

Cinema in teaching of geriatrics: neurological diseases

*El cine en la enseñanza de las enfermedades
neurológicas en los ancianos*

*Os filmes no ensino das doenças neurológicas em
idosos*

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ABSTRACT: *By exposing humanity and promoting critical thinking, cinema plays its role by supplying experiences that not everyone can see. Thus, it is a valuable resource for medical education. Films expand the possibilities of promoting a more comprehensive and integrated training, involving skills and competencies that go beyond biomedical knowledge, which is essential in the context of approach to the elderly patient. This article describes some didactic films that show elderly patients with neurological diseases such as Alzheimer's disease, stroke and vascular dementia, Parkinson's disease and amyotrophic lateral sclerosis.*

Keywords: *Film; Elderly; Medical education; Neurological diseases.*

RESUMEN: *Al exponer la humanidad y favorecer reflexiones críticas, el cine desempeña su papel de suplir experiencias que no todos pueden vivenciar. De esa forma, se constituye como valiosa fuente de recurso para la educación médica. El cine amplía las posibilidades de promoción de una formación más amplia e integrada, pues involucra habilidades y competencias que van más allá del conocimiento biomédico, lo que es esencial en el contexto del abordaje del paciente anciano. En este artículo se refieren largometrajes que didácticamente se centran en pacientes ancianos portadores de enfermedades neurológicas, como enfermedad de Alzheimer, accidente vascular encefálico y demencia vascular, enfermedad de Parkinson y esclerosis lateral amiotrófica.*

Palabras clave: *Película; Anciano; Educación médica; Enfermedades neurológicas.*

RESUMO: *Ao expor a humanidade e favorecer reflexões críticas, o cinema desempenha seu papel de suprir experiências que nem todos podem vivenciar. Dessa forma, constitui-se como valiosa fonte de recurso para a educação médica. Os filmes ampliam as possibilidades de promoção de uma formação mais ampla e integrada, pois envolvem habilidades e competências que vão além do conhecimento biomédico, o que é essencial no contexto da abordagem ao paciente idoso. Neste artigo são referidos filmes de longa-metragem que didaticamente focam pacientes idosos portadores de doenças neurológicas, como doença de Alzheimer, acidente vascular encefálico e demência vascular, doença de Parkinson e esclerose lateral amiotrófica.*

Palavras-chave: *Filme; Idoso; Educação médica; Doenças neurológicas.*

Introduction

Aging and old age are on the agenda of society due to the demographic transition experienced by Brazil and the world. According to the United Nations Population Fund report, there were 810 million people aged 60 or more in the world in 2012, accounting for 11.5% of the global population, which is projected to two billion people in 2050, i.e., 22% of the global population.

According to the same report, 46% of these people had disabilities in 2012. The number of people with dementia, currently estimated at 35.6 million, is projected to reach 65.7 million in 2030 (UNFPA, 2012).

In Brazil, the elderly population is increasing at a faster rate than in developed countries. According to the Brazilian Institute of Geography and Statistics, the elderly population increased from 9.0% in 2001 to 12.1% in 2011, an increase of 34.4%. It should be noted that the group aged 80 years and over reached in 2011 1.7% of the population, approximately 3,319,000 people.

In 2025, Brazil will be the sixth country in the world in the number of elderly individuals, reaching about 30 million people by 2050, there will be about 50 million elderly individuals in Brazil (IBGE, 2011). In conclusion, the Brazilian population is no longer young, approaching the population profile of European countries.

Aging can be normal (senescence) or marked by conditions that impair the individual's functionality in activities of the daily living (senility). It is an irreversible process that occurs throughout life from birth to death, being followed by a decline of the physiological functions of organs. The decline of some cognitive, associative and motor skills is among these changes, which are the main causes of impairment to the daily activities of this population (Aversi-Ferreira, 2008).

The aging phenomenon differs in different cell types, and is particularly important in neurons because these have limited reparative capacity and are thus subject to marked functional losses. Aging leads to neuro-morphophysiological changes, such as the reduction of cortical neurons and core volume of neurons, which causes changes in memory and increased prevalence of diseases such as dementia, the most common being Alzheimer's and vascular diseases.

The repercussions of these neuronal changes in the cognitive sphere can directly influence the activities of the daily living and impair the performance of basic tasks (Manfrim, 2011). About 4.5 million older adults will have difficulties to develop activities of the daily living in the next ten years, an increase of 1.3 million to the population observed in 2008, most of them females (Camarano, 2010). The demands generated by this age group justifies the study of factors involved in the complex process of aging and its consequences to the brain, as well as ways to better deal with this inevitable phenomenon of life (Aversi-Ferreira, 2008).

