reported in Appendix R). List of categories and frequencies for the whole sample and for noNDErs and NDErs are reported in Table 17. Overall there are four predominant categories.

In the first one, death is defined mostly as a passage/transition/journey/return to another existence/dimension/life (e.g., “*Death is a door to another life. I see death as the beginning and not the end*”). Then, 75 participants mentioned something that would persist after bodily death, leaving the physical form to continue its existence (e.g., “*death is the energy of the body, the soul, leaving the physical form it has taken in order to experience what we call life as a human being*”). Moreover, death is defined as the death of the body and of its functions (e.g., “*The physical body ceases to function*”), and as the end of life (e.g., “*End of one’s life*”).

Comparative analyses between noNDErs and NDErs revealed significant differences between the three categories used to give meaning to death. People who had not lived a NDE defined death as the cessation or malfunction of bodily functions more often than NDErs. Differently, NDErs associated death with the separation of soul and/or consciousness from the body, and attached positive feelings to it (e.g., “*a place of peace and unconditional love*”) more often than noNDE.

Table 17. Death representation categories among participants.

<i>Category</i>	<i>Whole Sample (N=206)</i>	<i>noNDE (n=104)</i>	<i>NDE (n=102)</i>	<i>X²</i>	<i>Pr</i>
1. Death is the cessation or malfunction of bodily functions	68	42	26	51.661	0.03*
2. Death is the end of life	44	24	20	0.3689	0.54
3. When death occurs, something (e.g., soul or consciousness) separates and continues beyond the body	75	30	45	51.872	0.03*
4. Death is a passage, transition, journey, or return to another existence, dimension, life	93	42	51	19.225	0.17
5. Death leads to acquisition of knowledge or to a personal growth	13	7	6	0.0627	0.80
6. Death is an illusion, it is like awakening from a dream	9	3	6	11.076	0.29
7. Death is one step of a process that includes reincarnation	9	4	5	0.1374	0.71
8. Death is a way to be free	10	5	5	0.001	0.98
9. Death is source of pain or fear	5	2	3	0.2254	0.64
10. Death lead to a transformation	12	3	9	33.108	0.07
11. Death is something unknowable and unpredictable	8	6	2	20.010	0.16
12. Death means end of one's goals and dreams and incapacity to have experience of the world	4	3	1	0.9807	0.32
13. Death is natural and inevitable part of the human experience	11	7	4	0.804	0.37
14. Death is something associated with positive feelings	20	4	16	82.351	< 0.01**
15. Death leads to the non-existence	3	1	2	0.3583	0.55
16. Death is loss of someone loved	1	1	0	0.9856	0.32
17. Death as "game over"	2	1	1	0.0002	0.99

** p < 0.01; * p < 0.05

3.7 Death Attitudes, Death Representations, and Death Thought Accessibility

Correlations between DAP-R subscales, DTA levels under each condition, TDRS and occurrences of death definitions' categories have been run to comprehend the relationship between Fear Of Death, Death Avoidance, Death Acceptance, Death Thought Accessibility and the way people represent death. Results are displayed in Table 18.

Table 18. Correlations between Death Attitude Profile-Revised Subscales, Testoni Death Representation Scale, and Death Thought Accessibility.

	DAP-FOD	DAP-DA	DAP-NA	DAP-AA	DAP-EA	TDRS
DAP-DA	0.71*	-	-	-	-	-
DAP-NA	-0.39*	-0.28*	-	-	-	-
DAP-AA	-0.58*	-0.43*	0.16*	-	-	-
DAP-EA	-0.19*	-0.18*	-0.06	0.58*	-	-
TDRS	0.54*	0.43*	-0.17	-0.72*	-0.31	-
DTA-Control	0.18	0.22	-0.27*	-0.08	0.10	0.07
DTA-Delayed	0.36*	0.37*	-0.10	-0.27*	-0.11	0.22
DTA-Immediate	0.16	-0.02	-0.11	-0.20	0.05	0.16

DAP = Death Attitude Profile-Revised; FOD = Fear of Death; DA = Death Avoidance; NA = Natural Acceptance; AA = Approach Acceptance; EA = Escape Acceptance; TDRS = Testoni Death Representation Scale; DTA = Death Thought Accessibility. * $p < 0.05$

By considering DAP-R subscale, it is possible to observe a high significant positive correlation between Fear Of Death and Death Avoidance ($r = 0.71$, $p < 0.05$), while for each acceptance subscale there is a significant negative correlation with both Fear Of Death and Death Avoidance. These results suggest that people who reported high Fear Of Death could use more avoidant strategies to deal with death. Moreover, higher levels of Natural, Approach, or Escape Acceptance are associated with a decrease of Fear Of Death and Death Avoidance. Approach Acceptance is positively correlated with both Natural Acceptance ($r = 0.16$, $p < 0.05$) and Escape Acceptance ($r = 0.58$, $p < 0.05$). No significant correlation emerged between Natural and Escape Acceptance of death.

TDRS scores are positive correlated with Fear Of Death and Death Avoidance suggesting that a representation of death as annihilation is associated with higher levels of Fear Of Death and Death Avoidance. Then, a negative correlation between TDRS and the Approach Acceptance subscale that includes features of death as a passage and has high correlation with TDRS ($r = 0.72$, $p < 0.05$).

Death thought accessibility seems to be related to some specific attitude and representations. Under control condition (in which DAP-R has been completed after DTA assessment) there is a

significant negative correlation between DTA and Natural Acceptance³⁰ under control condition (but not with other types of acceptance), suggesting a specific effect of this attitude on ordinary DTA levels. Under the *MS-Delayed* condition, DTA positively correlates with Fear Of Death and Death Avoidance, indicating that the more people have high Fear Of Death and use avoidant strategies, the more Death Thought Accessibility arises unconsciously after a delay. At the same time, *DTA-Delayed* (in this case DAP-R, followed by a delay, has been completed before DTA assessment) correlated negatively with Approach Acceptance, which is focused on the idea of death as a passage. No significant correlations have been found at *DTA-Immediate* levels (when DAP-R has been filled just before the DTA assessment). No significant difference emerged between noDNErs and NDErs in DAP-R and DTA correlation's patterns.

Table 18. Correlations between Death Definitions' Categories and Death Attitude Profile-Revised Subscales, Testoni Death Representation Scale.

	DC-1	DC-2	DC-3	DC-4	DC-14
DAP-FOD	0.08	0.27*	-0.20*	-0.28*	-0.15*
DAP-DA	-0.05	0.28*	-0.10	-0.11	-0.05
DAP-NA	-0.02	-0.10	0.09	0.11	0.01
DAP-AA	0.01	-0.22*	0.12	0.29*	0.14*
DAP-EA	0.09	-0.12	0.03	0.19*	0.15*
TDRS	-0.01	0.24*	-0.22*	-0.27*	-0.14*

DAP = Death Attitude Profile-Revised; FOD = Fear of Death; DA = Death Avoidance; NA = Natural Acceptance; AA = Approach Acceptance; EA = Escape Acceptance; TDRS = Testoni Death Representation Scale; DC = Death Category; DC-1 = Death is the cessation or malfunction of bodily functions; DC-2 = Death is the end of life; DC-3 = When death occurs, something (e.g., soul or consciousness) separates and continues beyond the body; DC-4 = Death is a passage, transition, journey, or return to another existence, dimension, life; DC-14 = Death is something associated with positive feelings. * p < 0.05

Correlations among DAP-R, TDRS, DTA and occurrence of category used to define death are reported in Table 19. Only categories with at least 20 observations ($n \geq 20$) have been included.

The first category ("*Death is the cessation or malfunction of bodily functions*") does not have any association with quantitative measures of death attitude and representation. This means that the representation of death and dying as a process of bodily malfunction may have low associations with fear and acceptance of death.

The second category ("*Death is the end of life*") presents a coherent pattern of correlations. Definition of death as the end of life is positive associated with Fear Of Death, Death Avoidance, and with TDRS score, indicating that the more people see death as the end of life, the more the

³⁰ Individuals that show high level of Natural Acceptance consider death as an integral part of life and they show an indifference attitude toward death.

death is ontologically represented as annihilation of the self. Moreover, there is a significant negative correlation between this category and Approach Acceptance. Whether people see death as the end, they do not believe in a hereafter. Hence, we observe a reduction of death acceptance that is based on the idea of a passage to another stage of the existence.

The third category (*“When death occurs, something (e.g., soul or consciousness) separates and continues beyond the body”*) is negatively correlated with Fear Of Death and TDRS scores. This means that believing in the existence of something that would persist after bodily death is associated with a reduction of Fear Of Death and with a representation of death as a passage rather than annihilation.

The categories number four (*“Death is a passage, transition, journey, or return to another existence, dimension”*) and fourteen (*“Death is something associated with positive feelings”*) exhibit a similar pattern. They correlate negatively with Fear Of Death and TDRS scores, and positively with Approach and Escape Acceptance. Thus, this kind of death definitions are associated with a reduction of Fear Of Death, a representation of death as passage rather than annihilation, and an increase of acceptance based on death as passage to another life and escape from this life.

