THE FRAMING OF DEMENTIA IN SCIENTIFIC ARTICLES PUBLISHED IN *ALZHEIMER'S AND DEMENTIA* IN 2016

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Abstract. The present article involves a qualitative study of the framing of dementia in *Alzheimer's and Dementia,* the Journal of the Alzheimer's Association, published in 2016. The aim of this study is to elucidate how dementia is framed qualitatively in the corpus consisting of scientific articles involving dementia published in *Alzheimer's and Dementia.* The results of the qualitative analysis indicate that dementia is represented in *Alzheimer's and Dementia* in 2016 as the frames associated with gender, age, costs, caregiver and care-recipients, disability and death, health policy, spatial orientation, medical condition, and ethnic groups. These findings are further discussed in the article.
Key words: dementia, discourse, framing, psycholinguistics.

Капранов Олександр. Фреймовий аналіз концептуалізації деменції в наукових статтях, опублікованих у журналі «Alzheimer's and Dementia» в 2016.
Анотація. Ця стаття містить фреймовий аналіз концептуалізації деменції в дискурсі наукової літератури, опублікованої в журналі «Alzheimer's and Dementia» у 2016. Мета фреймового аналізу полягає у виявленні концептуалізації деменції в часописі «Alzheimer's and Dementia». Результати фреймового аналізу показують, що деменція в «Alzheimer's and Dementia» розглядається в межах таких категорій: стать, вік, кошти, догляд, інвалідність та смертність, політика в галузі охорони здоров'я, просторова орієнтація, стан здоров'я та етнічні групи. Ці результати обговорюються далі в статті.
Ключові слова: деменція, дискурс,психолінгвістика, фрейм.

1. Introduction

This article involves a qualitative analysis of how dementia is framed in *Alzheimer's and Dementia*, the Journal of the Alzheimer's Association, published in 2016. Dementia is described as a disturbance of multiple higher cortical functions, associated with memory, thinking, orientation, comprehension, calculation, learning capacity, language and judgement (Wray, 2017). Currently, dementia receives special attention in both public and private healthcare systems, since the aging population in the West is at the increasing risk of dementia and its negative consequences (Wu et al., 2016:116). In this regard, Cornejo and the colleagues (2016:1572) indicate that whilst currently more than five million people in the U.S. have age-related dementia, it is projected that by 2050 there will be almost 16 million dementia sufferers in North America.

A traditional faming of dementia is associated with a progressive and pathologically degenerative biomedical disease (Davis, 2016:369). However, there is a growing body of literature, which involves the framing of dementia pertaining to its other aspects, e.g. sociological, philosophical, and the care-givers' perceptions

of dementia sufferers. (Gilmour & Brannelly 2010; Górska et al. 2017; Lawless & Augoustinos 2017; Swacha 2017; Wray 2017). To specify the notion of framing, it should be noted that framing involves the selection of some aspects of the perceived reality in order to highlight these aspects in the text, so that a particular problem, its causal interpretation as well as its evaluation and the problem's solutions are made salient and, consequently, promoted (Entman 1993:53). Following Joris et al. (2014:609), a frame consists of clearly perceptible elements in the text and of the latent information in the text through which the problem, its cause, evaluation and a possible solution are implied.

The concept of framing is central to the present article. It seems pertinent to elaborate on it by referring to the canonical definition of framing by Entman (1993:52), who posits that '*framing essentially involves selection and salience.*' Specifically, Entman (2007:164) emphasises that

We can define framing as the process of culling a few elements of perceived reality and assembling a narrative that highlights connections among them to promote a particular interpretation. Fully developed frames typically perform four functions: problem definition, causal analysis, moral judgment, and remedy promotion (Entman 1993; 2004). Framing works to shape and alter audience members' interpretations and preferences through priming. That is, frames introduce or raise the salience or apparent importance of certain ideas, activating schemas that encourage target audiences to think, feel, and decide in a particular way.

To reiterate, framing involves selection and conceptualisation of certain data presented as a central organising idea for understanding events related to the issue in question (Entman, 2007). Previous research indicates that frames involve '*an emphasis or salience of different aspects of a topic; they are meant to simplify complex issues by lending more weight to certain considerations and activate schemas that encourage audiences to think in a particular way.*' (Touri & Koteyko 2015:602). Consequently, it can be assumed that framing is one of the effective means of simplifying and facilitating written discourse. As such, framing is deemed to be an important construal in elucidating media and political discourse, as well as other spheres of discourse, involving, for instance, anthropology, education, medicine, and politics (Burgers et al. 2016; Carolan 2016; Kapranov, 2016). In medical discourse, in particular, framing refers to the recognising, naming, categorising, defining and attributing causal forces to diseases, exerting influence upon clinical and public health practices, as well as societal responses to health problems (Aronowitz 2008:2–3).

The aim of the present article is to explore how scientific discourse involving dementia is framed in '*Alzheimer's and Dementia*' published in 2016. This matter is deemed to be relevant due to a number of socio-cultural and scientific implications. First, the research further described in this article contributes to a broader discussion of how highly reputable scientific publications, such as '*Alzheimer's and Dementia*', are employed as a vehicle for disseminating research involving dementia. Second, echoing Wray (2017:81), the present research seeks to shed light upon the

assumptions coded in discursive practices of scientific research to reconstruct and succinctly present the major trends in the current state-of-the-art research in dementia. The article is structured as follows: I will briefly outline dementia, which is followed by the analysis of framing of dementia. Then, the results of the framing analysis of dementia in *'Alzheimer's and Dementia'* will be provided and discussed.

