

Trajectory of Terminal Lucidity Phenomenon: Systematic Review

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Abstract

Terminal lucidity is a phenomenon characterized by a sudden reappearance of cognitive clarity in patients with severe cognitive impairment, such as dementia, near death. This systematic study aims to examine various aspects of the phenomenon of terminal lucidity, ranging from biological mechanisms, psychosocial impacts, to spiritual dimensions, especially through the lens of Islamic perspectives. The research was conducted using a Systematic Literature Review (SLR) approach according to PRISMA guidelines, with an analysis of 25 open access articles from 2015 to 2024. The selection process included screening of titles, abstracts, and full text, resulting in 8 relevant articles being analyzed. The results of the analysis revealed that although biological mechanisms such as changes in neurotransmitters and electrical activity of the brain require more in-depth research, the phenomenon of terminal lucidity has important implications for palliative care. This moment of clarity provides an opportunity for patients to communicate meaningfully and for families to say goodbye with hope. In addition to the medical aspect, terminal lucidity also reflects a significant spiritual dimension, where Islamic values interpret this phenomenon as divine intervention and a final moment of forgiveness. The findings of this study emphasize the need for a holistic approach that integrates emotional support, physical care, as well as spiritual guidance in end-of-life counseling. Further research is recommended to investigate the pharmacological mechanisms and use of brain imaging technology to deepen our understanding of this phenomenon, so that the quality of care for patients at the end of life can be continuously improved. This study makes an important contribution in expanding the multidisciplinary understanding of terminal lucidity and encouraging the development of holistic palliative care guidelines, so that medical, psychosocial, and spiritual interventions can be optimized to accompany patients and their families to achieve a better quality of life.

Keywords: Terminal Lucidity; PRISMA; Cognition; Spirituality; Counseling

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INTRODUCTION

Terminal lucidity is a phenomenon characterized by a sudden and unexpected return of mental clarity and cognitive function in individuals with severe cognitive impairments, such as dementia or Alzheimer's disease, shortly before death. This occurrence can be both surprising and profound for families and healthcare professionals, as patients who have been largely unresponsive or unable to communicate may suddenly engage in meaningful conversation, recognize loved ones, and exhibit a remarkable understanding of their surroundings (Nahm & Greyson, 2014; Roehrs et al., 2023). The phenomenon has garnered increasing attention in recent years, although it remains poorly understood from a scientific perspective.

Research indicates that terminal lucidity can manifest in various clinical contexts, including advanced stages of dementia, brain tumors, and other neurological conditions (Peterson et al., 2021; Roehrs et al., 2023). For instance, Nahm and Greyson documented cases where patients with severe cognitive decline exhibited moments of lucidity, allowing them to communicate effectively with caregivers and family members (Nahm & Greyson, 2014). These episodes, often described as "lightening," can last from minutes to hours and may provide a unique opportunity for closure for both patients and their families (Roehrs et al., 2023). The sudden clarity observed during these episodes raises questions about the underlying biological, psychological, and even spiritual mechanisms that might contribute to such a phenomenon.

Despite the anecdotal evidence and case studies documenting terminal lucidity, rigorous scientific investigation into its mechanisms is still in its infancy. Some researchers suggest that factors such as changes in brain chemistry, the influence of familiar stimuli (like voices or music), or even spiritual experiences may play a role in facilitating these moments of clarity (Chiriboga-Oleszczak, 2017). For example, Peterson et al. explored the distinction between terminal lucidity and paradoxical lucidity, emphasizing the need for a clearer understanding of these phenomena within the context of cognitive decline (Peterson et al., 2022). This distinction is crucial as it may inform future research directions and clinical practices surrounding end-of-life care.

Moreover, the implications of terminal lucidity extend beyond individual cases; they challenge existing paradigms regarding cognitive decline and the nature of consciousness at the end of life. The phenomenon invites further exploration into how mental clarity can emerge in the face of severe neurological impairment, potentially reshaping our understanding of cognitive resilience and the human experience of dying (Gilmore-Bykovskiy et al., 2022). As the body of literature on terminal lucidity grows, it may provide valuable insights into not only the experiences of patients but also the emotional and psychological needs of their caregivers and families during this critical time (Lindauer & Harvath, 2014).

Terminal lucidity is a clinically significant phenomenon that provides families with a meaningful opportunity to say goodbye to their loved ones during the final moments of life. This phenomenon is often interpreted as a divine intervention, allowing individuals to reconcile with themselves, their families, or a higher power before death. Initial research suggests that various mechanisms may contribute to terminal lucidity, including changes in neurotransmitter levels, electrical activity in the brain, and emotionally supportive environmental conditions (Julião et al., 2023). However, the spiritual aspects of terminal lucidity frequently dominate its interpretation, particularly among families witnessing these moments (Renz et al., 2013).

