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Network Analysis in Thanatology during the COVID-19 Pandemic: A Technological and Bibliometric Approach

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The thanatological care service is distinguished by being an added value to the biomedical service. The objective of this work was to compare the theoretical structure of thanatology with respect to an analysis of the networks of its elements. A documentary, exploratory, transversal and retrospective work was carried out with a sample of sources indexed in international repositories, considering the PRISMA format for the search by keywords: "thanatology" and "COVID" in the period from 2020 to 2024. Results demonstrate the prevalence of empathy as a central axis and capacity as a grouping axis. Both nodes suggest a learning that goes from emotionality to rationality. In reference to the literature consulted, the extension of the study towards a more robust analysis that determines the bibliometric impact on the literature is recommended.

Keywords: Attitude, Capacity, COVID, Empathy, Thanatology.

1. Introduction

Thanatology is the scientific study of death, dying processes, and mourning (Rzepecki, 2015). Throughout history, various cultures and societies have developed their own rites, beliefs and practices around death, but thanatology as a scientific discipline has evolved relatively recently. Below is a summarized history of thanatology:

The Egyptians developed complex funerary practices and beliefs about life after death, including mummification and the construction of pyramids (Pedone Bandarra & Lopes Sequeira, 1999). The Greeks and Romans also had specific rituals for the dead and beliefs

about the afterlife. Philosophers such as Plato and Aristotle reflected on death and the immortality of the soul.

Death in the Middle Ages was marked by a profound religious influence, especially in Europe, where Christianity dictated funeral practices and beliefs about heaven, hell and purgatory (Santana, Nascimento & Almeida, 2000). The Renaissance brought renewed interest in the human body and its anatomy. This included more detailed studies of death and the dissection of corpses for scientific purposes, although thanatology as a specific field did not yet exist.

The Enlightenment promoted a more rational and scientific approach to death (Pedone Bandarra & Lopes Sequeira, 1999). Advances in medicine and anatomy have allowed for a deeper understanding of the dying process. During this period, increased interest developed in the psychological and social aspects of death. The effects of grief and the experience of the dying began to be studied.

Psychology began to explore the implications of grief and loss on mental health (de Santana, Nascimento & de Almeida, 2000). Freud wrote about mourning and melancholy, establishing a foundation for later studies. Modern thanatology as a discipline was strongly influenced by the work of the Swiss-American psychiatrist who developed the model of the five stages of grief (denial, anger, bargaining, depression and acceptance), which became a fundamental framework in the field.

Thanatology was consolidated as an interdisciplinary field, combining contributions from medicine, psychology, sociology, anthropology and ethics (Figueiredo & Stano, 2013). Academic and research programs dedicated to thanatology were developed at universities around the world. The practice of palliative care and the hospice movement gained prominence, focusing on pain management and emotional support for terminally ill patients and their families.

Thanatology continues to evolve, addressing new issues such as the impact of technology on death (for example, the digitization of memories and virtual funerals). The cultural understanding of death has expanded, recognizing and respecting various traditions and practices in an increasingly globalized world (Santana, Nascimento & Almeida, 2000). Ethical debates about euthanasia and physician-assisted suicide have gained relevance, influencing legislation and medical practice in several countries.

Thanatology has come a long way from ancient funerary practices to becoming a well-established academic and clinical field (Bandarra & Sequeira, 1999). Its development reflects a growing understanding and sensitivity to the processes of dying and grief, and its importance continues to grow in a society that seeks to confront death with greater knowledge and compassion.

The theory of thanatological care focuses on providing comprehensive and compassionate care to people facing death, as well as their families (Pinheiro, 2006). This theory is based on principles and practices that seek to alleviate physical, emotional, social and spiritual suffering. Thanatological care is based on a series of approaches and models, of which some of the most influential are the following:

Model of the Five Stages of Grief is a key figure in modern thanatology. Their five stages of grief model describes common emotional responses to death and loss:

Attachment Theory has also influenced thanatological care, identifying emotional ties and separation as fundamental to the human experience (Margalho et al., 2005). In the context of thanatology, we consider how the breaking of these ties affects grieving people and how their adaptation process can be supported. The palliative care movement, promoted by figures, focuses on the holistic care of the terminally ill patient. Key principles include:

Person-Centered Care This approach, widely used in medical and social care, focuses on the patient's individual needs, desires, and preferences (Korotkov, 2014). In thanatology, it involves listening to and respecting the patient's decisions about their end-of-life care, and encouraging dignity and respect in all interactions.