3.8 Self Esteem, Mindfulness, and Death Orientations

Correlations have been used to investigate the relations among self-esteem, mindfulness facets and various attitude toward death, death representation, and death thought accessibility (see Table 20). It is possible to identify a clear pattern of correlation between self-esteem and all the subscales of FFMQ and DAP-R, TDRS and DTA levels under the Delayed condition. Self-esteem is positively related to all the mindfulness facets assessed by FFMQ, particularly with Nonjudging ($r = 0.65$, $p < 0.05$) and Nonreactivity ($r = 0.60$, $p < 0.05$) subscales. High self-esteem scores are associated with higher mindfulness. Moreover, self-esteem has a significant and positive correlation with both Natural and Approach Acceptance. Scores on RSES are negatively correlated to fear of death, Death Avoidance and Escape Acceptance. High value of self-esteem are associated to low value of Fear Of Death, Death Avoidance, and a representation of death as a way to escape from sufferance and pain of life (Escape Acceptance). At the same time, self-esteem is positively related to Natural and Approach Acceptance, thus people with high self-esteem present mostly a neutral attitude toward death or an acceptance based on a representation of death as a passage. Indeed,

self-esteem is also negatively correlated to TDRS scores, indicating that high levels of self-esteem are associated with a representation of death as a passage. Finally, there is a negative correlation between self-esteem and DTA levels only under the delayed condition. This finding is coherent with TMT assumptions, and it indicates that self-esteem is associated with DTA only when death thoughts are active at unconscious level after a distraction task, but not in other conditions.

Table 20. Correlations between Self-Esteem, Five Facet Mindfulness Questionnaire Subscale, Death Attitude Profile-Revised Subscales, Testoni Death Representation Scale, and Death Thought Accessibility.

	RSES Self-Esteem	FFMQ Observe	FFMQ Describe	FFMQ Awareness	FFMQ Nonjudge	FFMQ Nonreact
FFMQ-Observe	0.23*	-	-	-	-	-
FFMQ-Describe	0.35*	0.24*	-	-	-	-
FFMQ-Awareness	0.45*	0.15*	0.34*	-	-	-
FFMQ-Nonjudge	0.65*	0.15*	0.31*	0.50*	-	-
FFMQ-Nonreact	0.60*	0.40*	0.35*	0.52*	0.64*	-
DAP-FOD	-0.39*	-0.25*	-0.23*	-0.18*	-0.37*	-0.42*
DAP-DA	-0.27*	-0.13	-0.19*	-0.05	-0.32*	-0.28*
DAP-NA	0.31*	0.18*	0.08	0.08	0.19*	0.28*
DAP-AA	0.18*	0.17*	0.09	0.14	0.28*	0.24*
DAP-EA	-0.18*	-0.07	-0.07	-0.11	-0.15*	-0.09
TDRS	-0.20*	-0.27*	-0.16*	-0.16*	-0.30*	-0.26*
DTA-Control	-0.10	0.15	-0.06	-0.09	-0.22	-0.11
DTA-Delayed	-0.29*	-0.09	-0.06	-0.16	-0.23	-0.36*
DTA-Immediate	-0.16	-0.10	-0.13	-0.13	-0.18	-0.20

RSES = Rosenberg Self-Esteem Scale; FFMQ = Five Facet Mindfulness Questionnaire; DAP = Death Attitude Profile-Revised; FOD = Fear of Death; DA = Death Avoidance; NA = Natural Acceptance; AA = Approach Acceptance; EA = Escape Acceptance; TDRS = Testoni Death Representation Scale; DTA = Death Thought Accessibility. * p < 0.05

Scores on FFMQ subscales permit to observe a specific pattern of correlation with death-attitudes and representations. All the FFMQ subscales are reciprocally and positively correlated, indicating that they may be related to a unidimensional component of mindfulness. The relation between FFMQ and DAP-R subscales are characterized by negative correlation between all mindfulness facets and Fear Of Death. It follows that the more people are mindful, the less they fear death. Death Avoidance is negatively correlated to all FFMQ subscales, but not to Awareness. Natural Acceptance and Approach Acceptance have a significant and positive correlation with Observe, Nonjudging, and Nonreactivity subscales, indicating that specific mindfulness facets may be associated with certain acceptance attitudes. Escape Acceptance is negatively related with the nonjudging component of mindfulness, thus having a nonjudgmental attitude toward the experience is associated with a reduction of a representation of death as a way to escape from life troubles. TDRS scores are negatively correlated with all the FFMQ subscales, indicating that being

mindful is associated with the representation of death as a passage, rather than annihilation. Finally, a significant relation between mindfulness and DTA emerged only for Nonreactivity subscale. The ability of not reacting to inner experiences is associated with a reduction of DTA in Delayed condition ($r = -0.36, p < 0.05$).

Chapter 4

Discussion

4.1 Introduction

This study explored death attitudes and death representations in people who had a near-death experience, in order to shed light on the processes that lead to a loss of fear of death after a NDE (Tassell-Matamua & Lindsay, 2016).

In the first chapter, we have proposed a number experimental hypotheses based on previous literature (see paragraph 1.5). Hypotheses have been formulated as follow:

- *Hypothesis 1: NDErs have lower fear of death and higher acceptance of death than noNDErs;*
- *Hypothesis 2: NDErs have lower unconscious death anxiety than noNDErs;*
- *Hypothesis 3: NDErs have a different death representation with respect to noNDErs;*
- *Hypothesis 4: Conscious and unconscious death anxiety is related to death representations;*
- *Hypothesis 5: NDErs have higher self-esteem than noNDErs;*
- *Hypothesis 6: NDErs have higher mindfulness abilities than noNDErs.*

In order to explore these issues, we have conducted an online experiment that involved individuals who lived a NDE and others who did not (see paragraph 2.3), who have been assigned to 3 experimental conditions. The survey administered to the participants was used to collect also information on the main measures of self-esteem, mindfulness, death attitudes, death representations, and death thought accessibility. Results from this study confirmed hypotheses 1, 3, 5, 6, but they open a number of issues related to hypotheses 2 and 4. Discussion of the main findings are reported in the following section.

4.2 General discussion

4.2.1 Hypothesis 1: NDErs have lower fear of death and higher acceptance of death than noNDErs

In the literature, a number of studies showed a reduction of fear of death and an increase of death acceptance in people who lived a NDE (Greyson, 1992, 1994, 2003; Groth-Marnat & Summer, 1998; von Lommel et al., 2001). Our results corroborate previous studies on fear of death in NDErs, and, as hypothesized, NDErs reported lower fear of death than people who did not have a NDE. Moreover, NDErs' scores are inversely related to the depth of their NDE and each subcomponent. This suggests that there is an association between NDE and death anxiety, and the more NDE features are reported, the more participants' fear of death decreased. In his studies, Greyson (2003) used the DAP scale, and he did not find a difference between NDErs and noNDErs

concerning fear of death. Discrepancies between findings from our study and Greyson's research may be explained by the differences in the choice of the control group. Indeed, in Greyson's work, patients admitted to a cardiac intensive care unit have been used as control group when they scored lower of 7 on NDE scale. In our study, the control group was composed by seven people who did not reach the NDE scale threshold, and other participants (n=97) that were just interested on NDE topic. It is important to point out that no information have been collected on possible other experiences close to death that might had been lived by the members of the control group. Since previous researches showed that death anxiety can be relatively low in ill patients (Gibbs & Achterberg-Lawlis, 1978; Smith et al., 1983-1984), we could argue that patients in cardiac unit scored lower in fear of death because of their health condition, and thus reached a score similar to NDErs.

In our study, DAP-R scale (Wong et al., 1994) has been used to assess death attitudes toward death. This revised instrument included a scale for death avoidance³¹. As for fear of death, death avoidance is inversely related to the total scores of NDE scale and subscales, suggesting that a deeper experience would lead to a lower use of denial mechanisms when NDErs deal with death-related contents. Even though NDErs reported a lower level of death avoidance, T test does not show differences among groups and regressions' estimates do not provide evidence of the existence of an effect of NDE on death avoidance.

NDErs scored higher than noNDErs on Approach and Neutral Acceptance. Greyson (2003) has already estimated a larger approach acceptance in NDErs, but he has not found any difference on Neutral Acceptance. Approach Acceptance is grounded on the idea of death as a passage to another reality, and this kind of representation seems to be highly compatible with NDE feature of entrance in an unearthly world, which has been reported by 88.79% of participants who completed the NDE scale. Natural Acceptance is based on the idea that death is an integral part of life that is neither to be welcomed nor to be feared, and it is described as independent from one's beliefs in afterlife (Wong et al., 1994). Thus, NDErs seem to have developed a representation of death as a passage to afterlife, but also a sort of indifference towards death. Nevertheless, low internal consistency of Natural Acceptance subscale suggests that this scale could assess more than just one construct. More studies are needed to investigate this particular attitude toward death in NDErs.

³¹ In a previous study, Greyson (2003) used the first version of DAP (Gesser et al., 1987), in which a scale for death avoidance was not included.

Even though NDE and control groups were different in age, which is a significant factor related to death anxiety (Russac et al., 2007), results from regression showed a robust effect of NDE on fear of death, and acceptance of death, thus the first hypothesis is confirmed.

4.2.2 Hypothesis 2: NDErs have lower unconscious death anxiety than noNDErs

In this study, we assessed unconscious (implicit) fear of death by observing death thought accessibility (DTA) in response to a mortality reminder. In previous studies, people in mortality salience condition showed low levels of DTA just after MS manipulations, suggesting a suppression of death-related thoughts, and higher levels of DTA after a delay, when suppressed death-related material remained unconsciously active (Greenberg et al., 1994; Hayes et al., 2010). Comparisons of DTA levels among experimental conditions revealed no differences between DTA in *MS* conditions and *No-MS* condition, for both NDErs and noNDErs, suggesting that something in the procedure worked differently from what we expected. We should keep in mind that participants were recruited through social network pages and IANDS' mailing lists in order to find people who had a NDE. Then, participants have been randomly divided in three different conditions, in which the position of DAP-R (tool used to induce MS) was moved in order to create a death reminder before (for *MS-Immediate* and *MS-Delayed* conditions) or after (for *No-MS* condition) the assessment of DTA. A first explanation of this unexpected result could be that a death reminder occurred for all participants before the beginning of the experiment. Indeed, study advertisements were published in web sites and Facebook pages focused on death-related topic (i.e., near-death experience), in which people can share their NDE and discuss about afterlife and other topics related to death. Moreover, other participants received the survey link from IANDS groups' chiefs by e-mail, and receiving an e-mail from an NDE association could activate death-related concerns. Hence the exposure to a death reminder at the beginning of the study could have altered the control condition, by making it more similar to the *MS-Delayed* one (i.e., DTA was assessed after a delay from MS induction). Since it has not been possible to recruit NDErs without mentioning their NDE, participants who had a NDE could be constantly under mortality salience, reducing the effect of the experimental treatments. Nevertheless, we were aware of this issue, and for this reason, noNDErs were recruited in the same way, in order to make them comparable to those in the experimental group.