Despite the recognition of terminal lucidity for over a decade, critical gaps remain in the existing research. Firstly, there is a lack of robust empirical studies investigating the biological mechanisms underlying terminal lucidity. Most reports are anecdotal, which, while insightful, do not provide a solid scientific foundation for understanding this

phenomenon (Julião et al., 2023). Secondly, many studies overlook the spiritual and religious dimensions of terminal lucidity, especially within major religions such as Islam, which offers unique perspectives on consciousness, death, and the afterlife. In Islamic belief, terminal lucidity may be associated with concepts of fate, divine intervention, and final moments of forgiveness granted by God (Renz et al., 2013).

The implications of terminal lucidity extend beyond individual experiences to broader discussions about the nature of consciousness and the dying process. The phenomenon challenges traditional views of cognitive decline, suggesting that moments of clarity can emerge even in the face of severe neurological impairments. This raises important questions about the resilience of the human mind and the potential for spiritual experiences at the end of life (Julião et al., 2023). As research continues to evolve, it is crucial to integrate both the biological and spiritual dimensions of terminal lucidity to gain a comprehensive understanding of this complex phenomenon.

This study aims to explore the phenomenon of Terminal Lucidity from diverse perspectives including guidance and counseling perspectives. This effort is made to understand the Lucidity Terminal empirically and its implications in guidance and counseling services. As well as assisting patients and families in understanding the separation process peacefully and meaningfully. This study exposes the biological mechanisms, psychosocial aspects, spirituality and guidance and counseling related to Terminal Lucidity. This is to provide a deeper and more comprehensive understanding of the Terminal Lucidity phenomenon, so that it can be used as the basis for a holistic approach.

METHOD

Research Design

This study refers to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guideline conducted using Systematic Literature Review (SLR). This approach is for the search and in-depth exploration of literature from 2015-2024 of the phenomenon of terminal lucidity.

Data source

The literature data used is sourced from the website of the scientific publication aggregator on the LENS.ORG website, which is an academic database that can be accessed openly. LENS as an aggregator database may be familiar to many researchers around the world, but its existence is not as popular as Scopus and the Web of Science. The LENS database provides metadata of scientific publications from many publishers on an international publisher scale. In this study, the literature analyzed was articles with Open Access criteria. These articles were selected based on relevance to the research topic.

Search Keywords

The keyword used is "terminal lucidity" with the following Keyword Query; (title:(terminal lucidity) OR abstract:(terminal lucidity) OR keyword:(terminal lucidity) OR field_of_study:(terminal lucidity)). Scholar Search Results found Scholarly Works 25 articles. The filters used are Year Published (2015 - 2024) and Publication Type journal article Open Access. From the screening results, a total of 25 articles were selected to meet the initial criteria for further analysis. From the results of the Title and abstract examination, it was found that 17 articles were declared irrelevant and 8 relevant articles were selected for analysis.

Table 1. Results of the Selection of Relevant Articles Analyzed

Title	Year	Author/s	Summary	Main findings
1 Dualism 101: Terminal Lucidity and an Explanation	2022	Ted Christopher Christopher	The paper presents an overview of the phenomenon of terminal lucidity and uses it as evidence for the existence of a soul and the inadequacy of the materialist, brain-only view of the mind.	<ol style="list-style-type: none"> 1. Terminal lucidity, the sudden return to mental coherence in patients shortly before death, is a phenomenon that challenges the materialist view of the mind and provides evidence for the existence of a soul. 2. Several case studies of terminal lucidity are presented, including patients with severe cognitive impairments who unexpectedly regained normal or enhanced mental abilities before their death. 3. The paper suggests that terminal lucidity is difficult to explain from a purely materialist perspective, and that it may fit better within a dualistic or transcendental model of the mind.
2 Review paper. Terminal lucidity	2017	Boris Alejandro Chiriboga-Oleszczak	This paper provides an overview of the historical, phenomenological, and clinical aspects of the phenomenon of terminal lucidity, which is the improvement of mental functioning shortly before death, even among patients with serious and long-term disorders.	<ol style="list-style-type: none"> 1. Terminal lucidity is a phenomenon where patients with serious mental disorders or illnesses experience a temporary improvement in mental functioning shortly before death. 2. This phenomenon was well-documented in the 19th century but then largely disappeared from medical literature in the 20th century. 3. In recent years, there has been a renewed interest in terminal lucidity, especially in the context of near-death experiences and end-of-life experiences.
4 Reports About Paradoxical Lucidity from Health Care Professionals: A Pilot Study.	2023	Jeanne A Teresi; Mildred Ramirez; Julie Ellis; Amil Tan; Elizabeth Capezuti; Stephanie Silver; Gabriel Boratgis; Joseph P Eimicke; Paloma Gonzalez-Lopez; Davangere P Devanand; Jose A Luchsinger	The paper describes a pilot study that aimed to develop a structured interview instrument for health care professionals to report on the phenomenon of paradoxical/terminal lucidity, which is the unexpected return to mental clarity in patients with dementia or neurological impairment shortly before death.	<ol style="list-style-type: none"> 1. The majority of respondents (73%) reported witnessing at least one incident of a person experiencing paradoxical lucidity, indicating it is a recognized phenomenon. 2. Lucidity events had common characteristics like the person speaking, engaging in unexpected activity, and the event often occurring in the morning. 3. Many persons experiencing lucidity were close to the end of life, but over half were still living at the time of the report, suggesting lucidity may occur at different points in the dementia continuum.