Terror Management Theory suggests that much human behavior is motivated by the fear of death (Lopez, 2007). In thanatological care, we consider how patients and their families deal with this fear and seek to provide strategies to deal with it in a healthy way. Compassion is a central element in thanatological care. It involves empathy, understanding and a genuine desire to alleviate the suffering of another. Compassionate care training trains professionals to provide care that goes beyond medical treatment, offering deep emotional and spiritual support. The theory of thanatological care is applied in various contexts, including:

The theory of thanatological care seeks to provide comprehensive and humanized care to people facing death and their loved ones, addressing the physical, emotional, social and spiritual dimensions of the human being (Bandarra & Sequeira, 1999). Thanatology models of care are structured approaches designed to provide comprehensive care to people at the end of life and their families. Below are some of the most relevant models in thanatological care:

Palliative Care Model. Adequate management of pain and other physical symptoms. Support for anxiety, depression and other emotional needs (Markešić, Marton & Markešić, 2009). Assistance to the patient's family and loved ones. Response to spiritual and existential needs.

Hospice Model. Patient-centered care and focus on the patient's wants and needs (Donea, 2013). Multidisciplinary teams including doctors, nurses, social workers, spiritual counselors and volunteers.

Each of these models offers a specific approach to thanatological care, and are often combined to provide comprehensive and personalized care (Kosiewicz, 2006). The choice of model or combination of models will depend on the particular needs of the patient, the preferences of the family, and the resources available in the community or health institution.

However, theories and models have not focused their attention on the analysis of thanatological care as part of social and family support. Therefore, the objective of the study was to establish the model of trajectories determining the attitude towards thanatological care in a sample of 100 students from a public university in central Mexico, selected for their affiliation to the system of professional practices and social service in institutions. of health care.

Are there significant differences between the theoretical structure of attitudes towards thanatological care reported in the literature with respect to the observations of the present work?

Hypothesis. Since thanatological attention has been observed as an ambivalent process, it is emotionally necessary, but unexpected, the sample surveyed will reflect a rather unfavorable attitude (Ajzen and Fishbein , 1974).

2. Method

A documentary, transversal, retrospective and exploratory work was carried out with a sample of sources indexed to international repositories via keyword search: "Tanatology" and "COVID" in the period from 2020 to 2024.

The inventory was used for systematic registration of thanatological care in the literature from 2020 to 2024. The following were considered: records in a database, records selected by eliminating duplicates, records screened, records excluded, selection by eligibility, selection by qualitative analysis, selection by quantitative analysis (see Annex).

The data were captured in Excel and processed in JASP version 18.3. The centrality, grouping and structuring coefficients were estimated in order to be able to contrast the hypothesis related to the significant differences between the themes reported in the literature with respect to the observations of the present work. Values close to unity were assumed as evidence of non-rejection of the null hypothesis. Values close to zero were assumed as evidence of non-acceptance of the null hypothesis.

3. Results

The centrality analysis indicates the degree of intermediation, proximity concatenation and influence to establish the prevalence of a node over the others. The results show that empathy is the axis around which the other elements rotate (see Table 1). In other words, thanatological care revolves around empathy and its relationship with the other elements.

Table 1. Centrality measures per variable

	Network			
Variable	Betweenness	Closeness	Strength	expected influence
Relationship	-0.699	-0.168	0.342	-0.523
experience	0.337	0.831	1,280	1,774
Satisfaction	0.855	1,053	1,185	0.804
Quality	-0.699	-1,129	-1,214	-1,296
Service	-0.440	-0.874	-0.770	-0.054
Emphaty	2,409	1,308	0.926	0.333
Capability	0.078	1,040	0.597	0.606
Support	-0.699	-0.717	-0.834	0.111
Accessibility	-0.440	0.008	-0.158	-0.097
Availability	-0.699	-1,352	-1,356	-1,658

The clustering analysis indicates the degree of correspondence between the nodes. The findings indicate that capacity is the axis on which the other elements are grouped (see Table 2). In this way, thanatological care is grouped as a service in the capacity of the expert.

Table 2. Clustering measures per variable

	network			
Variable	Barrat	Onnela	W.S.	Zhang
Emphaty	-1,304	0.540	-0.788	-0.827
Capability	1,754	2,124	1,547	1,000
Support	-0.857	-0.651	0.671	-1,486
Accessibility	0.368	-0.083	0.671	-1,514
Availability	1,335	-0.831	1,547	0.757
Relationship	0.072	0.081	-0.788	0.430
experience	0.314	0.437	-0.788	0.511
Satisfaction	-0.298	0.371	-0.788	0.824
Quality	-0.233	-1,612	-0.642	0.884
Service	-1,151	-0.375	-0.642	-0.580

The structuring analysis reveals the beginning and end of the system to establish the degree of learning. The values suggest that the beginning of the process lies in empathy and the end of learning in the ability of the expert (see Table 3). It means then that the thanatological care system consists of the centralization of empathy and the grouping of expert capacities.