Even though there was a death reminder at the beginning of the survey, we should have observed discrepancies between reactions to *MS-Immediate* and *MS-Delayed* treatments, because DTA assessed immediately after a death reminder should be different from DTA assessed after a delay (Greenberg et al, 1994; Hayes et al., 2010). It is necessary to remember that previous research stated that DTA should be low immediately after MS, because of the suppression mechanisms activated by death-related thoughts, and high after a delay (Niemiec et al., 2010; Hayes et al., 2010). In our study, the DTA trend under the *MS-Immediate* and the *MS-Delayed* conditions was the opposite for both noNDE and NDE groups, suggesting a peculiar reaction of the participants in our experimental setting. A first possibility is that online priming may be different from priming in a cubicle, because other primes and distractions may occur during the survey. Anyway, we checked for possible moderating factors of distractions reported by participants, and any of them influenced DTA trend. Another explanation is related to the death stimuli used to induce MS. Indeed, in this study DAP-R has been used as death reminder since other studies provided evidence that MS induction with a self-report of death anxiety produces the same effect of other death stimuli (Burke et al., 2010). DAP-R includes a fear of death subscale, which has been used as death reminder, and acceptance of death subscales, that could have interacted with MS induction. Previous research shown that participants who have the chance to affirm themselves or to defend their threatened worldview, in response to MS, reduce DTA (Greenberg et al., 2001; Schmeichel & Martens, 2005). To the best of our knowledge, there are no studies investigating proximal defenses when people have the chance to protect themselves (just before MS induction or, as in our case, during the MS induction). Anyway, if self-esteem boosting and the defense of one's own worldview lead to a reduction of MS effect and to a low DTA after a delay, in the same way, after a death reminder, death-related thoughts should not be suppressed, and we should find higher DTA immediately after MS. In this vein, while participants filled the DAP-R, they could have received a MS induction (fear of death subscale) but also a chance to proactively react and defend themselves from death concerns by boosting their acceptance of death³². Thus, participants should not need to suppress death-related concern, showing higher DTA immediately after DAP-R, and

³² Previous research already shown that different way to think about death can lead to different MS effects (Cozzolino et al., 2004). In our case, people could be led to think about death with an attitude of acceptance, which at the same time could provide a sense of self-worth.

lower DTA as time goes by, because there was no death concern activated unconsciously by suppression.

We observed a similar pattern of reactions to *MS-Immediate* and *MS-Delayed* inductions among noNDErs and NDErs, and this suggests that that people who lived a NDE did not change their way to react to death material with respect to a control group. Results on DTA assessment did not support hypothesis number two, thus NDErs did not show a different reactions with respect to noNDErs. Hence, we cannot claim that people who had a NDE were able to reduce their unconscious death anxiety.

4.2.3 Hypothesis 3: NDErs have a different death representation with respect to noNDErs

This study provided evidence of differences between groups in their representation of death. Even though both noNDErs and NDErs represented death as passage, rather than annihilation, NDE has an effect on death representation, contributing to a radicalization of the conceptualization as a passage. Moreover, death definitions embraced by people who lived a NDE contain more categories related to typical features of NDE. Indeed NDErs defined death more often as something that includes a separation of the soul/consciousness from the body, which could be due to the out of body experiences reported by the 95.33% of NDErs participants. Moreover, positive feelings reported by 93.46% of people who filled NDE scale could explain why they associated positive feelings to death. Then, NDErs referred less often to death as cessation of bodily functions than noNDEr. Even though noNDErs did not have a representation as annihilation³³, NDErs have a different representation of death with respect to participants in the control group. Thus the third hypothesis is corroborated.

4.2.4 Hypothesis 4: Conscious and unconscious death anxiety is related to death representations

The fourth hypothesis is focused on the relationship between conscious/unconscious fear of death and death representation. Explorations of the pattern of the correlations among these constructs did not show differences among groups, but we cannot know if different patterns of conscious (explicit) and unconscious (implicit) death anxiety have been hidden by a boost on death acceptance because of issues related to DTA assessment. We observed a pattern of correlations

³³ NoNDErs reached an average score of 12.06 on a range from 6 to 30, in which lower scores indicate representations of death as passage.

between DAP-R subscales and DTA under *MS-Delayed* condition (when distal defenses would occur after a death reminder), a result that suggests that our participants did not deny death concerns. Indeed, positive correlations among Fear Of Death and DTA, and Death Avoidance and DTA, indicate that DTA increases after a delay when people have higher fear of death and death avoidance. At the same time, participants with high acceptance of death, based on a representation of death as a passage, tended to reduce their DTA after a delay. In this vein, there is a parallel relationship between conscious and unconscious fear of death, contrarily to what has been found in previous research (Greenberg et al., 1995). We expected to find this kind of relationship just in NDErs, because of their widely reported acceptance of death (Tassel-Matamua & Lindsay, 2016), but we found this pattern among all the participants.

As concerns death representations, they are associated in a coherent pattern with death attitudes. Participants who defined death as a journey to another realm, supporting the idea of death as a passage, and who associate death to the survival of consciousness and positive feelings, reported low fear of death and more death acceptance (which are inversely related). Those participants that describe death as the end of one's life scored higher in fear of death and death avoidance, and lower in death acceptance. In this vein, those categories that differentiate noNDErs from NDErs lead to a structure of meanings embraced by NDErs who could protect them from death concerns. By considering the observed relationship among conscious fear of death, death-thought accessibility and death representations, hypothesis number four results partially corroborated.

4.2.5 Hypotheses 5 and 6: NDErs have higher self-esteem and mindfulness abilities than noNDErs NDE seems to affect psychological constructs that are related to death attitudes (Greyson, 2013; Noyes et al., 2009), such as self-esteem and mindfulness (Brubeck & Beer, 1992; Harmon-Jones et al., 1997, Lehto & Stein, 2009; Niemiec et al., 2010). Alterations of these psychological aspects could enhance positive attitudes toward death. NDErs scored higher than noNDErs in self-esteem and all mindfulness facets, corroborating quantitatively previous research based on qualitative reports (Greyson, 2013; Noyes et al., 2009; Wren-Lewis, 1994; Tassel-Matamua & Lindsay, 2016). Notably, self-esteem scores were positively associated with NDE total score, but we found a higher correlation with the affective component of NDE, suggesting that NDE emotional features may produce an increase on self-esteem. In the same way, Describing, Nonjudgment, and

Nonreactivity subscales had an association with the affective component of NDE scale. These findings corroborate hypotheses 5 and 6.

Results reported in paragraph 3.8 showed how self-esteem and mindfulness could be associated to alterations of death attitudes and representation in NDErs. In general, NDErs resulted to be higher in self-esteem and mindfulness, which are both negatively correlated with Fear Of Death and Death Avoidance, and positively correlated with a death representation as a passage that seems to furnish some protection from death concerns. Moreover, negative correlation of self-esteem and Nonreactivity subscale with DTA under *MS-Delayed* indicates that these psychological constructs are associated with a reduction of the effect of death concerns activated at an unconscious level (Harmon-Jones et al., 1997; Niemiec et al., 2010).

4.3 Limitations and Future Directions

As reported above, two main critical issues emerged and they are related to the selection of the participants and the online collection of data. In this research, the control group included a miscellaneous of individuals that encompassed people who reported a NDE, but scored lower than 7 on NDE scale, people who were interested on NDE topic and did not report a NDE, and in a small number, common people who received the survey link from some friend or colleague. Previous researches used different control groups, for example in some studies participants were individuals who had spontaneously contacted the researchers, in order to share their experiences when they had a brush with death. In that case, control group included people who scored lower than seven on NDE scale (Greyson, 2000; Greyson & Khanna, 2014). Other studies used as control group patients admitted to a cardiac intensive care unit, who did not reported some recollection of the time of their clinical death or, otherwise, who scored lower than 7 on NDE scale (Greyson, 2003; van Lommel et al., 2001); some others used common people matched for gender and age (Palmieri et al., 2014). Probably, the most suitable control group to assess the effects of NDE should include people who think they had a NDE, without actually having it (as in the case of Greyson and Khanna, 2014). This choice would neutralize any effect of suggestions and beliefs of having had a NDE. Using this sample previous studies found differences between NDErs and noNDErs (Greyson, 2000; Greyson & Khanna, 2014), but usually they had a smaller control group with respect to the experimental group (for example 206 NDErs vs. 24 noNDErs, or 96 NDErs vs. 38 noNDErs). In our study, since we had 6 different conditions to assess DTA, we had to recruit a

number of participants (both noNDErs and NDErs) sufficiently high to obtain reliable results. For this reason we choose a common environment where both NDErs and noNDErs could have been easily found. This choice has been taken by considering that people interested in NDEs could have been influenced by the NDE topic and developed beliefs similar to NDErs, in this way both NDErs and noNDErs in *No-MS* condition had the same probability to be death-primed before the beginning of the survey.