Dementia: A Brief Outline

Currently, there is a view of dementia as an umbrella term which involves the symptoms caused by vascular disease, alcohol-related brain damage, Pick's disease, Lewy body disease, Alzheimer's and the onset of the old age (Andrews 2011:397). In biomedical paradigm, dementia is referred *'to categorise people who have progressive memory loss, disorientation and cognitive problems with reasoning and comprehension.'* (Gilmour & Brannelly 2010:241). It is posited that dementia is associated predominantly with Alzheimer's disease and the old age, i.e. 'senile dementia' (Parker 2001:330).

Dementia due to Alzheimer's involves a persistent impairment of intellectual functions, which compromises memory, cognition, language, visuospatial skills, emotions, and personality (van Gorp & Vercruysse 2012; Peel 2014). Senile dementia is characterised by chronic progressive deterioration of intellectual functions, affecting both short-term and long-term memory (Zwijsen et al. 2016). Elderly patients with dementia are disoriented, inattentive, unable to develop meaningful idea sequences, and rely on stereotyped forms of behavior (Kaufman 1994). They often suffer from multimorbidity, with frequent pain-causing conditions (Jensen-Dahm et al. 2015:691), which are associated with this progressive and irreversible disease (Innes 2002:483).

The Framing of Dementia in the Journal 'Alzheimer's and Dementia' Published in 2016

This article aims at providing a qualitative analysis of the frames associated with dementia, identified in scientific articles which have been published in *'Alzheimer's and Dementia'* in 2016. *'Alzheimer's and Dementia'* is a peer-reviewed journal, which provides knowledge about the entire spectrum of dementia research ranging from clinical trials to social and behavioral investigations. The focus of the present analysis is on the framing of the discourse involving dementia, i.e. how the researchers whose scientific articles are published in *'Alzheimer's and Dementia'* construe their narratives involving dementia. As previously mentioned in the introduction, this question is of interest to the specialised and general audience, since it involves the means of framing dementia, its diagnosis and treatment by the professionals who interact with, study and care for people with dementia. Concurring with Wray (2017), I would like to emphasise that in all of the above-mentioned domains, language is the main medium for sharing knowledge and the means of framing this knowledge. In this research, language is regarded as a basic tool of framing the current state-of-the-art research involving dementia.

Hypothesis and Specific Research Aim

The hypothesis of the present investigation is based upon a contention that discourse involves construal operations, which are imposed on the concepts by

speakers and addressees at the time of use (Bednarek 2005; Paradis 2010). Following this argument, it is assumed that scientific discourse associated with dementia involves a variety of frames ranging in salience, foregrounding, explicitness, detail, perspective, Gestalt properties, and descriptions. Hence, the article addresses the following research aim: to identify frames associated with dementia in scientific discourse published in '*Alzheimer's and Dementia*' in 2016.

Materials

The corpus of the present qualitative study involves scientific articles published in '*Alzheimer's and Dementia*' in 2016. The articles have been collected via an electronic search on the web site scholar.google.com with the active filters involving the publication date (from 1.01.2016 till 1.10.2016), and the key word 'dementia'. The electronic search has been manually checked for the presence of the key word 'dementia' in the title, abstract and the key words section. In total, 16 articles have met the above-mentioned criteria and have been selected for the present analysis, as seen from Table 1 below:

Table 1

Descriptive meta-data involving the present materials

#	Title	Authors	Key Words
1	Impact of interventions to reduce Alzheimer's disease pathology on the prevalence of dementia in the oldest-old	Brookmeyer, R., Kawas, C. H., Abdallah, N., Paganini-Hill, A., Kim, R. C., & M.M. Corrada	Alzheimer's disease; Dementia; Intervention; Oldest-old; Pathology; Prediction; Prevalence; Prevention
2	Sleep duration, cognitive decline, and dementia risk in older women	Chen, J. C., Espeland, M. A., Brunner, R. L., Lovato, L. C., Wallace, R. B., Leng, X., Phillips, L.S., Robinson, J.G., Kotchen, J.M., Johnson, K.C., Manson, J. E., Stefanick, M.L., Sato, G.E., & W.J. Mysiw	Sleep duration; Elderly; Cognition; Cognitive decline; Mild cognitive impairment; Dementia; Longitudinal analysis; Cohort studies
3	ADL disability and death in dementia in a French population-based cohort: New insights with an illness-death model.	Delva, F., Touraine, C., Joly, P., Edjolo, A., Amieva, H., Berr, C., Helmer, C., Rouaud, O., Peres, K., & J.F. Dartigues	Dementia; Prognosis; Activities of daily living; Follow-up studies

4	Dementia incidence declined in African-Americans but not in Yoruba	Gao, S., Ogunniyi, A., Hall, K. S., Baiyewu, O., Unverzagt, F. W., Lane, K. A., Murrell, J.R., Gureje, O., Hake, A.M., & H. C. Hendrie	Dementia; Alzheimer's disease; Incidence; African-Americans; Nigerians Alzheimer's disease
5	Why has therapy development for dementia failed in the last two decades?	Gauthier, S., Albert, M., Fox, N., Goedert, M., Kivipelto, M., Mestre-Ferrandiz, J., & L.T. Middleton	Alzheimer's; Research & development; Clinical trials; Dementia; Attrition; Amyloid hypothesis
6	Predicting the progression of Alzheimer's disease dementia: A multimodal health policy model.	Green, C. & Zhang, S	Alzheimer's disease; Decision analytic modelling; Progression; Prediction; Health policy
7	Incidence and predictors of cognitive impairment and dementia in Aboriginal Australians: A follow-up study of 5 years	Giudice, D. L., Smith, K., Fenner, S., Hyde, Z., Atkinson, D., Skeaf, L., Malay, R., & L. Flicker	Indigenous; Dementia; Cognition; Cohort study; Older people
8	Gamma glutamyltransferase and risk of future dementia in middle-aged to older Finnish men: A new prospective cohort study	S. K. Kunutsor & J. A. Laukkanen	Gamma glutamyltransferase; Risk factor; Dementia
9	Comparative analysis of cerebrospinal fluid biomarkers in the differential diagnosis of neurodegenerative dementia	Llorens, F., Schmitz, M., Karch, A., Cramm, M., Lange, P., Gherib, K., Varges, D., Schmidt, C., Zerr, I., & K. Stoeck	Biomarkers; Cerebrospinal fluid; Neurodegenerative dementias; Prionopathy; Tauopathy; Synucleinopathy