	Title	Year	Author/s	Summary	Main findings
7	The Importance of the Exceptional in Tackling Riddles of Consciousness and Unusual Episodes of Lucidity	2022	Michael Nahm	The paper aims to stimulate the debate surrounding the enigma of how biochemical processes in the brain give rise to conscious experience by advocating the study of unusual and anomalous aspects of consciousness, such as unusual episodes of lucidity like terminal lucidity and paradoxical lucidity.	<ol style="list-style-type: none"> 1. The paper advocates for the study of unusual and anomalous aspects of consciousness, as they have the potential to enrich theoretical understanding of the mind-brain relationship. 2. The paper clarifies the concepts of "terminal lucidity" and "paradoxical lucidity", explaining their differences and how they can overlap. 3. The paper suggests that the fields of studies into lucidity in dementias and end-of-life experiences should engage in active dialogue to better understand lucid episodes.
8	A perspective on Alzheimer's disease: exploring the potential of terminal/paradoxical lucidity and psychedelics.	2024	Cong Lin; Xiubo Du; Xiaohui Wang	The paper discusses the potential of psychedelics to enhance neuroplasticity and cognitive function in patients with Alzheimer's disease, particularly in the late stages of the disease, based on the phenomenon of terminal/paradoxical lucidity and the ability of psychedelics to induce changes in brain connectivity and plasticity.	<ol style="list-style-type: none"> 1. Terminal/paradoxical lucidity in severe dementia patients suggests the brain retains a latent capacity for functional reorganization. – 2. Psychedelics like DMT, LSD, and psilocybin have the potential to enhance neuroplasticity and brain connectivity, which could be harnessed therapeutically to mitigate cognitive decline in Alzheimer's disease. 3. Microdosing psychedelics is being explored as a potential treatment for Alzheimer's disease, as it may enhance neuroplasticity, improve brain connectivity, and increase cognitive flexibility without the intense effects of higher doses.

RESULTS AND DISCUSSION

The phenomenon of terminal lucidity refers to the reappearance of cognitive function even to normal or increased levels in patients who previously experienced a significant decline in mental ability, and this phenomenon appears suddenly near the end of life (Chiriboga-Oleszczak, 2017). These observations not only attracted attention in terms of neuroscience and biological mechanisms, but also sparked discussions in the psychosocial and spiritual realms. Understanding this phenomenon can provide a new perspective as a basis for guidance and counseling services.

Biological Mechanisms

Recent research indicates that the emergence of terminal lucidity may be related to the process of neuroplasticity and the reshaping of neural circuits. Lin, Du, and Wang (2024) suggest that a decrease in oxygen levels (hypoxia) at the end of life can trigger the activation of silent synapses through the mechanism of Hebbian plasticity (Lin et al., 2024). This activation allows for the formation of a "neural bypass" that temporarily reconnects

damaged areas of the brain thus facilitating improved cognitive function. On the other hand, a review in a study conducted by Chiriboga-Oleszczak et al. (2017) shows that physiological changes such as increased blood flow and changes in brain chemistry can contribute to the phenomenon of sudden increase in mental function (Chiriboga-Oleszczak, 2017).

Psychosocial Aspects

The phenomenon of terminal lucidity has a significant psychosocial dimension. Teresi et al. (2023) found that sudden changes in a patient's mental state can elicit complex emotional reactions among families and healthcare workers (Teresi et al., 2023). Such sudden experiences often cause confusion and astonishment, and even have the potential to trigger negative interpretations regarding the quality of care. Therefore, a deep understanding of this psychosocial aspect is very important to support the process of acceptance and emotional adjustment on the part of the family and caregivers.

Spirituality

Apart from the biological and psychosocial aspects, terminal lucidity is also often accompanied by a spiritual dimension. Christopher (2022) argues that moments of lucidity accompanied by religious or spiritual expressions support the dualistic view, which proposes the existence of non-physical components (such as the soul) in human consciousness (Christopher, 2022). This spiritual experience is often seen in the form of symbolic or metaphorical communication, which not only gives deep meaning to the patient but also to the family who witnesses it.