Another issue is related to the Mortality Salience (MS) hypothesis and the sample of people who had a NDE. Indeed, every time NDErs are asked to fill a questionnaire because of their NDE, they receive a MS induction, because they are going to think about a moment in their life in which they were close to death. Moreover, there is a chance that they could also increase or perceive a threat for their worldview grounded on their experiences, that could impact on MS effects. A way to overcome this problem could be recruiting NDErs for a study on NDE (as a cover story) to induce MS; at the end of the study, another researcher should include those participants in another experiment (in which MS effect will be assessed) that should not appear related to the first one.

This section is meant to provide suggestions to future research that may provide useful insights to build up experimental and control groups in a controlled way that would not affect results.

Another critical issue is related to potential distractions occurring during an online survey. In this vein, people could be distracted by a number of stimuli and thoughts while they are filling the survey in front of their computer. A phone call, a break, a program on TV could distract people from their task influencing the effect of the MS prime. To the best of our knowledge, there are no TMT published studies that use online prime, even though some experiments have been conducted online and primes seem to work properly. Even though online recruitment of participants furnishes a rapid and economical way to collect data, we suggest that future research on TMT and NDE should start from lab experiments.

To conclude, this study introduces a number of novelties with respect to previous researches, and some of them deserve to be briefly mentioned and discussed. First, we use DAP-R to induce MS induction and as a measure of death attitudes. Then, our interpretation of the findings based on TMT model (Greenberg & Arndt, 2011) suggested that one's own death acceptance could have an effect on people's orientation toward death because of its potential protecting role after the exposure to a death reminder. Future research should investigate this issue, anyway we do not suggest to use this instrument as a prime to induce mortality salience. To the best of our knowledge, there are no

TMT studies investigating the moderating role of acceptance on MS effect, thus more research is needed to understand if acceptance of death could reduce proximal and distal defenses.

Future research on NDE and TMT should include assessment of DTA or worldview defense, and it should boost or threat NDE-based worldviews in order to understand if people who had a NDE resolve their existential conflicts or they believe in a worldview that provides protection from death concerns.

Finally, each NDE features could have different effects on people, thus future studies should analyze NDE components (cognitive, affective, paranormal, and transcendent) separately, along with singular features, to shed light on the processes that lead NDErs to develop the well-known aftereffects and to change representation of life and death.

4.4 Conclusions

Death anxiety has been described as the *worm at the core* of human existence, and it has been identified as a basic source of motivation that lead people to search for meaning in their lives, to support and defend their cultural worldview, and to strive for their self-esteem (Solomon et al., 2015). NDErs may represent an exception to this universal attitude toward death. Indeed, having a NDE seems to influence the relationship that people have with their finitude, and not only NDErs report the loss of fear of death, but they exhibit also changes in a variety of death-related features, indicating a global transformation of them and their existential needs (Tassel-Matamua & Lindsay, 2016).

NDE, death anxiety, and TMT are research topics that could be merged to develop a wider and integrated knowledge about how human beings deal with death, and how they can overcome fear of death. In this vein, since death anxiety has been associated to a number of psychopathological conditions, clinical implications to reduce death anxiety, to support terminally ill people, and to facilitate grief elaboration can be derived from both NDE and TMT assumptions (Iverach et al., 2014; Tassel-Matamua et al., 2016).

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Appendix A

Online advertisements

Researchers at Skidmore College (Saratoga Springs, New York) and University of Padua (Italy) are conducting an international study about NDE, the relationship between various personality attributes and people's attitude towards different life experiences. Participants will be asked to complete an anonymous online survey.

The survey is an opportunity to contemplate significant aspects of one own life, and to make an important contribution to scientific inquiry.

If you are interested in participating, please follow this link and start the survey, which takes approximately 20-40 minutes to complete: [*link to the survey*].

The principal investigator for this project is Simone Bianco. If you have any questions, please send an email to sbianco@skidmore.edu.

Appendix B

Personality Assessment Consent Form

1. INTRODUCTION

You are invited to be a participant in a research study exploring the relationship between a variety of personality assessments. We ask that you read this document and ask any questions you may have before agreeing to be in the study. This study is being conducted by Simone Bianco, PhD Candidate at the University of Padua (Italy) and affiliated with the Psychology Department of Skidmore College (New York).

2. BACKGROUND

The purpose of this study is to test the relationship between several personality variables and attitudes towards life experiences.

3. DURATION

The length of time you will be involved with this study is approximately 20-40 minutes.

4. PROCEDURES

If you agree to be in this study, we will ask you to do the following things: complete a number of measures, including different personality and attitude assessments. Please note that, although we do not anticipate that the survey questions will be upsetting, you will have the option to skip any questions you prefer not to answer or quit the survey at any point.

You must also be over the age of 18 in order to participate in this study.

5. RISKS/BENEFITS

This study has the following risks: the risks associated with this study are minimal, and are no greater than one would encounter in daily life.

6. CONFIDENTIALITY

The records of this study will be kept private. Data collected will in no way be associated with identifying characteristics of participants (e.g., name, URL, e-mail address, etc.), and will be stored electronically by the researcher. In any sort of report that is published or presentation that is given, we will not include any information that will make it possible to identify a participant.

7. VOLUNTARY NATURE OF THE STUDY

Your decision whether or not to participate will not affect your current or future relations with University of Padua, Skidmore College, or any of their representatives. If you decide to participate in this study, you are free to withdraw from the study at any time without affecting those relationships. You may withdraw from the survey at any time or choose not to answer questions within the survey.

8. CONTACTS AND QUESTIONS

The researcher conducting this study is Simone Bianco. If you have any questions you may contact the researcher at: sbianco@skidmore.edu. You may also contact his supervising investigator, Sheldon Solomon, at 518-580-5312 or ssolomon@skidmore.edu.

If you have questions or concerns regarding this study and would like to speak with someone other than the researcher, you may contact Mary Hoehn, Chair, Institutional Review Board, Skidmore College, 815 N. Broadway, Saratoga Springs, NY 12866, phone 518-580-8052, e-mail mhoehn@skidmore.edu. Or, you may contact Holley Hodgins, chairperson of the Skidmore College Psychology department, Skidmore College, 815 N. Broadway, Saratoga Springs, NY 12866, phone 518-580-3509, e-mail hhodgins@skidmore.edu.

9. STATEMENT OF CONSENT

I am at least 18 years of age. The procedures of this study have been explained to me and my questions have been addressed. The information that I provide is confidential and will be used for research purposes only. I understand that my participation is voluntary and that I may withdraw anytime without penalty. If I have any concerns about my experience in this study (e.g., that I was treated unfairly or felt threatened), I may contact the Chair of the Institutional Review Board or the Chair of the sponsoring department of this research regarding my concerns. By clicking "I agree" I am providing my consent to participate in this study.

- I agree
- I disagree

Appendix C

INSTRUCTIONS

On the following pages you will find a series of personality and attitude questionnaires. There are no right or wrong, or good or bad answers; rather different responses reflect different personalities and attitudes towards life experiences. Please respond honestly to each question with your first and natural response.

The length of time you will be involved with this study is approximately 20-40 minutes. Please choose a quiet time and place in which you can complete the survey uninterrupted. Please avoid distractions and refrain from talking to anyone else, listening to music, or using any electronic devices while taking this survey.

- I agree
- I disagree

Appendix D

Rosenberg Self Esteem Scale

Please record the appropriate answer for each item, depending on whether you strongly agree, agree, disagree, or strongly disagree with it.

	strongly agree	agree	disagree	strongly disagree
1. On the whole, I am satisfied with myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. At times I think I am no good at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I feel that I have a number of good qualities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I am able to do things as well as most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I feel I do not have much to be proud of.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I certainly feel useless at times.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I feel that I'm a person of worth.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I wish I could have more respect for myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. All in all, I am inclined to think that I am a failure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I take a positive attitude toward myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix E

Five Facet Mindfulness

Please rate each of the following statements using the scale provided. Specify the rating that best describes your own opinion of what is generally true for you.

	Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true
1. When I'm walking, I deliberately notice the sensations of my body moving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I'm good at finding words to describe my feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I criticize myself for having irrational or inappropriate emotions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I perceive my feelings and emotions without having to react to them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. When I do things, my mind wanders off and I'm easily distracted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. When I take a shower or bath, I stay alert to the sensations of water on my body.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I can easily put my beliefs, opinions, and expectations into words.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I watch my feelings without getting lost in them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I tell myself I shouldn't be feeling the way I'm feeling.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. It's hard for me to find the words to describe what I'm thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I am easily distracted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	<input type="radio"/>				
15. I pay attention to sensations, such as the wind in my hair or sun on my face.	<input type="radio"/>				
16. I have trouble thinking of the right words to express how I feel about things.	<input type="radio"/>				
17. I make judgments about whether my thoughts are good or bad.	<input type="radio"/>				
18. I find it difficult to stay focused on what's happening in the present.	<input type="radio"/>				
19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	<input type="radio"/>				
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	<input type="radio"/>				
21. In difficult situations, I can pause without immediately reacting.	<input type="radio"/>				
22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	<input type="radio"/>				
23. It seems I am "running on automatic" without much awareness of what I'm doing.	<input type="radio"/>				
24. When I have distressing thoughts or images, I feel calm soon after.	<input type="radio"/>				
25. I tell myself that I shouldn't be thinking the way I'm thinking.	<input type="radio"/>				
26. I notice the smells and aromas of things.	<input type="radio"/>				
27. Even when I'm feeling terribly upset, I can find a way to put it into words.	<input type="radio"/>				
28. I rush through activities without being really attentive to them.	<input type="radio"/>				
29. When I have distressing thoughts or images, I am able just to notice them without reacting.	<input type="radio"/>				
30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.	<input type="radio"/>				
31. I notice visual elements in art or nature, such as colors, shapes,	<input type="radio"/>				

textures, or patterns of light and shadow.