10	Inequalities in dementia incidence between six racial and ethnic groups over 14 years	Mayeda, E. R., Glymour, M. M., Quesenberry, C. P., & R.A. Whitmer	Dementia; Race; Ethnicity; Disparities; Cohort; Epidemiology
11	White matter hyperintensity burden in elderly cohort studies: The Sunnybrook Dementia Study, Alzheimer's Disease Neuroimaging Initiative, and Three-City Study.	Ramirez, J., McNeely, A. A., Scott, C. J., Masellis, M., & S.E. Black	Alzheimer's disease; Cerebrovascular disease; Aging; White matter hyperintensities; Dementia; Elderly cohort; Population studies
12	Closer caregiver and care-recipient relationships predict lower informal costs of dementia care: The Cache County Dementia Progression Study	Rattinger, G., Fauth, E., Behrens, S., Sanders, C., Schwartz, S., Norton, M. C., Corcoran, C., Mullins, C.D., Lyketsos, C., & J.T. Tschanz	Informal costs of dementia; Caregiver; Relationship closeness
13	Benzodiazepine, psychotropic medication, and dementia: A population-based cohort study	Shash, D., Kurth, T., Bertrand, M., Dufouil, C., Barberger-Gateau, P., Berr, C., Ritchie, K., Dartigues, J.-F., Begaud, B., Alperovitch, A., & C. Tzourio	Cohort studies; Alzheimer's disease; Dementia; Benzodiazepine; Psychotropic medication
14	Information and communication technology solutions for outdoor navigation in dementia	Teipel, S., Babiloni, C., Hoey, J., Kaye, J., Kirste, T., & O.K. Burmeister	Social participation; Intention recognition; Assistive technology; Mobility; Cognitive decline; Disorientation; Dementia; Situation-aware assistance

15	Trajectories of decline in cognition and daily functioning in preclinical dementia	Verlinden, V. J., van der Geest, J. N., de Bruijn, R. F., Hofman, A., Koudstaal, P. J., & M.A. Ikram	Activities of daily living; Alzheimer's disease; Apolipoproteins E; Cognition; Dementia; Preclinical; Vascular dementia
16	Incidence of dementia and subtypes: A cohort study in four regions in China	Yuan, J., Zhang, Z., Wen, H., Hong, X., Hong, Z., Qu, Q., Li, H., & J.L. Cummings	Dementia; Alzheimer's disease; Vascular dementia; Incidence; Risk factors; Prospective cohort study; Epidemiology; China

All the articles selected from '*Alzheimer's and Dementia*' (see Table 1 above) for the purposes of the present analysis were deemed to adhere to the genre of scientific discourse. They involved the results of studies in behavior, biochemistry, molecular biology, pharmacology, physiology, neurology, neuropathology, geriatrics, neuropsychology, epidemiology, sociology, health services research, health economics, political science, and public policy.

2. Methods

The methodology employed in the present article followed methodological guidelines described by van Gorp and Vercruysse (2012), who elucidated how dementia was framed in media texts. Following van Gorp and Vercruysse (2012), the framing analysis involved the identification of a core frame, framing devices, and reasoning devices. In accordance with van Gorp and Vercruysse (2012), the core frame was deemed to be an implicit cultural phenomenon that defined the frame as a whole. The framing devices were considered those explicit elements in the text, which functioned as demonstrable indicators of the rhetorical structure of a message, such as vocabulary, recurrent phrases, definitions, and depictions. The reasoning devices were considered those causal reasoning forms that evoked culturally embedded information. The above-mentioned methodology by van Gorp and Vercruysse's (2012) was applied to the present corpus of scientific articles involving dementia, published in '*Alzheimer's and Dementia*' in 2016.

3. Results and Discussion

The results of the qualitative framing analysis have been summarised in Table 2 below:

Table 2

The Framing of Dementia in 'Alzheimer's and Dementia' in 2016

#	Frames Associated with Dementia	Author/Authors
1.	Dementia as an age-related issue	Brookmeyer et al. (2016); Chen et al. (2016); Gao et al. (2016); Guidice et al., (2016); Kunutsor & Laukkanen (2016); Mayeda et al., (2016); Rattinger et al. (2016); Shash et al. (2016); Teipel et al. (2016); Verlinden et al. (2016); Yuan et al. (2016)
2.	Dementia as a gender-related issue	Chen et al. (2016); Delva et al. (2016); Kunutsor & Laukkanen (2016)
3.	Dementia as a cost-related issue	Green & Zhang (2016); Rattinger et al. (2016)
4.	Dementia as a caregiver and care-recipient issue	Rattinger et al. (2016)
5.	Dementia as a disability and death-related issue	Delva et al. (2016)
6.	Dementia as a health policy-related issue	Brookmeyer et al. (2016); Gao et al. (2016); Green & Zhang (2016)
7.	Dementia as a spatial orientation-related issue	Teipel et al. (2016)
8.	Dementia as a medical condition-related issue	Gauthier et al. (2016); Llorens et al. (2016); Ramirez et al. (2016); Shash et al. (2016); Verlinden et al. (2016)
9.	Dementia as an ethnic group-related issue	Gao et al. (2016); Guidice et al. (2016); Mayeda et al. (2016); Yuan et al. (2016)

