

THE NARRATIVE OF THE SOCIAL FRAILTY OF THE OLDER POPULATION IN THE ITALIAN PRESS

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Abstract. Italy is the oldest country in Europe as of 2022, with a median citizen age of 48 years. As the older population continues to grow rapidly, issues such as frailty and life satisfaction have become increasingly critical. One area that has received little attention thus far is social frailty, which can be defined as insufficient participation or a complete absence of participation in social networks, along with a perception of inadequate contact and support (Bunt et al., 2017). This concept encompasses various social resources or limitations, social behaviors and activities, and self-management skills that all contribute to fulfilling social needs. The article aims to analyse and define the issues related to the older population as they are represented in the Italian press. In particular, the study aims to identify the similarities and differences in the narrative in different periods (2012, 2019, 2022), also focusing on the living conditions of the older people during the pandemic period. The Italian press highlighted the crucial role of women in caring for elderly relatives at home, emphasizing the importance of the gender dimension in supporting and caring for parents. In the following years, however, the focus shifted to the role of care institutions in preserving the individuals' dignity and the need for political intervention with welfare measures specifically aimed at the older population. Policy intervention played a crucial role in improving their socio-economic conditions, primarily through the creation of specific bonuses and allowances.

1. Introduction

In the twentieth century, Western countries experienced a significant dual demographic transformation: there was an unprecedented rise in life expectancy, followed by a notable decrease in fertility rates during the latter half of the century. These demographic shifts have resulted in a rapidly growing aging population, influencing the duration and timing of various family roles and intergenerational connections (Cisotto *et al.*, 2022). According to Eurostat's 2023, Italy is the oldest

country in Europe as of 2022, with a median citizen age of 48 years (40.7 in 2002). Specifically, 23.8% of 65 years old and over in 2022.

To explore inequalities in ageing, and to design and manage health and social policies addressed to older people in bad health conditions, the identification of the negative aspects of ageing becomes relevant. As a result of the increase in the elderly population, frailty has emerged as a major public health problem. Frailty is a widely recognized term used to describe a complex condition characterized by heightened vulnerability resulting from negative health consequences associated with aging. However, there is an ongoing debate surrounding the essence of frailty (Bunt *et al.*, 2017). On one side, there are models and concepts that emphasize the physical aspects of frailty (Fried *et al.*, 2004). On the other side, integral models highlight the multidimensional nature of frailty (De Vries *et al.*, 2011; Rockwood, 2005). These comprehensive models emphasize the dynamic biopsychosocial nature of frailty and outline the progression from life-course determinants and diseases to frailty and subsequent adverse outcomes (Gobbens *et al.*, 2010). The fundamental notion is that frailty escalates as a result of the accumulation of physical, psychological, and social deficits or issues. While physical, psychological, and social frailty are all encompassed within the broader concept of frailty, the domain of social frailty remains relatively unexplored.

Social frailty has been explicitly defined in certain studies as inadequate or complete absence of engagement in social networks, along with the perception of lacking connections and support (Andrew *et al.*, 2008). However, the majority of literature remains inconclusive regarding the nature and extent of social frailty as a concept, and there is significant variation in the approaches taken to define it. Other studies have investigated the impact of social deficits or issues on frailty, viewing social vulnerability as a contributing factor, and have found a moderate yet discernible association between social vulnerability and overall frailty. In this contribution, therefore, it was decided to start by identifying the most important topics related to social frailty. The aim is to define the main topics of the Italian national press on the conditions of elderly people and visualise how these have evolved in 2012, 2019 and 2022. To do this, we used a topic modelling technique, the Latent Dirichlet Allocation (LDA).

In the following paper, section 2 presents the methodology, including how the journal articles were extracted, the cleaning and pre-processing process and the formalisation of the LDA. The 3rd section identifies the results of the contribution, and the last section identifies the conclusions and future developments of the work.

2. Methodology

2.1. Data collection and preparation

To identify the articles of the Italian press, we utilized Octoparse software to extract newspaper articles from Google using two search queries: "anziani" ("older adults") AND "condizioni anziani" ("older adults' conditions"), in the years 2012, 2019, and 2022.

We eliminated duplicates and articles that did not match the search queries. In table 1, we indicated for each year, the number of articles extracted from Octoparse and the final number of documents.

Table 1 – Documents extracted.