32. My natural tendency is to put my experiences into words.	<input type="radio"/>				
33. When I have distressing thoughts or images, I just notice them and let them go.	<input type="radio"/>				
34. I do jobs or tasks automatically without being aware of what I'm doing.	<input type="radio"/>				
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	<input type="radio"/>				
36. I pay attention to how my emotions affect my thoughts and behavior.	<input type="radio"/>				
37. I can usually describe how I feel at the moment in considerable detail.	<input type="radio"/>				
38. I find myself doing things without paying attention.	<input type="radio"/>				
39. I disapprove of myself when I have irrational ideas.	<input type="radio"/>				

Appendix F

Death Attitude Profile - Revised

This questionnaire contains a number of statements related to different attitudes toward death. Read each statement carefully, and then indicate the extent to which you agree or disagree, using the scale provided. It is important that you work through the statements and answer each one. Many of statements will seem alike, but all are necessary to show slight differences in attitude.

	Strongly disagree	Disagree	Moderately disagree	Undecided	Moderately agree	Agree	Strongly agree
1. Death is no doubt a grim experience.	<input type="radio"/>						
2. The prospect of my own death arouses anxiety in me.	<input type="radio"/>						
3. I avoid death thoughts at all costs.	<input type="radio"/>						
4. I believe that I will be in heaven after I die.	<input type="radio"/>						
5. Death will bring an end to all my troubles.	<input type="radio"/>						
6. Death should be viewed as a natural, undeniable, and unavoidable event.	<input type="radio"/>						
7. I am disturbed by the finality of death.	<input type="radio"/>						
8. Death is an entrance in a place of ultimate satisfaction.	<input type="radio"/>						
9. Death provides an escape from this terrible world.	<input type="radio"/>						
10. Whenever the thought of death enters my mind, I try to push it away.	<input type="radio"/>						
11. Death is deliverance from pain and suffering.	<input type="radio"/>						
12. I always try not to think about death.	<input type="radio"/>						
13. I believe that heaven will be a much better place than this world.	<input type="radio"/>						

14. Death is a natural aspect of life.	<input type="radio"/>						
15. Death is a union with god and eternal bliss.	<input type="radio"/>						
16. Death brings a promise of a new and glorious life.	<input type="radio"/>						
17. I would neither fear death nor welcome it.	<input type="radio"/>						
18. I have an intense fear of death.	<input type="radio"/>						
19. I avoid thinking about death altogether.	<input type="radio"/>						
20. The subject of life after death troubles me greatly.	<input type="radio"/>						
21. The fact that death will mean the end of everything as I know it frightens me.	<input type="radio"/>						
22. I look forward to a reunion with my loved ones after I die.	<input type="radio"/>						
23. I view death as a relief from earthly suffering.	<input type="radio"/>						
24. Death is simply a part of the process of life.	<input type="radio"/>						
25. I see death as a passage to an eternal and blessed place.	<input type="radio"/>						
26. I try to have nothing to do with the subject of death.	<input type="radio"/>						
27. Death offers a wonderful release of the soul.	<input type="radio"/>						
28. One thing that gives me comfort in facing death is my belief in the afterlife.	<input type="radio"/>						
29. I see death as a relief from the burden of this life.	<input type="radio"/>						
30. Death is neither good nor bad.	<input type="radio"/>						
31. I look forward to life after death.	<input type="radio"/>						
32. The uncertainty of not knowing what happens after death worries me.	<input type="radio"/>						

Appendix G

State-Trait Anxiety Inventory

A number of statements which people have used to describe themselves are given below. Rate each statement using the scale provided to indicate how you feel RIGHT NOW, that is, at THIS MOMENT. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feeling best.

	Not at all	Somewhat	Moderately so	Very much so
1. I feel calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel secure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am tense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I feel strained.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I feel at ease.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I feel upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I am presently worrying over possible misfortunes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I feel satisfied.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I feel frightened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I feel comfortable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I feel self-confident.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I feel nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I am jittery.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I feel indecisive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I am relaxed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I feel content.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I am worried.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I feel confused.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I feel steady.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I feel pleasant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix H

Literary Preference Questionnaire

Please read the following short passage from a novel and answer the questions below it.

The automobile swung clumsily around the curve in the red sandstone trail, now a mass of mud. The headlights suddenly picked out in the night--first on one side of the road, then on the other--two wooden huts with sheet metal roofs. On the right near the second one, a tower of course beams could be made out in the light fog. From the top of the tower, a metal cable, invisible at its starting-point, shone as it sloped down into the light from the car before disappearing behind the embankment that blocked the road. The car slowed down and stopped a few yards from the huts.

The man who emerged from the seat to the right of the driver labored to extricate himself from the car. As he stood up, his huge, broad frame lurched a little. In the shadow beside the car, solidly planted on the ground and weighed down by fatigue, he seemed to be listening to the idling motor. Then he walked in the direction of the embankment and entered the cone of light from the headlights. He stopped at the top of the slope, his broad back outlined against the darkness. After a moment he turned around. In the light from the dashboard he could see the chauffeur's black face, smiling. The man signaled and the chauffeur turned off the motor. At once a vast cool silence fell over the trail and the forest. Then the sound of the water could be heard.

The man looked at the river below him, visible solely as a broad dark motion flecked with occasional shimmers. A denser motionless darkness, far beyond, must be the other bank. By looking fixedly, however, one could see on that still bank a yellowish light like an oil lamp in the distance. The big man turned back toward the car and nodded. The chauffeur switched off the lights, turned them on again, then blinked them regularly. On the embankment the man appeared and disappeared, taller and more massive each time he came back to life. Suddenly, on the other bank of the river, a lantern held up by an invisible arm back and forth several times. At a final signal from the lookout, the man disappeared into the night. With the lights out, the river was shining intermittently. On each side of the road, the dark masses of forest foliage stood out against the sky and seemed very near. The fine rain that had soaked the trail an hour earlier was still hovering in the warm air, intensifying the silence and immobility of this broad clearing in the virgin forest. In the black sky misty stars flickered.

How do you feel about the overall descriptive qualities of the story?

1	2	3	4	5	6	7	8	9
not at all			somewhat				very	
descriptive			descriptive				descriptive	

Do you think the author of this story is male or female?

_____ male _____ female

Appendix I

Death Thought Accessibility Measure

This following questionnaire contains a number of incomplete words. Try to complete them by filling one letter per blank, as fast as you can, and write the complete words in the free spaces just below. Some words may be plural.

1. C O _ _ S E
2. P L A _ _
3. K _ _
4. W A T _ _
5. D E _ _
6. M U S _ _
7. _ _ N G
8. _ _ A S S
9. G R A _ _
10. K _ _ G S
11. C H A _ _
12. C L _ _ K
13. C O F F _ _
14. W _ _ D O W
15. T A B _ _
16. S K _ _ L
17. P _ P _ R
18. T R _ _
19. S T I _ _
20. P O S T _ _

Appendix J

The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that the feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

WHAT IS YOUR DEFINITION OF "DEATH"?

Appendix K

Testoni Death Representation Scale

Please, think about what do Death and Dying mean for you, and then rate each of the following statements using the scale provided.

	Strongly disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
1. Death is only a passage. After I die, I will continue to exist and will remember this life's experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Death is a definitive annihilation. After I die, I will not exist anymore, so I will not experience anything.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Death is a radical change. After I die, I won't be aware of my own self anymore.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Death is a definitive annihilation. After I die, even though others will remember me, I won't remember anything.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Death is only a passage. After I die, I will continue to exist and therefore to have new experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Death is a radical change. After I die, I will experience things that have nothing to do with my present life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix L

Demographic Data

Sex

- Male
- Female

Age: _____

Is English your FIRST language?

- Yes
- No

Is English your BEST language?

- Yes
- No

Where you were born? Country: _____

Where you were born? State/Province: _____

What race best describes you?

- White
- Black
- Hispanic
- Asian
- American Indian
- Other _____

What religion best describes you?

- Buddhist
- Catholic/Christian/Protestant
- Jewish - Non-Orthodox
- Jewish - Orthodox
- Hindu
- Islamic/Muslim
- None
- Other _____

How religious are you? Reply by clicking on the bar below (0 = Not at all; 10 = Completely).

Not at all										Completely
1	2	3	4	5	6	7	8	9	10	

What is your marital status?

- Married or domestic partnership
- Widowed
- Divorced
- Separated
- Single, never married
- Other _____

What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

- Did not complete High School
- High School/GED
- Some College
- Bachelor's degree
- Master's degree
- Advanced graduate work or Ph.D

Appendix M

Near Death Experience Scale

Have you ever had a Near-Death Experience (NDE)?

- Yes
- No

If you have had a NDE, please complete the following questionnaire.

If you have not had a NDE, just skip this questionnaire.

Did time seem to speed up or slow down?

- No
- Time seemed to go faster or slower than usual
- Everything seemed to be happening at once; or time stopped or lost all meaning

Were your thoughts speeded up?

- No
- Faster than usual
- Incredibly fast

Did scenes from your past come back to you?

- No
- I remembered many past events
- My past flashed before me, out of my control

Did you suddenly seem to understand everything?

- No
- Everything about myself or others
- Everything about the universe

Did you have a feeling of peace or pleasantness?