The results of the framing analysis have yielded a set of frames associated with dementia in the research articles published in '*Alzheimer's and Dementia*' in 2016. These frames construe dementia as a range of issues, related to gender, age, costs, caregiver and care-recipient, disability and death, health policy, medical condition, and ethnicity. These frames are further discussed in the subsections below.

The framing of dementia as an age-related issue

The framing of dementia as an age-related issue has been identified in the following research articles published by '*Alzheimer's & Dementia*' in the period from 1 January till 1 October 2016: Brookmeyer et al. (2016), Chen et al. (2016), Kunutsor & Laukkanen (2016), Guidice et al., (2016), Mayeda et al., (2016), Rattinger et al. (2016), Shash et al. (2016), Teipel et al. (2016), Verlinden (2016),

and Yuan et al. (2016). It should be noted that with the exception of Brookmeyer et al. (2016), the framing of dementia as an age-related issue serves as a background for other foregrounded construals, for instance, gender, ethnicity, spatial orientation, etc. (see Table 2).

All the above-mentioned authors seem to share an assumption that age is one of the significant variables involved in the dementing disorders, including Alzheimer's disease (Gao et al. 2016:244). This argument is explicitly present in Brookmeyer et al. (2016), Chen et al. (2016), Kunutsor and Laukkanen (2016), Guidice et al. (2016), Mayeda et al. (2016), Shash et al. (2016), Teipel et al. (2016), and in Yuan et al. (2016). In particular, Guidice and the colleagues (2016:252) emphasise that dementia '*predominantly affects older people worldwide, with age-standardized prevalence increasing exponentially over the age of 60 years…*'. This contention is echoed by Yuan et al. (2016:262), who posit that in China, '*the prevalence of Alzheimer's disease (AD) and vascular dementia (VaD) are comparable with those in Western countries, with positive associations for older age…*'. Qualitatively identical framing of dementia is found in Verlinden et al. (2016:144), e.g. '*Dementia is a common disease in the elderly, characterized by both cognitive impairment and impairment in daily functioning*'.

Whilst in the majority of the analysed studies the framing of dementia as an age-related issue appears to be embedded into other frames, the issue of age is foregrounded in the research article by Brookmeyer et al. (2016). Specifically, the framing of dementia is construed by multiple references to the old age, as seen from the following quotes: i) '*The oldest-old is the fastest growing segment of the population in many countries.*' (Brookmeyer et al. 2016:225); ii) '*The population over the age of 90 years in the United States will grow by a factor of nearly 3.5 between 2015 and 2050. In the absence of new prevention interventions, the prevalence of dementia among the oldest-old is expected to increase….*' (Brookmeyer et al. 2016:229). As evident from these examples, Brookmeyer et al.'s (2016) narrative of dementia is framed via a constantly present and textually reinforced construal of age. However, in Brookmeyer et al. (2016) there has been identified the concurrent framing of dementia as a health policy-related issue (see section 2.4.6).

The framing of dementia as a gender-related issue

The framing of dementia as a gender-related issue has been identified in Chen et al. (2016), Delva et al. (2016), and in Kunutsor and Laukkanen (2016). Concurrently with the framing of dementia as a disability and death-related issue, Delva et al. (2016) frame dementia by via the construal of gender, which is reported to be a significant co-variable in a French population cohort. Namely, Delva et al. (2016) indicate that in women, a higher survival rate is associated with an average of one additional year with disability.

The framing of dementia via the construal of gender is foregrounded in Kunutsor and Laukkanen (2016) by means of focusing on an all-male group of participants. Kunutsor and Laukkanen (2016) investigate the age-related risk factors involved in dementia which affects Finnish males aged between 42 and 61. As seen

from the data, two more co-present variables are identifiable in Kunutsor and Laukkanen's framing of dementia: the framing of age and the framing of premorbid conditions. Specifically, the authors emphasise that '*a relatively healthy cohort of middle aged individuals with good cognitive functions*' (Kunutsor & Laukkane 2016:939) have been monitored using the available databases for hospital admissions including out-of-hospital outcome events.

Whilst Kunutsor and Laukkanen (2016) examine an all-male cohort, Chen et al. (2016) focus on an all-female population sample. In particular, Chen and the colleagues (2016:23) investigate the '*distribution of sleep duration in relation to selected baseline sociodemographics and lifestyle factors.*' The gender variable as a foregrounded construal in the dementia narrative by Chen et al. (2016) appears to be embedded into the framing of age, as evident from the following excerpt: '*…we used older women with self-reported sleep of 7 hours/night as the referent because a growing number of sleep-health epidemiologic studies have found the lowest mortality and morbidity in people with 7 hours of nightly sleep.*' (Chen et al. 2016:23).

The framing of dementia as a cost-related issue

The framing of dementia as a cost-related issue is present in Green and Zhang (2016), and in Rattinger et al. (2016). These authors construe dementia as '*one of the costliest conditions among older adults…*' (Rattinger et al. 2016:917). The focus on the cost-related aspects of dementia care is epiphenomenal in Green and Zhang (2016), who align the cost-related framing of dementia with a wider framework of health policy issues. Green and Zhang (2016) view dementia as the growing health care burden, which '*presents health policy decision makers with challenges, many of these linked to financial and other resources…associated with the development and adoption of health and social care services…*' (Green & Zhang 2016:776).