Table 3. Weights matrix

	network									
Variable	Relationship	experience	Satisfaction	Quality	Service	Emphaty	Capability	Support	Accessibility	Availability
Relationship	0.000	0.710	-0.382	0.200	0.115	-0.063	0.161	-0.153	-0.129	0.182
experience	0.710	0.000	0.685	-0.005	-0.108	0.353	-0.420	0.035	0.250	-0.120
Satisfaction	-0.382	0.685	0.000	0.403	0.044	-0.361	0.613	0.057	-0.036	0.045
Quality	0.200	-0.005	0.403	0.000	0.000	0.048	-0.205	0.103	-0.143	-0.008
Service	0.115	-0.108	0.044	0.000	0.000	0.315	0.102	0.304	-0.194	0.214
Emphaty	-0.063	0.353	-0.361	0.048	0.315	0.000	0.442	-0.102	0.531	-0.247
Capability	0.161	-0.420	0.613	-0.205	0.102	0.442	0.000	0.312	0.000	0.000
Support	-0.153	0.035	0.057	0.103	0.304	-0.102	0.312	0.000	0.288	0.000
Accessibility	-0.129	0.250	-0.036	-0.143	-0.194	0.531	0.000	0.288	0.000	0.210
Availability	0.182	-0.120	0.045	-0.008	0.214	-0.247	0.000	0.000	0.210	0.000

4. Discussion

The contribution of this work to the state of the art lies in the establishment of a learning network around the thanatological care service. The results show that this learning network focuses on empathy, is grouped on ability and is structured in both nodes.

Thanatology care, also known as end-of-life care planning, is a crucial component of modern healthcare systems (Ailincăi & Constantinescu, 2015). These services aim to provide support and guidance to individuals and their families as they go through the difficult process of facing mortality. Medical Assistance in Dying (MAiD) is considered a fully integrated medical service within the socialized health system. This highlights the importance of providing comprehensive end-of-life care options to patients. Careers in thanatology services often require individuals to have significant experience in administration and office services, along with appropriate educational training.

Specializing in emergency services, palliative care, and gerontology can provide individuals with the skills and knowledge necessary to effectively support patients and their families during the end-of-life process (Żemła-Siesicka, 2022). End-of-life care planning involves collaboration with healthcare providers, such as primary care physicians and relevant specialists, to ensure that patients receive the best possible care to manage pain and other symptoms (Pyzel, 2019). Advance care planning is also highlighted as a valuable tool to ensure that patients' wishes are respected and fulfilled. Bereavement services play a crucial role in supporting people who have experienced loss. These services help people visiting loved ones in the hospital or seeking medical care themselves. Grief counseling, such as that provided by health centers, offers support to people who have lost a loved one. Overall, thanatology services and care are essential components of health systems that aim to provide compassionate and comprehensive care to people facing the end of life. By integrating these services into healthcare systems and providing support to patients and their families, healthcare providers can ensure that people receive the care and support they need during this difficult time.

The models of thanatological care configure attitudinal factors and their dependency relationships. These dimensions were structured from groups of items that included the same content, but differed in the response options (Ajzen, 2002). That is, around the attitudinal object (thanatological attention), mourners tend to structure their feelings, reasons and intentions in a direct and positive way (Ajzen, 1991). The structural model demonstrated the influence of other variables not included but inferred from the covariances between the first-order factors. This means that, around the attitude of the mourners towards thanatological care, there are other unexplored attitudinal dimensions that would explain the attitudinal complexity towards thanatological service (Ajzen, I2001). Neglect as an indicator of the attitude towards thanatological care is determined by social support (0.16, which is a mediator of depression and optimism. The increase in the incidence of both variables is since social support increases its anticipation. The regression coefficients [Neglect ($R2 = 0.29$), Support ($R2 = 0.002$), Exercise ($R2 = 0.69$)] suggest non-rejection of the hypothesis.

In this work, empathy and the capacity for thanatological care stand out as the axes on which support and monitoring services at the end of life are concentrated, grouped and structured. Therefore, the extension of the model to the dimensions reported in the literature as peripheral to the public health service is recommended.

5. Conclusion

The objective of this work was to compare the theoretical structure reported in the literature with respect to the analysis of that structure as a neural learning network. The results demonstrate the prevalence of two axes such as empathy and capacity that would explain the thanatological care service reported in the literature. In this sense, it is advisable to extend the study to other peripheral repositories and expand the search by secondary words, as well as an analysis of neural networks to establish the degree of learning and a meta-analysis to define the scientometric impact of the literature on thanatological care.

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