- No
- Relief or calmness
- Incredible peace or pleasantness

Did you have a feeling of joy?

- No
- Happiness
- Incredible joy

Did you feel a sense of harmony or unity with the universe?

- No
- I felt no longer in conflict with nature
- I felt united or one with the world

Did you see, or feel surrounded by, a brilliant light?

- No
- An unusually bright light
- A light clearly of mystical or other-worldly origin

Were your senses more vivid than usual?

- No
- More vivid than usual
- Incredibly more vivid

Did you seem to be aware of things going on elsewhere, as if by extrasensory perception (ESP)?

- No
- Yes, but the facts have not been checked out
- Yes, and the facts have been checked out

Did scenes from the future come to you?

- No
- Scenes from my personal future
- Scenes from the world's future

Did you feel separated from your body?

- No
- I lost awareness of my body
- I clearly left my body and existed outside it

Did you seem to enter some other, unearthly world?

- No
- Some unfamiliar and strange place
- A clearly mystical or unearthly realm

Did you seem to encounter a mystical being or presence, or hear an unidentifiable voice?

- No
- I heard a voice I could not identify
- I encountered a definite being, or a voice clearly of mystical or unearthly origin

Did you see deceased or religious spirits?

- No
- I sensed their presence
- I actually saw them

Did you come to a border or point of no return?

- No
- I came to a definite conscious decision to “return” to life
- I came to a barrier that I was not permitted to cross; or was “sent back” against my will

Appendix N

Have you ever been asked to think about death in a psychology study?

- Yes
- No

What do you think the purpose of the study was?

Please, indicate where you have found this survey:

- International Association for Near Death Studies (IANDS) website or local group
- Near Death Experience Research Foundation (NDERF) website
- Social Networks
- E-mail
- Received from a person who lived a Near Death Experience
- Other

Did something distract you during the survey in any way (e.g., you could have had a break, a phone call or a text, or you could have closed temporary the survey's window)? Please reply honestly, your responses will be recorded anyway.

- Yes
- No

Appendix O

Thank you for your participation in the study

The primary purpose of this experiment was to investigate personality variables and assess the reaction to conscious and unconscious death stimuli in people who have had a Near-Death Experience (NDE) compared to people who have never had such experiences.

NDE can be described as intense, subjective, psychological experiences occurring during an episode of apparent unconsciousness. Common features of NDEs include: out-of-body experiences; feeling of entering a tunnel; high mood, sense of euphoria, happiness or calmness; perception of a bright light; perception of a heavenly or hellish landscape; encounters with deceased relatives or friends, religious figures or beings of light; experience of a life review; perception of being in a different time; presence of a border; decision or imposition to return.

Previous research has shown that people generally report having lower fear of death after a NDE. In this study, we wanted to determine if having a Near-Death Experience also reduces unconscious death anxiety. To measure conscious death anxiety, we asked you to complete the Death Attitude Profile, which had questions including "The prospect of my own death arouses anxiety in me" and "I avoid death thoughts at all costs."

To measure unconscious death anxiety, we had you make words by adding letters to incomplete words. Research has shown that people asked to make a word from C O F F _ _ are more likely to write "coffee" if they have recently passed a Starbucks, but more likely to write "coffin" if they have recently passed a cemetery, even if they do not remember passing the coffee shop or the grave yard. Six of the incomplete words could have been completed with death-related words, including *coffin*, *grave*, *dead*, *skull*, *corpse*, and *stiff*.

Other research has shown that some people report having low death anxiety on measures like the Death Attitude Profile, but who use more death words when asked to add letters to incomplete words -- suggesting that they have low conscious death anxiety but high unconscious death anxiety.

Our hypothesis is that people who have had a NDE will report lower death anxiety on the Death Attitude Profile as well as lower unconscious death anxiety, compared to people who have not had a NDE. And if this is true, besides learning more about the psychological consequences of Near-Death Experiences, perhaps we can use elements of NDEs to help treat people who suffer from chronically high death anxiety.

The researchers would like to apologize for any discomfort that the survey might have caused you, but it is worth noting that previous research indicates no detrimental long term effects of these experimental procedures.

Thank you so much for your participation.

If you have any remaining questions, feel free to contact the researchers, Simone Bianco (sbianco@skidmore.edu) and his supervising investigator, Sheldon Solomon (ssolomon@skidmore.edu).

Appendix P

List of conceptualizations of death as reported by Mazur (2011).

1. Death is a journey
1.1. Death is departure
1.2. Death is going to a final destination
1.3. Death is the continuation of life's journey
2. Dying is crossing the boarder / being dead is being on the other side
3. Dying is being taken to another place
4. Dying is answering a call
5. Death is sleep
6. Death is darkness / night
7. Death is rest
8. Dying is joining a group
9. Death is loss
10. Death is a new life
11. Dying is giving up
12. The death of a human being is the death of a plant
13. Death is the cessation of bodily functions
14. Death is the malfunction of bodily processes
15. Dying is changing the position of the body from vertical to horizontal
16. Death is the end
17. Death is the end of existence
18. Death is the end of casual earthly activities
19. Dying is performing an activity for the last time
20. Death is the end of a play
21. Death is the last dance
22. Death is the end of the game
23. Being dead is being buried
24. Death is a reward
25. Death is promotion
26. Death is a relief
27. Dying is getting into contact with the ground

Appendix Q

Death definitions by participants.

<i>Death definition</i>	<i>Group</i>
A transition to a different existence. Heaven, Hell, Rebirth, Other. I have always believed there is a God, we lack the wisdom and knowledge to truly understand God, it is one reason we have so many religions. Life, lives allow us to grow in wisdom and knowledge as well as allowing us as multi dimensional beings to explore this dimension. Death is physical, the non physical portion of our being continues on. There is much to learn.	NDE
Death is the last event in life	noNDE
death is the energy of the body, the soul, leaving the physical form it has taken in order to experience what we call life as a human being.	NDE
The end of life of the physical body.	NDE
The body's heart and brain cease to function, and the soul leaves it behind.	noNDE
The physical body ceases to function.	noNDE
Death is a door that opens and allows you access to a home that was invisible to your living body.	NDE
End of ones life .	noNDE
When the biological part of ourselves dies and the soul is freed to go on the next stage of existence. Then a number of new events will unfold, such as reviewing whether you learned lessons in this life, reuniting with loved ones, understanding new meanings.	noNDE
The transition from human life to spiritual life.	noNDE
Death is when ones soul has finished a 'cycle' of life and is offered a chance to rest eternally or chose to begin another life as a new soul with no or little recollection of previous lives.	NDE
Cessation of all organ function especially the brain	noNDE
Death is cessation of life functions. It is an unavoidable fact and counterpart of birth. It is the end of life as we know it and maybe (living this possibility) a beginning of 'life' in another realm.	noNDE
The transition from this realm to the next. I believe we are all made of energy and energy does not end. It transfer to another existence. Death is the end of this life and the start of a new existence.	noNDE
A transition to life in another form	noNDE
When my physical body ceases to function.	noNDE
End of life for the physical body. As a NDEr, I know the soul goes on to work on the other side until it reincarnates	NDE
The end of life on this plane.	noNDE
Death is the permanent separation of the spirit/soul/ethic-body from the physical body. Increasing evidence is showing, and has shown for centuries, that we are more than just the physical body. So we continue beyond the death of the physical body.	noNDE

Shedding the physical body and entering the spiritual dimension.	noNDE
the cessation of life, heart and brain function	NDE
A transition time when our spiritual consciousness begins a new experience from our present physical consciousness.	NDE
There is no death, just life.	noNDE
DEATH IS THE END OF THE PHYSICAL BODY.	noNDE
Biological end of breath/heart beat, and animation of physical form.	noNDE
your human body is no longer able to sustain life and contain your soul.	NDE
The transition from this earth material 3D reality into the next realm likely a 4-5D reality and spiritual existence.	noNDE
The other part of the cycle that is as of now, undetectable by scientific means. A return to the source of all consciousness. The undetectable but not unmeasurable conscious energy that is released from the body and is neither created nor destroyed. I am an aware, loving, curious pile of stardust with just one perspective. When I die, I will understand all levels of awareness or "life" existing as all perspectives, even pervading the concept of time because I will have returned to the essence. Near Death Experiencers claim that what happens to them is indescribable. I love that you guys are trying to get a description. I wish I could participate in your research!	noNDE
Transition into greater awareness and life eternal	NDE
A transition to the afterlife	NDE
The cessation of bodily functions.	noNDE
When the heart stops beating for a long period of time	noNDE
A place where our souls transition into another dimension, to return to our real home. There are many levels, many dimensions. Where we go is dependent upon our karma.	noNDE
Going back Home.\Awakening!	NDE
Death is the end of physical life in this particular body, and also the process leading up to that moment. Death is the departing of our individual consciousness from the physical body and the physical earth-plane, and its travel to realms that are surprisingly well-documented by vast numbers of people down through history. Our individual consciousness is not subject to 'death' as we know it, but remains active and 'alive' in ways that cannot be completely understood here. Therefore, I feel it is proper to say 'there is no death'.	noNDE
The end of life in this body and dimension. The beginning of life in another dimension and form.	noNDE
This life experience ends, you go to Heaven for a reconciliation and life review, and you perform certain functions in Heaven while you wait and prepare for your next life.	NDE
To me, death is a release from the temporary experience that we have already agreed to. It is a return to our eternal lives where we can judge ourselves and also grow in spirituality. Death is only a death in regard to our physical body. In reality, is it a graduation: a return to our natural place of life.	noNDE
Transition out of this material body	noNDE
Physical death is when bodily life signs cease and are permanently not resumed, that is, respiration, heartbeat, and brainwave activity.	noNDE