The framing of dementia as a caregiver and care-recipient issue

The framing of dementia as a cost-related issue is embedded into Rattinger et al.'s (2016) focus on the caregiver and care-recipient relationships in an attempt to offset the high costs of dementia care. The authors foreground an argument that a positive emotional rapport in the caregiver-care-recipient dyad prevents a rapid dementia decline, thus reducing the costs of care. In particular, Rattinger et al. (2016:921) suggest that the quality of the emotional bond between the caregiver and care recipient is associated with lower daily costs of informal dementia care.

The framing of dementia as a disability and death-related issue

In Delva et al. (2016), the framing of dementia is foregrounded by means of focusing on dementia as a disability and death-related issue (note that the issue is co-construed with the gender variable). Delva et al. (2016) emphasise that an important variable involved in their research is the relatively high risk of death of demented participants. To specify, Delva et al. (2016:910) underscore that the '*risk is even greater that of disability both because of the age of the subjects and because dementia is a risk factor for death at any stage of evolution.*'

The framing of dementia as a health policy-related issue

The framing of dementia as a health policy issue has been identified in Green and Zhang (2016). The authors frame their discourse associated with dementia by

foregrounding the notion of health care policy, simultaneously with an explicit construal of dementia as a cost-related issue. To illustrate, Green and Zhang (2016) posit that '*Alzheimer's disease dementia (AD) represents an increasingly significant health care burden on individuals, families, careers, and health care systems*' (Green & Zhang 2016:776). The focus on the health care-related issue involving dementia in a health policy context is framed by Green and Zhang (2016:782) as the need to compare alternative intervention strategies to estimate differences in health outcomes and costs. The authors suggest that the multimodal nature of dementia should be factored in when applied to the health policy contexts.

Whilst Brookmeyer and the colleagues (2016) foreground the construal of age in their framing of dementia, the authors nevertheless refer to other construals, which are concurrent with the age frame. Specifically, these construals involve the framing of dementia as a health policy-related issue. To illustrate, Brookmeyer et al. (2016:230) indicate that '*It would be useful to extend the work to assess the broader potential public health impact of AD interventions across all ages…*'. It should be mentioned that the framing of dementia as a public health policy issue is epiphenomenal in Brookmeyer et al. (2016), with the focus on other foregrounded construals in their dementia narrative.

Gao et al. (2016) focus on the ethnic construal of dementia and assign a secondary status to the public health framing of dementia. This framing provides a background for the Gao et al.'s (2016) dementia narrative. To exemplify, the authors suggest that '*…the dementing disorders including Alzheimer's disease (AD) are widely recognized as a major public health problem worldwide.*' (Gao et al., 2016:244).

Dementia as a spatial orientation issue

The framing of dementia as an issue which involves spatial orientations is present in the research article by Teipel et al. (2016). Teipel and his colleagues view dementia through the lenses of spatial disorientation. Teipel et al. (2016) foreground the notion of the quality of social life, which suffers due to the people's with dementia spatial challenges. In particular, it is posited that dementia '*patients reduce outdoor mobility leading to a more sedentary lifestyle and social isolation, with a primary worsening of the quality of life and with a secondary negative impact on cognitive functions, cardiovascular tone, brain plasticity, and mood.*' (Teipel et al. 2016:696).

It should be noted that Teipel et al. (2016) seem to embed the issue of spatial orientation into the framing of dementia as an age-related issue. The combination of the framing of dementia as a spatial orientation issue (foregrounded in Teipel et al.) and dementia as an age-related issue, which serves as a background in the framing, structures Teipel et al.'s (2016) narrative of dementia. The narrative appears to be marked by the construal of novel technology associated with spatial orientation, which has a facilitative effect of the lives of old age dementia patients.

The framing of dementia as a medical condition-related issue

The framing of dementia as a severe medical condition has been identified in Llorens et al. (2016), Ramirez et al. (2016), and Shash et al. (2016). Llorens and his

colleagues construe the framing of dementia as a degenerative medical condition. Llorens et al. (2016) aim at framing dementia via the narrative of dementia markers. The authors analyse dementia markers '*on a wide spectrum of neurodegenerative dementias caused by protein misfolding, including patients with prion diseases*' (Llorens et al. 2016:586). Llorens et al. (2016:588) frame their dementia narrative with the view of future diagnostic studies which combine the already available biomarkers with modern methodologies for diagnostic algorithms to facilitate the accuracy of differential diagnoses in the field of dementia.

Similarly, the construal of dementia as a medical condition is dominant in the framing by Ramirez et al. (2016). The framing involves a narrative of the application of imaging markers of small vessel disease in neuroimaging. To specify, the authors dwell on the clinical expression of dementia by focusing on white matter hyperintensities as a biomarker of cerebrovascular disease.

Whilst in the studies by Llorens et al. (2016) and Ramirez et al. (2016) the framing of dementia unfolds within the context of facilitative effects of medication and biomarkers, Shash and her colleagues (2016) construe the framing of dementia as a medical condition by means of the narrative involving psychotropic medication. Set against the background of another frame, namely 'Dementia as an age-related issue', Shash et al. (2016:605) indicate that psychotropic medications, in particular, benzodiazepines, are routinely used in the frail elderly population in conjunction with sleep disorders, anxiety, and depressive symptoms.