The increase in the elderly population points to the need for the training of professionals prepared to work in this new context. Geriatrics, medical specialty responsible for the clinical aspects of aging and the broad health care required for older people exceeds medicine focused on organs and systems, providing holistic treatment in interdisciplinary teams. It has the main objective of optimizing functional capacity and improving the quality of life and independence of older people. Therefore, the process of teaching geriatrics aims to enable physicians to carry out prevention, diagnosis and specialized treatment to older adults, including the peculiarities of aging and its multidimensional aspect.

Physicians who deal with individuals at this stage of life must have skills and attitudes to work in health promotion and maintenance, prevention of diseases and rehabilitation of these individuals (SBGG, 2011).

The quality of health care provided to the elderly population inevitably depends on the training of physicians in geriatrics. In this context, the use of films is a valuable teaching tool for the training of professionals and helps to rescue humanity in medical practice and care for the elderly patient.

Blasco (2010) states that the universe of arts is for physicians a needed company that ensures their vocational identity. For the medical student, it assists in building this identity; for the professional, it is a working tool, source of knowledge and barrier that protects from deviations.

In addition, art is nourishment for the spirit, tempering that allows them to deal with pain, death, and a whole range of limitations imposed by the human condition without losing the transcendent perspective. Thus, the use of cinema as an educational experience of humanistic rescue of medicine offers a suggestive field for reflections. Cinema tunes the student's universe where reigns a culture of emotion and image. Educating attitudes supposes more than offering theoretical concepts or even simple training; it involves promoting reflection - real core of the humanizing process - to facilitate students the self-discovery, and allows extracting from within the desire for a lasting vocational commitment.

The use of films as teaching material, particularly in science education, began in the 1910s in some European countries. Before the First World War, in 1914, hundreds of educational documentaries had already been produced in France.

Sequences of images on animal reproduction, plant life cycles, volcanic explosions or solar eclipses helped to make curricula more interesting and provided more understandable explanations (Xavier, *et al.*, 2011).

The first report of the use of cinema in medical education was published in 1979 by Frits and Poe in an article published in the American Journal of Psychiatry: "The role of a cinema seminar in psychiatric education". The authors discussed the importance of group discussions of films to facilitate teaching psychiatry in medical residency programs (Darbyshire, 2012).

Cinema is art and art facilitates the understanding of human emotions and patient attitudes regarding the disease and helps the doctor to choose the adequate treatment. It is therefore understood that the role of cinema in the context of medical education is to provoke feelings, because emotion activates the desire to learn and motivates the student. The life story, the impact phrase and the experienced situation resurface out of the conventional education space and encourage the student to keep thinking, reflecting, in a permanence that is eagerness to learn.

Films are a quick and powerful way of storytelling. Films promote individual reflection, foster attitudes and virtues that consolidate the human value of patient care (Blasco, 2005).

Cinema allows students to incorporate concepts to their cognitive repertoire, developing their power to critical analysis. Certain cultural experiences associated with a certain way of watching films end up by interacting in the production of knowledge, identities, beliefs and world views of a large number of social actors.

Cinema creates a wide space for debates, emerging in its viewers, unusual reactions that greatly reflect the nuances of their character.

Films often show situations very close to the viewer's everyday life, making him to review postures, consider new hypotheses when analyzing the situation of other people, which are aspects that, in medicine, often allow students to abandon some preconceived ideas that impair the management of situations with marked moral intersection (Cezar, 2011).

Although aging does not play a central role in cinematography, there are innumerable films that generate, in light and shadow, innumerable images of human aging, offering the possibility to better understand the aging phenomenon (Oliveira, 2007).

Cinema shows moving images of oldness that perpetuate and make people think, building meanings for the aging process. Aging is one of the most complex issues for humans being and for science, which researches and analyzes its widely heterogeneous, multiple and diverse aspects (Melo, 2007)

In this sense, the aim of this study was to describe and make a discussion about elderly characters with neurodegenerative diseases shown in feature films. These films, presented to undergraduate medicine students with further discussion, aim to collaborate with their training and stimulate the reflection about the relationship with patients and their diseases, including emotional responses to them.

Material and methods

Initially, a literature review focusing on the use of films in medical education was conducted in the search for articles in Pubmed, Bireme and Scielo, using the following words "cinema"; "elderly", "medical education", "teaching materials" in English and "films and medical education"; "films and medicine"; "films and geriatrics"; "films and the elderly" in Portuguese.

Eight papers in Portuguese and two in English, published from 2005 to 2013, were selected. In addition, research was carried out in geriatrics books on the topic of dementia and other neurological disorders in the elderly shown in the selected films.