Death of the physical body is a release of the Soul to whatever happens between physical lives. There may be many possibilities and no two releases are the same or have the same "time" before being rebirthed in physical form.	noNDE
Freedom, free to express our own will with out restrictions	NDE
Death is the end of this physical existence. We leave our bodies behind and enter a world of Spirit only. Death is a transition into the next dimension where we continue our existence as a soul. The actual physical death can be painful but dying is not painful.	NDE
There is no death, it is simply a transformation for the immortal soul, rather like taking off a body girdle which is 4 sizes too small.	NDE
A passage to the next phase of life.	noNDE
The end of life as we know it and the transition to another dimension in the spirit form	noNDE
An unknown experience, that will disclose to us only when we are faced with it.	noNDE
THE END OF PHYSICAL LIFE, APROCESS IN WHICH THE BODY NO LONGER FUNCTIONS AS A UNIT IN THE MATERIAL WORLD	NDE
Either an end to the body, spirit and mind of a living being, or a vibrational shift into another dimension for that being. Not sure which.	noNDE
Death - when our soul leaves the body and moves on to another dimension.	NDE
It is our souls final journey in this life . We go on to learn and evolve too be sent down too our next lives journey	noNDE
Death is a transition from a three-dimensional physical reality into a non-physical reality. We still exist but in a different form as a butterfly is a different form of caterpillar.	noNDE
The end of one state of being and beginning of a new state of being	noNDE
The end of the human life on this Earth, and the ending of having the chance to fulfill your goals and dreams	noNDE
Death is when your body dies, and maybe your soul (but you cannot know that until you die so nobody knows that).	noNDE
Death is a biological process, our ability to perceive the world and respond to external stimuli will end with it.	noNDE
Inevitable part of the natural order of things.\At the same time a bit scary and distressing due to your inability to know what comes after.	noNDE
A scary and unknown thing that no one knows about. Logically speaking, it's natural and inevitable for any living creature on this planet - an end of a physical life.	noNDE
alive, vibrant. ongoing, emotional, safe, secure. Just describing what came to me pertaining to my own death. Nutshell, death is everlasting and lovely.	noNDE
A natural and essential part of passage that enables us to change, to experience old age, infirmity or even the absurdity of war. Death allows us to shed a worn body and to give us a perspective of finality as we head towards it. It probably frees us from the absurdly limited body that we rely on, a body that drastically limits or constrains our perspective on every concept we have. Death is the start of another experience.	noNDE
I think of death as a type of vacation, it provides temporary relief and a chance to recharge and review your purpose.\I don't think of it as and end but rather a break from the physical world and confines of a physical body.\You then get to choose another 'class' that will offer you the best chance of learning and advancing your level of consciousness.	noNDE

potrei definire la morte come la cessazione del funzionamento dei nostri organi vitali che determina la non possibilità di vivere. Ovviamente spero che ci possa essere qualcosa dopo la morte che però al momento attuale non sono in grado di definire.	noNDE
beautiful	noNDE
Death is the end of life. And a new beginning, from nature's perspective. On a rational level, it means the end of an organism's consciousness, but on a more poetic level, it is just one stage in an ongoing process.	noNDE
Death is something that has always calling forward in all that wish to accomplish here on earth. It is part of the human experience, we are eternal beings and live on.	NDE
the end of the life of a given individual	noNDE
The end of life on earth. I am not a religious person at all but I somehow believe people we love and left earth are somehow still with us.	noNDE
Shedding of the mortal body and ascension to the heavenly city.	noNDE
flatlined	noNDE
Ending of the physical body and continuation of a person's soul or spirit. To where is our choice.	NDE
A passage into another realm	noNDE
transition	NDE
The thing that happens when you die. There is nothing after death, so it's very final and your life is over	noNDE
not this dimension	NDE
When the body dies.	noNDE
Death is when your soul, and life, leaves your body. I had a negative Near Death Experience, so, for me, death is suspension in a vast, endless abyss. It is frightening.	NDE
Death is the final stage of growth. It is a change in the frequency of consciousness.	NDE
a transition from this life to another way of being. the soul is eternal.	NDE
Merely the event of transition from the carnal existence back to the spiritual existence whereby the silver chord is severed, freeing the spirit and soul which had been tethered to the clay vessel/body to transition to it's next destination.	NDE
A termination of all life's processes	noNDE
absence of life	noNDE
Cessation of all bodily functions.	noNDE
All I know is that death is inevitable. There's nothing we can do to escape it. I don't know what death brings, ergo I have no definition.	noNDE
When all life functions in the body have ceased.	noNDE
Death to me is the end to your bodily functions.	NDE
There is no "death". The idea of death is a misnomer. There is "alive" on this earthly plain, and then there is "superalive" in the spirit realms. There is only death, in that the body becomes useless and is cast off. But this in no way means an end to life.	NDE

Death in its most basic form is when all bodily functions stop. Death, to me, is a transition to another realm without pain and suffering where you enter into a place of intense peace, love and understanding - that you feel throughout your body and soul. I do believe that what you see there (Heaven) is pretty much what you envision it to be. My own NDE was of brilliant colors, meadows, trees, large spreading oaks and people sitting under these oaks, being taught by an angelic being...taught about their lives and how it affected others as well as your own soul. Seeing them being "taught" in such peace and love still makes me wonder about reincarnation. The only sadness might be leaving your loved ones on earth behind.	NDE
Transitioning to spirit or soul, leaving a physically dead body/temporary encasement behind.	noNDE
The beginning of a new life	NDE
A next step to an incredible new beginning	noNDE
a door to a new and better place, where we can continue growing as individuals	NDE
passage, entrance, opportunity.	NDE
When the heart and brain no longer function.	noNDE
Departing Earth and travelling HOME	NDE
a transition to another form	NDE
The end of my time on earth\My body is of no more use	NDE
The moment physical life is no longer possible and our soul leaves the body behind. Or consciousness no longer grounded in our bodies becomes one with an expanded or cosmic consciousness.	NDE
Death for me has changed somewhat in definition as I've grown in awareness over the years. However, I was always unsure of what was to come after we die. Now however, after reading NDEs and spiritual experiences of my own, death to me is merely the shedding of the physical body and allowing us to exist purely as energy again, and essentially in another dimension(s).	noNDE
Death is a passage. Our soul inhabits our bodies which are vessels that we use to learn life lessons here on earth. Death occurs when our time on this earth plane is up and we are able to cross over into another dimension with loved ones, soul groups, and the most beautiful serenity, peace, love, and light I have ever experienced. There is no pain. It is just a transition from one soul state to another. We no longer need our physical bodies and our lesson is over. I ask God every night to let me dream about some parts of my NDE that I have not fully recalled. I get signs like butterflies, and I believe there are no coincidences in life. Everything here on earth happens for a reason. We may not understand it and it may be intensely painful, but it will be revealed when it is the right time. It prepares us for other battles in life we must fight or situations we must endure and resolve.	NDE
One aspect of life.	noNDE
A natural release from the burdens of life and a gateway to an evolutionary path towards higher states of consciousness.	noNDE
Death is the passing of our physical body.	noNDE
The end of a phase in the physical world, often associated with pain and sorrow. For some it is a welcomed relief, while for others it is a frightening end.	NDE

Physical death occurs when a living person (or animal) stops to breathe and his/her brain stops working (because of the lack of oxygen in the brain). In spiritual terms, death is a much wider concept to me, and it has to do with one's inability/unwillingness to see how amazing the world is and lacking respect for life.	noNDE
When your soul leaves the shell of what you inhabited during this lifetime. Your soul with then take on a new form for the next.	NDE
In general, death is the result of what happens to living creatures when they no longer have the ability to sustain their bodies. Death happens, not just in humans, but all other living organisms. Cells have lifespans, just as a human does. When the human body no longer has the capacity to function as a system that can keep the person alive, that person dies. Death is a process, and takes a brief period of time to take full affect. There is no exact moment of death. I like to think of death, anthropomorphized as the Grim Reaper, though I don't believe in a skeleton in a cloak with a scythe going around slaying humans.	NDE
Death is only a transition to a different eternal dimension. The only thing that ceases to exist is the physical body. The soul which also retains our consciousness continues on into eternity with love and joins the eternal oneness of God in whatever name you choose to acknowledge him.	NDE
For me, death is when someone is no longer with us. It's a feeling of loss and there being only memories left. It also represents something I am afraid of because of it's finality. It's the point of no return, the end, rather than any kind of continuation of life.	noNDE
Death is an ending to this life as we know it. And a beginning to a new experience.	NDE
Death is the ending of the current physical embodiment of energy that is our soul.	NDE
A transition of the soul from one form of existence to another	noNDE
Death is the end of the body life. Consciousness survives the death of the body.\I called it consciousness, but also we can call it soul or spirit.	NDE
Leaving earth when you have finished your life and or purpose here.	noNDE
lol that's it game over.	NDE
Death is transition from a known state into an unknown state (as far as our consciousness in this existence understands it).	NDE
Death is awakening from a long, long dream. Open your eyes to the true reality. If it will be for the best or the worst, I don't know yet.	NDE
A change in location of our life force or soul. The ending of life in our physical body and graduation to the next level of existence...like a new birth to bigger and better experiences, knowledge, understanding and embraced by pure love. "The Final Frontier".	NDE
The termination of the temporary experience of "self". It is the end of this lives experience, which may or may not begin the process of beginning yet another life (hence I do not necessarily believe that death is full and eternal release as you may in fact reincarnate again.	NDE
The separation of the soul from the body. The soul is the real "Us" and we are simply in the body to experience the material world.	NDE
Death occurs when the soul leaves the body with permanence, not when the body ceases to function.	NDE
Death involves the change from living to not.	NDE
Bullshit	NDE