Given that the previous studies have found that benzodiazepine use is associated with an increased risk of dementia, Shash et al. (2016) construe the framing of dementia as an investigation of the connection between benzodiazepine medication and the risk of dementia. Analogous to Shash et al. (2016), the framing of dementia by Gauthier and his colleagues involves the focus on medication. The authors indicate that '*despite two decades of lack of success of dementia drug discovery and development, there are grounds for optimism in the new international consensus that more must be urgently done to find effective therapies toward clinically meaningful disease modification.*'(Gauthier et al. 2016:63).

The construal of dementia as a medical condition is central in the framing by Verlinden et al. (2016), who investigate trajectories of cognitive decline before dementia diagnosis. The framing seems to be structured by the references to memory and other variables associated with dementia in its preclinical phase. Notably, during this phase, Verlinden et al. (2016:150) observe '*a clear hierarchical decline starting with memory complains…*'.

Dementia as an ethnic group-related issue

The framing of dementia as an ethnic group-related issue is present in the research article by Gao et al. (2016), Guidice et al. (2016), Mayeda et al. (2016) and Yuan et al. (2016). Similar to the studies by Shash et al. (2016), the framing of dementia by Mayeda and her colleagues (2016) is construed against the background of an older cohort of participants. However, the foregrounded element in the framing of dementia by Mayeda et al. (2016) is the notion of ethnicity. Mayeda et al. (2016) evaluate a variety of ethnic groups who reside in California (USA) to

assess how ethnicity is associated with dementia incidence. The framing of dementia by Mayeda et al. (2016) involves the foregrounding of the occurrence of dementia among the ethnic groups of African-Americans, and American Indians and Alaska Natives. Specifically, Mayeda et al. (2016:220) posit that '*African-Americans experienced the highest dementia rates of the racial/ethnic groups included in this study and had approximately 40 % higher dementia risk compared with whites…*'. These findings are echoed in the study by Gao et al. (2016), who use analogous framing of dementia by comparing age-specific incidence rates for dementia and Alzheimer's disease between the African-American cohorts in Indianapolis (USA) and their control group residing in Ibadan (Nigeria).

Similarly to Mayeda et al. (2016), the framing of dementia in the study by Guidice and her colleagues (2016) foregrounds the construal of ethnicity. The framing of dementia by Guidice et al. (2016:253) involves the narrative of '*a prevalence of dementia in remote and rural Aboriginal Australians aged 45 years and over, ... a figure five times higher than the urban Australian general population*'. Guidice et al.'s (2016) narrative of dementia involves a follow-up study, which is focused on Aboriginal Australians. To reinforce the ethnic foregrounding in the framing of dementia as an ethnic group-related issue, Guidice et al. (2016) refer to previous research findings involving higher rates of dementia amongst the First Nations people in Canada. The First Nations in Canada, similar to Australia, are reported to be significantly affected by dementia in comparison with other ethnic groups. Making reference to the situation involving dementia in Canada, Guidice et al. (2016:259) frame their ethnic component of dementia narrative by indicating that '*there is emerging evidence of very high prevalence of dementia, particularly in Aboriginal Australians living in remote and rural communities, who appear to have some of the highest rates of dementia in the world.*'

In contrast with Guidice et al. (2016) and Mayeda et al. (2016), who investigate the incidence of dementia amongst the ethnic minorities groups, the study by Yuan et al. (2016) frames the narrative of dementia within the context of the predominant ethnic group in China, the Chinese. However, the authors underscore the heterogeneity of their ethnic sample, indicating that '*China encompasses a very large geographical area and a widely diversified population…*' (Yuan et al. 2016:263). Hence, the construal of ethnicity in the framing of dementia by Yuan et al. (2016:263) is embedded into the storyline of four different regions in China, which are considered '*to be representative of the broad spectrum of environmental, natural resource-related, economic, diet, cultural, and lifestyle variations across China.*'(ibid.).

4. General Discussion

As seen from the data, the current (2016) state-of-the-art research involving dementia is structured by the frames pertaining to gender, age, costs, caregiver and care-recipient, disability and death, health policy, medical condition, and ethnicity. Paraphrasing Wray (2017), these frames provide discipline-specific shortcuts for

complex research issues associated with dementia. Presumably, these frames allow a simplified access to how medical practitioners and researchers in the field of dementia 'package' their narratives about dementia in general and, in particular, about dementia-related behavioural, clinical, medical, and political practices.

The results of the present framing analysis contribute to a wider discussion of how the peer-reviewed scientific articles are employed as a vehicle for dissemination of scientific and health information about dementia. As seen from the data summarised in Table 2, in 2016 the global scientific community tends to frame its dementia narratives against the clinical, ideological, and political background of aging. The agenda of aging is further embedded into the narratives of gender, ethnicity, spatial orientation, to name the few. The framing of dementia as an age-related issue foregrounds the role of aging in scientific and public health discourse. The framing of aging emerges primarily from how the scientific community foregrounds the concept of age in discursive relationships. Through the attribution of the concept of age to the research field of dementia, the framing of dementia as an age-related issue is instantiated in the scientific articles published by *'Alzheimer's and Dementia'* in 2016.

Presumably, the discursive framing of dementia in scientific narratives may shift over time. It would be pertinent to explore the shift from a diachronic perspective, by analyzing the framing of dementia in *'Alzheimer's and Dementia'* over the span of several years, or by comparing the framing of dementia research in the initial issue of *'Alzheimer's and Dementia'* with the subsequent issues. This might provide a promising avenue for future research.