Year	N° articles extracted	N° documents
2012	271	221
2019	310	252
2022	373	284

Text mining is a technique used to identify the main topics of a document by quantifying and analysing the words that compose it. We carried out several text pre-processing operations to convert the textual data (i.e., articles) into structured data that can be analysed statistically. Documents are parsed and tokenized, resulting in a set of distinct strings (tokens) separated by spaces, punctuation marks, or other special characters. The scheme achieved by tokenization is known as bag-of-words (BoW), as it treats each document as a multiset of its tokens, without regard to grammatical and syntactic roles. In a BoW corpus, the order between words does not matter. Once documents have been atomized into basic components, pre-processing phases are necessary to reduce linguistic variability (Uysal and Gunal, 2014). Initially, all term characters were converted to lower case. To ensure consistency between the different language variants, further normalisation procedures were implemented, such as the correction of misspelled terms and word accents, and the elimination of numeric characters (Misuraca and Spano, 2020). Next, we considered the process of grammar tagging in order to assign each term its respective part of speech (POS), identifying nouns, adjectives, and verbs for vocabulary construction. This stage turns out to be central because it allows for the recognition of POS functional to the identification of word

categories. To reduce morphological variability, lemmatization was carried out, where each term was re-turned to its canonical form: verbs are returned to the present infinitive, while nouns and adjectives to the masculine singular. When documents have been pre-processed, we constructed the so-called vocabulary by stacking identical terms and counting the number of occurrences of each term (type) in the document collection. From the list of vocabulary terms, we removed stop-words (i.e., common terms used in the specific language and domain analysed, such as prepositions and conjunctions) as well as the search queries "anziani" and "condizioni anziani" to ensure that the topics produced by topic modeling technique are meaningful and not characterized by the same top words. In addition, to further reduce noise in the topics inferred, words that rarely occur in the corpus are removed (Dahal *et al.*, 2019). At the end of these phases, we returned a database composed by tokens, types and documents represented in table 2. According to these, it is possible to construct the document-term matrix, where on the rows there are the documents, and the columns are defined by the terms.

Table 2 – Number of tokens, types, and dimensions of document-term matrix

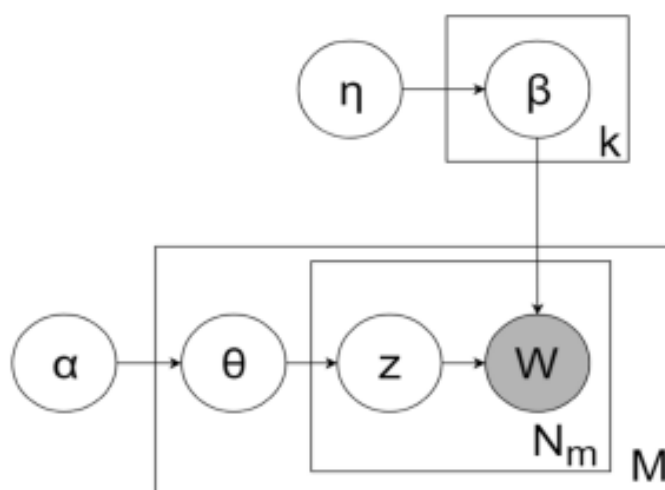
Year	Tokens	Types	Doc-term matrix
2012	15.886	2.750	221 x 2.750
2019	14.979	2.983	252 x 2.983
2022	13.514	3.232	284 x 3.232

2.2. Latent Dirichlet Allocation (LDA)

Topic modeling is a technique used in natural language processing (NLP) that extract topics or themes in a corpus of text data. The goal is to automatically identify hidden patterns in a collection of documents. It is also useful for underlying meaning out of newspaper corpora on a given topic (Uys *et al.*, 2008). Han and Yoon (2007) examined 1,725 newspaper articles published between 1997 and 2006 that featured the terms "aging" or "elderly" in their text. Meanwhile, Lee (2022) analyzed articles from 10 Korean newspapers between 2006 and 2019 that included the term "aging" in titles. There are several kinds of topic modeling techniques among which Latent Dirichlet Allocation (LDA) is especially popular. LDA is a generative probabilistic model of a corpus, and it used in unsupervised machine learning algorithms (Blei *et al.*, 2003; Hoffman *et al.*, 2010). The basic idea is that documents are represented as random mixtures over latent topics, where

each topic is characterized by a distribution over words. The Dirichlet distribution is employed to determine the distribution of topics per document. In the LDA generative process, the outcomes from the Dirichlet are utilized to assign words in a document to various topics. According to the model, documents are observable objects, while topics, distribution of per-document topics, classification of each word on topics per document are hidden structures.