I'm hoping it is the beginning of a new chapter of life - that is free of the pain - war - heartaches of this earthly experience. Where all questions will be answered.	NDE
The entrance to heaven or hell for the soul but the end of life for the body.	noNDE
cessation of the physical world	noNDE
The body and brain cease to function	noNDE
Death is the (passage into) life after and before this earthly life	noNDE
Non existence	NDE
separation of body and soul through - illness or injury - organ failure	NDE
death is the next part of life. when we say "space and time" what we really mean is the space we occupy inside our skin, and the time we get to occupy it. it is surprisingly durable, with just a little care, but can be so fragile in a fraction of a moment usually when it is the most inconvenient, and with little or no warning. death is nothing to be feared, and yet most of the time, even for me, it's not something you look forward to. however, after this last time, I have to say, I don't have a lot of fear about it. usually when I talk about it I tell people I'm not afraid any more. I always was before. what I have fear of is pain before death, and not being treated for the pain. not now but if I were in the future.	NDE
Death opens a way for the soul to return home. The only thing that goes with you is the love you have collected from your time as a living being. This, and the love you have freely given...love, in the form of care, kindness, protection, all of the beautiful things freely given to other souls, that includes animals, plant life, all living things that belong to the Creator.	NDE
transition to another life dimension	NDE
Going home, leaving behind this temporal existence and returning to where I came from.	NDE
release from a psycho ward aka life	noNDE
A passing from a physical body to a life as a soul	NDE
Transcending	noNDE
when mortality is complete and body dies and spirit passes to other side.	noNDE
It is the passing over leaving the realm of matter and uniting in oneness in the realm of energy. Death is like returning home. It is, I say jokingly to all Earthlings, returning to my own planet.	noNDE
the end of the present physical body, with the continuation of the nonphysical soul	NDE
It's basically a changing of energetic conscious states. In this case, we are going from a slowed down ultra-dense form of reality and experience confined to an "arrow of time" to a state of pure being, one with the all. As part of the soul path there is an infinity of possibilities including reincarnating somewhere in the grand multiuniversal experience.	NDE
A passage to bliss	noNDE
shedding the body to release the soul and go home. Having a job well done	NDE
The end of the physical body, a release of who we really are to go back home.	noNDE
The breaking of the life forces that hold the image of this world...	NDE

Death is the end of a physical life but the essence of who we are continues on so there really is no death. The body no longer functions but the soul is released to continue it's spiritual journey in higher frequencies of light or other dimensions of eternity.	NDE
I believe after our bodies die, our essence, soul, consciousness returns Home - that we return to our Eternal Source and Author of Life. Many spiritual traditions/religions and philosophies have various names for this place, but I believe it is all the same place - one of immense Love, Light, Bliss and freedom from illness, suffering and ignorance. It is a place of pure Knowledge and Knowing.	NDE
Clearly it represents the cessation of all biological processes, but this ending of the person allows for the passage of the true essence to unite with the infinite and eternal being we call "God". And while I cannot totally discern who and what any and whatever's else he is, but I understand that I cannot comprehend the infinite and eternal with my finite and transient mind.	noNDE
Escape from pain	noNDE
It is when the physical body (they refer to it as physical shell) expires....the Soul leaves the shell....and all it's medical issues, pains, etc....and takes an incredibly fast Journey (over a very long distance) to Heaven. IF the physical shell is still viable...and able to once again sustain life....sometimes the Soul can come back (and be classified as an NDE)...often it is a choice (and a very hard one to make)...IF the physical shell is still viable and in sufficient condition to be able to support Life on earth...to go back in the body. However - IF the physical shell is highly damaged...and can no longer be usable or sustain continued Life....then you are NOT offered the choice to return....your Soul now experiences an everlasting existence in Heaven with other Loved ones who Crossed before you....it is truly an incredible place....nothing on Earth even comes close.	NDE
A time where your time here on earth is at and end.	noNDE
An end of life within the physical body, but a beginning of life in spirit.	noNDE
The spirit and soul leave the fleshly body. The soul eventually disappears. The spirit moves into a different realm to review life experiences and join with God or be reborn.	noNDE
The end of life in this physical body and plane of existence	NDE
Your soul leaves your body and moves on to a different dimension. You are reunited with your loved ones who have passed away. You are at Peace!	NDE
BIRTH	noNDE
when the soul leaves the physical body	noNDE
It is the physical end of this particular existence, however the spirit within each person lives forever. The bond of love can never die and when we make the transition we are not dead but truly alive.	NDE
Complete cessation of all bodily functions, true, clinical brain death.	NDE
Death is passage way back to the other life a soul has. We no longer have the physical body frame but are back to some energetic like body and death helps us shed our physical frame.	noNDE
A letting go of the body and soul on this earth. A passing from this physical dimension into another where all things are known.	NDE
A transition from my clay natural body on this hellish earth into a wonderful, happy, peaceful dimension of Spirit and Love.	NDE
Passing to the next phase of life	NDE

When the Life or Spirit or Soul Body of a person or animal leaves the physical body that is no longer working or able to sustain the Life, Spirit, or Soul Body of that individual...	NDE
Death means physical death, when one's spirit leaves the body. Death is a transition from this physical plane to the spiritual plane, where we continue living.	NDE
Simply, my body is only the "vehicle" by which my real self (the Spirit) uses the vehicle in order to "experience" earth lessons, the Physical dimension only. I selected this as a pre-contract, as a Spirit person, BEFORE coming to this plane. I selected my parents as well, for the experiences - even if I could not control (due to their own free will) what would happen "after" I selected them for this life. When the "vehicle" has served its purpose, my Spirit simply removes its Energy from giving a life breath to the physical shell the Spirit Returns HOME - that is all.	NDE
The cessation of all bodily functions and the leaving of the soul from the body	noNDE
Change. I strongly feel now that death occurs for each individual when it is his or her time and not before.	NDE
Death is the cessation of life on earth whereby the soul leaves the deceased body and returns to it's creator, God.	NDE
A journey of liberation from this dimension to the next.	NDE
A new Birth into another reality	NDE
Release from this life into a multitude of different and amazing experiences	NDE
death does not exist: it is the end of the earthly form, leaving the body,.	NDE
Death is the cessation of physical bodily function.	noNDE
death is the beginning of a life of happiness and eternity !	NDE
The absence of pain and suffering. Free from the shell of the body. Liberation from this world and all the trappings that go with it.	noNDE
Leaving physical body behind, spirit goes to heaven.	noNDE
decreasing our options to take part in this world.	NDE
Death is a natural event that brings to an end the physical life.	noNDE
BEING ALIVE NO MORE	NDE
Transition to another physical form.	NDE
death is a change of consciousness into a different mode	NDE
The "spirit" or "essence" that drives the life and purpose of the physical body departs from the physical body.	NDE
Transition to another sphere where we retain our essential selves and only discard the material form. I also believe (or rather, know from personal experience) that we can still have contact with those who have passed on.	NDE
Death is a door to another life. I see death as the beginning and not the end.	noNDE
Death is a certainty of life. I have had a NDE where I saw the other side but I also wonder if there will be nothing or if there will be suffering after. It happens to everyone and you cannot escape it. It fascinates me and scares me at the same time. I can't make up what I saw it was real but what if I was wrong. Death means the end of this journey but I don't think it means the total end. That's not what I want to believe anyway.	NDE

A passing out of human form back into spirit.	NDE
End of my life.	NDE
It is a moment in the ongoing life of a soul.	noNDE
wonderful, but we are what we create... it's all about how we create it. My NDE would explain this to a T.	NDE
When the body stops functioning and dies	noNDE
Separation of body and soul	NDE
a passage into something unknown, a moving beyond the reality that we are able to perceive with our senses.	noNDE
end of life in a human body	NDE
My NDE's are very personal. Death is like a slow fan that has been turned off. I was encased in pure Love. Words are unable to describe it. Love not of a earthly nature. Pure Accepted.	NDE
End of one phase of life and beginning of the next eternal phase.	noNDE
Like stepping into another room that is not confined by space or time. I will leave my body but my soul will continue in relationship with Jesus.	NDE
Leaving the body completely, having a NDE, communication from other side	NDE
Cessation of life on this plane.	noNDE
Death to me is the complete shut down of the physical body. I have strong feelings that there is more than just the body and it's functions. The spirit or soul to me is separate and I am trying to learn more about what happens to both when the body no longer functions.	noNDE
A place of peace and unconditional love	NDE
a mastering of objectives a graduation	noNDE
Death occurs at the moment the consciousness of the individual separates from the body it has inhabited since birth, and can not return to that body.	noNDE
I died years ago when I was 16 y/o following a motor vehicle accident. Death of the human body is merely a transition into a different realm - nothing to fear. I don't know if I would call it "heaven," but rather just a different dimension of existence. Our soul/energy/light/chi/whatever you wish to call it exists forever. We just take on different life forms from time to time (not always and some forms we "occupy" would seem quite strange to the human mind). Actually, death is quite pleasant as one is surrounded by unconditional love and IS unconditional love. I chose to come to Earth in this human body during this particular time period to help with the transition. Actually, there is no sense of time on the "other side," but rather it appears to be a marker for humans on Earth at this point in the Earth's history. I will again leave this human body on an August 9th -- just don't know which year, but I will when the time is close.	NDE
When the heart stops beating and your lungs stop breathing and the soul leaves the physical body.	noNDE
Returning to pure positive energy, leaving the physical behind.	noNDE
The permanent end of physical functioning while consciousness continues.	noNDE