5. Conclusions

Judging from the data, it can be concluded that the framing of dementia in the scientific articles published in *'Alzheimer's and Dementia'* in 2016 involves the frames associated with gender, age, costs, caregiver and care-recipients, disability and death, health policy, spatial orientation, medical condition, and ethnic groups. It can be generalised that the framing of dementia narratives is structured via the frame of 'age'. The 'age' frame provides a broad background against which more specific framing takes place. For instance, the 'age' frame is concurrent with the frames 'gender', 'costs', 'caregiver', 'health policy', 'spatial orientation' and 'medical condition'. However, judging from the data, the framing of dementia associated with medical condition tends to be an isolated frame, where the framing of dementia is foregrounded without explicit reference to other frames (the exception is the research article by Verlinden et al.). These findings cast light onto the dementia narrative in scientific texts published in *'Alzheimer's and Dementia'*, one of the most prestigious peer-reviewed journals in the field of speech pathology, psycholinguistics and other dementia-related disciplines.

Acknowledgements

References

1. Andrews, J. (2011). We need to talk about dementia. *Journal of Research in Nursing*, *16*(5), 397–399.
2. Aronowitz, R. (2008). Framing Disease: An Underappreciated Mechanism for the Social Patterning of
3. Health. *Social Science & Medicine, 67*, 1–9.
4. Bayles, K. A. (1982). Language function in senile dementia. *Brain and language*, *16*(2), 265–280.
5. Bednarek, M. A. (2005). Construing the world: conceptual metaphors and event construals in news stories. *Metaphorik.de, 9*, 1–27.
6. Brookmeyer, R., Kawas, C. H., Abdallah, N., Paganini-Hill, A., Kim, R. C., & M.M. Corrada (2016). Impact of interventions to reduce Alzheimer's disease pathology on the prevalence of dementia in the oldest-old. *Alzheimer's & Dementia*, *12*(3), 225–232.
7. Burgers, C., Konijn, E., & G. Steen. (2016). Figurative Framing: Shaping Public Discourse Through Metaphor, Hyperbole, and Irony. *Communication Theory, 26*(4) 410–430.
8. Carolan, J. (2016). Using a Framing Analysis to Elucidate Learning from a Pedagogy of Student-Constructed Representations in Science. In *Using Multimodal Representations to Support Learning in the Science Classroom*. Switzerland: Springer.
9. Chen, J. C., Espeland, M. A., Brunner, R. L., Lovato, L. C., Wallace, R. B., Leng, X., Phillips, L.S., Robinson, J.G., Kotchen, J.M., Johnson, K.C., Manson, J. E., Stefanick, M.L., Sato, G.E., & W.J. Mysiw (2016). Sleep duration, cognitive decline, and dementia risk in older women. *Alzheimer's & Dementia*, *12*(1), 21–33.
10. Cornejo, R., Brewer, R., Edasis, C., & A.M. Piper (2016). Vulnerability, Sharing, and Privacy: Analyzing Art Therapy for Older Adults with Dementia. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing* (pp. 1572–1583). ACM.
11. Davis, D. H. (2004). Dementia: sociological and philosophical constructions. *Social Science & Medicine*, *58*(2), 369–378.
12. Delva, F., Touraine, C., Joly, P., Edjolo, A., Amieva, H., Berr, C., Helmer, C., Rouaud, O., Peres, K., & J. F. Dartigues (2016). ADL disability and death in dementia in a French population-based cohort: New insights with an illness-death model. *Alzheimer's & Dementia*, *12* (8), 909–916.
13. Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication, 43*(4), 51–58.
14. Entman, R. M. (2004). *Projections of power: Framing news, public opinion, and US foreign policy*. University of Chicago Press.
15. Entman, R. M. (2007). Framing bias: Media in the distribution of power. *Journal of communication*, *57*(1), 163–173.
16. Gao, S., Ogunniyi, A., Hall, K. S., Baiyewu, O., Unverzagt, F. W., Lane, K. A., Murrell, J. R., Gureje, O., Hake, A. M., & H. C. Hendrie (2016). Dementia incidence declined in African-Americans but not in Yoruba. *Alzheimer's & Dementia*, *12*(3), 244–251.
17. Gauthier, S., Albert, M., Fox, N., Goedert, M., Kivipelto, M., Mestre-Ferrandiz, J., & L. T. Middleton (2016). Why has therapy development for dementia failed in the last two decades?. *Alzheimer's & Dementia*, *12*(1), 60–64.

18. Gilmour, J. A., & Brannelly, T. (2010). Representations of people with dementia–subaltern, person, citizen. *Nursing inquiry*, *17*(3), 240–247.

19. Green, C. & Zhang, S. (2016). Predicting the progression of Alzheimer's disease dementia: A multimodal health policy model. *Alzheimer's & Dementia, 12*, 776–785.

20. Giudice, D. L., Smith, K., Fenner, S., Hyde, Z., Atkinson, D., Skeaf, L., Malay, R., & L. Flicker (2016). Incidence and predictors of cognitive impairment and dementia in Aboriginal Australians: A follow-up study of 5 years. *Alzheimer's & Dementia*, *12*(3), 252–261.

21. Górska, S., Forsyth, K., & Maciver, D. (2017). Living With Dementia: A Meta-synthesis of Qualitative Research on the Lived Experience. *The Gerontologist*, 0, 1–17.

22. Innes, A. (2002). The social and political context of formal dementia care provision. *Ageing and Society*, *22*(04), 483–499.

23. Jensen-Dahm, C., Gasse, C., Astrup, A., Mortensen, P. B., & G. Waldemar (2015). Frequent use of opioids in patients with dementia and nursing home residents: A study of the entire elderly population of Denmark. *Alzheimer's & Dementia*, *11*(6), 691–699.