Figure 1 – LDA generative process. Circles represent variables, and rectangles represent repetition among documents, words, and topics. The shade circle is the only visible variable in the corpus, the others are latent in the LDA model.



Source: Blei et al., 2003.

LDA belongs to the category of generative models. The generative process of LDA is illustrated in Figure 1 through a plate diagram. Assume that the corpus comprises M documents, each containing N_m (m from 1 to M) words. The corpus consists of W distinct words overall, and there are k topics. The hyperparameters α and η are used for the Dirichlet distributions, which generate the k -dimensional document/topic (θ) vectors and W -dimensional topic/word (β) vectors, respectively. The parameters θ and β function as categorical distributions, from which topics and words are selected (sampled). The LDA model's generation process can be divided into four steps: (1) Sampling β_j for each topic j ; (2) Sampling θ_m for each document m ; (3) Sampling a topic z for each word position n in document m (which is repeated N_m times), using the categorical distribution parameterized by θ_m ; and (4)

Sampling a word from the categorical distribution parameterized by β_z (Blei et al., 2003). The primary aim of training an LDA model is to identify θ and β such that the probability of generating the actual corpus is maximized (Blei, 2012). LDA considers α , η , and k as parameters and randomizes all other values except w . This model works by looking at the word co-occurrences within documents, assuming that words that co-occur within a document are more likely to be related to the same topic, and that documents that contain the same words are more likely to contain the same topics (Dahal *et al.*, 2019). After many iterations, a fully trained LDA model is produced, with the document/topic and topic/word matrices as the main objects of interest.

3. Results

LDA was applied to the term-document matrices to determine the topics extracted from the journalistic narrative in the selected years. For each topic, the 10 words with the highest value of probability of becoming part of the topic are given.

Figure 2 – *Topics extracted from LDA in 2012.*

Topic 1	Topic 2	Topic 3
Famiglia	Analisi	Promozione
Domicilio	Approfondimento	Supporto
Donna	Invecchiamento	Sociale
Lavoro	Sperimentazione	Dignità
Assistenza	Sorveglianza	Abuso
Gestione	Salute	Autosufficiente
Attrezzatura	Prospettiva	Socializzazione
Agevolazione	Vita	Centro
Servizio	Intervento	Servizio
Familiare	Analizzare	Promuovere

In 2012, the journalistic discourse revolved around three primary themes that centred on the older population. The first theme delved into the essential role played by the family network in providing care and assistance to older individuals. This critical activity encompassed a range of direct support, including daily aid

with household tasks, personal care, medication management, as well as emotional and social support. Journalists recognized the contribution of women in ensuring the well-being and comfort of their elderly members, highlighting the selfless dedication and love exhibited in this caregiving role. The second theme focused on early articles that tackled the emerging challenges posed by the growing elderly population. With improvements in the quality of life and declining fertility rates, older adults were experiencing increased life expectancy, sparking a broader discussion on how to provide comprehensive medical and social care tailored specifically to their unique needs. The topic underscored the importance of identifying appropriate facilities that not only offered support but also ensured the preservation of dignity for elderly individuals. Within this narrative, journalists also addressed the pressing issue of abuse perpetrated by staff in care facilities, shining a light on disturbing events occurring within these establishments and calling for greater accountability and reforms in the eldercare sector.

Figure 3 – *Topics extracted from LDA in 2019.*

Topic 1	Topic 2	Topic 3
Impiego	Struttura	Enterale
Iscritto	Sociale	Dolore
Lavoro	Valorizzare	Patologia
Incapacità	Intervento	Demenza
Progetto	Disabilità	Deficitario
Obbligo	Domicilio	Cure
Inclusione	Strategia	Emotivo
Fragile	Termine	Diagnostico
Welfare	Supporto	Salute
Asl	Assistenza	Decisionale

In 2019, the Italian press extensively covered three significant topics that had gained prominence in the preceding period. The first topic revolved around social welfare concerns, particularly focusing on employment opportunities for older individuals. The pressing need was recognized to incorporate their wealth of experiences and professional backgrounds as valuable resources within various projects. It was imperative to harness their expertise and skills to contribute to

society and promote their inclusion. The second theme tackled the importance of establishing comprehensive support structures and medical assistance to cater to individuals in both home and institutional settings. The Italian press emphasized the necessity of providing adequate care and assistance to people in need, ensuring their well-being and comfort. The discussion surrounding this topic underscored the significance of accessible and quality healthcare services, with an emphasis on promoting a compassionate approach to healthcare delivery. Closely related to the theme, the third topic shed light on the realm of illness and pain experienced by the older adult population. The press brought greater attention to the issue of senile dementia and neurodegenerative diseases that manifest in old age. The profound impact of these conditions on individuals and their families was highlighted, creating awareness about the challenges faced by those affected. The Italian press sought to create a more informed society by shedding light on the realities of these illnesses, thereby encouraging support, research, and medical advancements.