Implications of the Terminal Lucidity Phenomenon in Guidance and Counseling

The practical implications of the phenomenon of terminal lucidity are particularly relevant for the field of guidance and counseling, particularly in the context of palliative care. Teresi et al. (2023) emphasize the importance of psychological support for families facing this moment of sudden change (Teresi et al., 2023). Counselors and health workers need to adopt a holistic approach that integrates an understanding of biological mechanisms, psychosocial impacts, and spiritual values to help families understand and accept the end-of-life process more comprehensively. This kind of approach allows for the development of more effective and empathetic mentoring strategies in dealing with intense emotional situations.

The phenomenon of terminal lucidity not only challenges conventional understandings of cognitive decline at the end of life, but also highlights the complexity of the emotional dynamics that families and caregivers must face. It is possible that holistic approaches and empathic communication need to be balanced with a critical awareness of the limitations of psychosocial interventions in uncertain medical contexts. Although narrative therapy can strengthen family resilience, there is a risk of a reduction in the meaning of terminal lucidity experiences if counseling focuses too much on "closure" or legacy construction without considering the diversity of cultural and individual responses. Therefore, it is important for counselors to not only adopt a theoretical framework, but also to continue to reflect on their practice through interdisciplinary collaboration and dialogue with families, so that interventions remain relevant, humane, and respect the uniqueness of each patient's and family's life journey.

(1) Emotional Management and Family Support; The Terminal Lucidity moment is often the last moment where the family can communicate with the patient, allowing for the resolution of conflicts that may not have been resolved and giving them the opportunity to say goodbye. Fenwick (2018) revealed that the phenomenon of Terminal Lucidity provides emotional comfort to families, as it allows them to connect with patients at the last moment

(Fenwick, 2018). Counselors need to prepare families to face the possibility of Terminal Lucidity with hope, directing them not to feel surprised or afraid, but instead to see it as an opportunity to resolve pending matters. Educating families about this phenomenon can also reduce anxiety and prepare them to respond with compassion and understanding.

(2) Grief Counseling and the Grief Process; The phenomenon of Terminal Lucidity is often thought of as the "final gift" from patients to their families, which can strengthen their emotional bonds and help the grieving process become healthier. A study by Hui et al. (2021) showed that families who experienced a moment of Terminal Lucidity with patients tended to have a better grieving process, because they felt they were given the last chance to come to terms with the situation (Hui et al., 2021). Counselors can use these Terminal Lucidity experiences as part of grief therapy, helping families internalize the moment as a meaningful experience and reducing any regret that may arise. The focus is on helping families understand that this moment is an opportunity to give and receive love, which can reduce the sense of loss.

(3) Ethical and Spirituality Implications in Counseling; A deep understanding of Terminal Lucidity also hints at the importance of an ethical and spiritually-based approach to counseling. Counselors need to be aware of the patient's various spiritual beliefs in order to provide more personalized and holistic support. According to Periyakoil et al. (2017), a spiritual approach in end-of-life counseling allows patients to come to terms with death and provide peace of mind to the family left behind (Periyakoil et al., 2017). Counselors can engage a spiritual approach in counseling sessions, helping patients to reflect on the meaning of their lives and their relationship to the transcendental. It also allows patients to do better spiritual preparations, which can calm and empower them in the last moments.

(4) Education and Training in End-of-Life Counseling

With an understanding of Terminal Lucidity, counselors should be trained to understand the signs of this phenomenon and how to respond appropriately. Komatsu et al. (2019) emphasize that training on palliative care and end-of-life assistance is essential for counsellors, as it allows them to provide more sensitive and targeted support for patients and families (Komatsu et al., 2019). Training should include an understanding of the physiological and psychological processes that occur in patients leading up to death, including knowledge of phenomena such as Terminal Lucidity. This allows the counselor to give clear direction to the family on how to deal with these moments and make the most of the last moments with a loved one.

CONCLUSION

Terminal lucidity is a phenomenon that gives a new dimension in the understanding of the end of life, not only as a medical phenomenon but also as a deep emotional and spiritual moment. Although the biological mechanisms underlying this occurrence are not yet fully understood. Counselors play an important role in facilitating these moments, whether through spiritual mentoring, family education, or appropriate grief counseling. Through a holistic approach that integrates the spiritual aspect, counselors can help families to view Terminal Lucidity moments as a sign of grace, an opportunity for conflict resolution, and a way to live the grieving process in a healthier and more meaningful way. Research from various studies supports this approach, showing that sensitive and empathetic support can make a huge difference in the patient and family experience in the final moments of life.

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