24. Joris, W., d'Haenens, L., & B. Van Gorp. (2014). The euro crisis in metaphors and frames. Focus on the press in the Low Countries. *European Journal of Communication, 29*(5), 608–617.

25. Kapranov, O. (2016). The Framing of Serbia's EU Accession by the British Foreign Office on Twitter. *Tekst i Dyskurs. Text und Diskurs, 9*, 67–80.

26. Kaufman, S. R. (1994). Old age, disease, and the discourse on risk: Geriatric assessment in US health care. *Medical Anthropology Quarterly*, *8*(4), 430–447.

27. Kunutsor, S., & Laukkanen, J. (2016). Gamma glutamyltranserase and risk of future dementia in middle-aged to older Finnish men: A new prospective cohort study. *Alzheimer's & Dementia, 12*, 931–941.

28. Lawless, M., & Augoustinos, M. (2017). Brain health advice in the news: managing notions of individual responsibility in media discourse on cognitive decline and dementia. *Qualitative Research in Psychology*, *14*(1), 62–80.

29. Llorens, F., Schmitz, M., Karch, A., Cramm, M., Lange, P., Gherib, K., Varges, D., Schmidt, C., Zerr, I., & K. Stoeck (2016). Comparative analysis of cerebrospinal fluid biomarkers in the differential diagnosis of neurodegenerative dementia. *Alzheimer's & Dementia*, *12*(5), 577–589.

30. Mayeda, E. R., Glymour, M. M., Quesenberry, C. P., & R.A. Whitmer (2016). Inequalities in dementia incidence between six racial and ethnic groups over 14 years. *Alzheimer's & Dementia*, *12*(3), 216–224.

31. Paradis, C. (2010). Good, better and superb antonyms: a conceptual construal approach. *The annual texts by foreign guest professors*, *3*, 385–402.

32. Parker, J. (2001). Interrogating person-centred dementia care in social work and social care practice. *Journal of Social Work*, *1*(3), 329–345.

33. Peel, E. (2014). 'The living death of Alzheimer's' versus 'Take a walk to keep dementia at bay': representations of dementia in print media and carer discourse. *Sociology of health & illness*, *36*(6), 885–901.

34. Ramirez, J., McNeely, A. A., Scott, C. J., Masellis, M., & S. E. Black (2016). White matter hyperintensity burden in elderly cohort studies: The Sunnybrook Dementia Study, Alzheimer's

Disease Neuroimaging Initiative, and Three-City Study. *Alzheimer's & Dementia*, *12*(2), 203–210.

35. Rattinger, G., Fauth, E., Behrens, S., Sanders, C., Schwartz, S., Norton, M. C., Corcoran, C., Mullins, C. D., Lyketsos, C., & J. T. Tschanz (2016). Closer caregiver and care-recipient relationships predict lower informal costs of dementia care: The Cache County Dementia Progression Study. *Alzheimer's & Dementia, 12*, 917–924.

36. Shash, D., Kurth, T., Bertrand, M., Dufouil, C., Barberger-Gateau, P., Berr, C., Ritchie, K., Dartigues, J.-F., Begaud, B., Alperovitch, A., & C. Tzourio (2016). Benzodiazepine, psychotropic medication, and dementia: A population-based cohort study. *Alzheimer's & Dementia*, *12*(5), 604–613.

37. Swacha, K. Y. (2017). Older Adults as Rhetorical Agents: A Rhetorical Critique of Metaphors for Aging in Public Health Discourse. *Rhetoric Review*, *36*(1), 60–72.

38. Teipel, S., Babiloni, C., Hoey, J., Kaye, J., Kirste, T., & O.K. Burmeister (2016). Information and communication technology solutions for outdoor navigation in dementia. *Alzheimer's & Dementia*, *12*(6), 695–707.

39. Touri, M. & Koteyko, N. (2015). Using corpus linguistic software in the extraction of news frames: towards a dynamic process of frame analysis in journalistic texts. *International Journal of Social Research Methodology, 18*(6), 601–616.

40. Van Gorp, B., & Vercruysse, T. (2012). Frames and counter-frames giving meaning to dementia: A framing analysis of media content. *Social Science & Medicine*, *74*(8), 1274–1281.

41. Verlinden, V. J., van der Geest, J. N., de Bruijn, R. F., Hofman, A., Koudstaal, P. J., & M. A. Ikram (2016). Trajectories of decline in cognition and daily functioning in preclinical dementia. *Alzheimer's & Dementia*, *12*(2), 144–153.

42. Wray, A. (2017). The language of dementia science and the science of dementia language: Linguistic interpretations of an interdisciplinary research field. *Journal of Language and Social Psychology, 36*(1), 80–95.

43. Wu, Y. T., Fratiglioni, L., Matthews, F. E., Lobo, A., Breteler, M. M., Skoog, I., & C. Brayne (2016). Dementia in western Europe: epidemiological evidence and implications for policy making. *The Lancet Neurology*, *15*(1), 116–124.

44. Yuan, J., Zhang, Z., Wen, H., Hong, X., Hong, Z., Qu, Q., Li, H., & J.L. Cummings (2016). Incidence of dementia and subtypes: A cohort study in four regions in China. *Alzheimer's & Dementia*, *12*(3), 262–271.

45. Zwijsen, S. A., van der Ploeg, E., & C.M. Hertogh (2016). Understanding the world of dementia. How do people with dementia experience the world?. *International psychogeriatrics/IPA*, 1–11.