Figure 4 – *Topics extracted from LDA in 2022.*

Topic 1	Topic 2	Topic 3
Sociale	Amministrazione	Coordinamento
Stato	Agire	Disuguaglianza
Spesa	Aiuto	Famiglia
Sviluppo	Ampliare	Equipe
Spazio	Lista	Caregiver
Territorio	Interrogazione	Piano
Equità	Ricoverare	Contributo
Sostegno	Casa	Fondo
Ssn	Vaccinazione	Misura
Nazionale	Vaccinare	Misurare

The 2022 marked a significant shift in the narrative of Italian newspapers, driven by the far-reaching impact of the Covid-19 pandemic. Three prominent themes emerged, each shedding light on different aspects of the challenges faced by the older population. Firstly, there was a heightened focus on the welfare state and the national health system, both of which played pivotal roles in developing policies aimed at supporting the older adults. The pandemic exposed vulnerabilities within the existing framework, prompting discussions on the urgent need for

comprehensive measures to safeguard the well-being of older individuals. Attention was directed towards strengthening the welfare state and healthcare infrastructure, with an emphasis on improving accessibility, affordability, and quality of care for the elderly. The pressing goal was to ensure that they received the necessary support and protection in the face of ongoing health crises. Concurrently, there was a strong emphasis on the need to enhance the facilities catering to the older adult population, particularly considering the pandemic. The focus was on improving the safety and preparedness of these establishments, including nursing homes and assisted living facilities. Journalistic discourse highlighted the significance of implementing stringent infection control measures and developing robust vaccination strategies to minimize the risk of contagion. This theme underscored the importance of prioritizing the health and well-being of elderly residents and the dedicated staff who care for them, recognizing their vulnerability to infectious diseases. Additionally, the economic measures implemented by the government in response to the pandemic became a significant topic of discussion. Recognizing the socio-economic impact on individuals and families, journalists explored the various initiatives aimed at supporting people financially and socially. This included measures such as stimulus packages, unemployment benefits, and targeted assistance programs. The media played a crucial role in disseminating information about these measures, ensuring transparency, and encouraging public engagement in navigating the economic challenges faced by the elderly and the wider population.

4. Discussion and conclusions

In conclusion, the journalistic discourse on the elderly population has evolved and adapted to changing times, addressing significant topics over the years. In 2012, the focus was on the central role of the family network in providing care and assistance to the elderly, carried out mainly by women. At the same time, attention was drawn to the emerging challenges posed by a growing older adult population, emphasizing the need for comprehensive medical and social care tailored to their specific needs. The pressing problem of abuse within care facilities also received attention, calling for greater accountability and reforms in the elderly care sector. Looking ahead to 2019, the Italian press shifted its focus to social issues and job opportunities for the older people. The aim was to harness their experience and professionalism as valuable resources within various projects, fostering their inclusion and contribution to society. The emphasis was placed on the significance of providing extensive support services and medical care for the older adults, whether they reside at home or in institutional facilities. In addition, the press shed

light on the challenges posed by diseases such as dementia and neurodegenerative diseases, with the aim of creating awareness and encouraging support, research, and medical advances. In 2022, the narrative has changed once again due to the profound impact of the Covid-19 pandemic. The welfare state and the national health system were challenged, gaining importance as essential pillars in the development of policies to support the older adults. Strengthening the accessibility, affordability and quality of care has become crucial in the face of continuing health crises. The need to strengthen care facilities for the older adults, focusing on safety and preparedness, was emphasized, just as the economic measures put in place by the government to support individuals and families was an important topic of discussion, highlighting the importance of providing financial and social assistance in difficult times.

The evolution of the narrative in Italian newspapers reflects the commitment to address the unique needs and challenges of the elderly population. From recognizing the crucial role of families in caregiving to advocating for comprehensive health and social care, the media have played a key role in fostering awareness, promoting dialogue, and supporting the well-being and dignity of older people in society. To further advance research in the field, it is worth considering the analysis of print media during the Covid-19 period to identify and highlight the narrative surrounding the events that unfolded throughout the pandemic (2020 and 2021).

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