Subsequently, a search for commercial feature films of different nationalities and types, with the theme of neurological disorders in the elderly in the following sites:

www.adorocinema.com,

www.cineclick.com.br,

www.cinamateca.gov.br,

www.filmesdecinema.com.br,

www.cineplayers.com,

www.interfilmes.com,

www.revistaforum.com.br and

www.cinema10.com.br.

Sixteen films were found in which elderly patients with neurological diseases appear in different situations and contexts. Films were viewed and analyzed from the point of view of their teaching potential as they show relevant aspects of the diseases presented.

Results and discussion

A variety of films were found showing elderly subjects with neurological diseases and their family caregivers living in different contexts (Table 1).

Table 1: Films with geriatric characters with neurological diseases, listed by order of release

Film Title	Release Year	Theme
<i>Legends of the Fall</i>	1994	Stroke
<i>Tuesdays with Morrie</i>	1999	Amyotrophic Lateral Sclerosis
<i>Iris</i>	2001	AD
<i>El Hijo de la Novia</i>	2002	Institutionalized elderly with AD
<i>Away from Her</i>	2006	
<i>Se tivéssemos tempo</i>	2007	Stroke
<i>The Savages</i>	2007	The burden of family caregiver of patient with AD
<i>La separacion</i>	2011	
<i>Arrugas</i>	2011	Institutionalized elderly with AD
<i>Amour</i>	2012	Cerebrovascular Dementia
<i>Robot and Frank</i>	2012	DA
<i>Et si on vivait tous ensemble?</i>	2012	
<i>Hannah Arendt</i>	2013	Hemorrhagic stroke
<i>A Late Quartet</i>	2013	Parkinson's Disease
<i>Nebraska</i>	2014	AD
<i>Still Alice</i>	2015	Early AD

Alzheimer's disease (AD)

Alzheimer's disease (AD) appears in most of the films. In *Iris* (Richard Eyre, 2001, USA, UK), the evolution of AD and the burden of family caregivers are shown. The insidious onset of the disease is shown when character Iris, in conversations with her husband John, begins to repeat several times the same words (loss of episodic memory) and have difficulty in writing his novels. John states that Iris is a little "enigmatic". The signs of memory loss begin to worsen, as shown in the scene where the postman comes to her home. She forgot the word "postman" and when the man goes away, she repeats many times to John "It was just the postman", which makes him angry. Iris begins to have difficulty in naming people and choose appropriate words to express ideas, as shown in the scene where she could not continue speaking during an interview.

The film shows, in a very didactic way, the moment when Iris goes to the doctor and the memory test with figures is carried out, in which images are displayed and she cannot name several. Iris's disease gradually worsens with severe impairment of activities of the daily living, both occupational and social. She begins to show behavioral changes, irritability and aggressiveness, as in the scene where her husband tries to get her to swim and suddenly she gets agitated and starts screaming that she wants to go home.

Among other films that show significant aspects of AD, *Robot and Frank* (Jake Schreier, 2012, USA) and *Et si on vivait tous ensemble* (Stéphane Robelin, 2012, France) stand out.

These films highlight the importance of friends in the DA coping process. In the first, the elderly is portrayed in a context unusual to the current reality, whether global or Brazilian. In this film, the main character, Frank is taken care of by a robot gifted by his son Hunter who says: "A robot caregiver is as human as a human caregiver". At first, it was difficult for Frank to accept the idea of being assisted by a "machine", but gradually he develops affection for the robot that also features human traits, as if it were able to match the friendship that Frank both needed and wanted. In the second film, friends help Albert, elderly with AD who had recently lost his wife Jeanne. He does not remember what had happened and shouts, calling her.

We then see one of the most exciting cinematic scenes when, for solidarity, friends go behind the demented friend also shouting the name of his deceased wife.

This film shows the importance of the network of friends for AD patients, which can slow or even prevent their institutionalization.

Still in the context of AD, *Still Alice* (Richard Glatzer, 2015, USA), although not approaching the disease in elderly character, is didactic for realistically showing the mental suffering of both Alice and her family when receiving the diagnosis of early onset AD.

AD is clinically divided into two subgroups according to its start time, and the early onset type is characterized by rapid decline of cognitive functions, corresponding to 5% to 10% of the total.

Family involvement is observed in successive generations directly related to autosomal dominant transmission linked to chromosomes 1, 14 and 21, and the mutation of presenilin 1 gene (PS1) located on chromosome 14 is one of the most responsible for transmission (Engelhardt, *et al.*, 1998; Dumanchin, *et al.*, 1998).

The film *Nebraska* (Alexander Payne, 2014, USA) shows scenes of psychological violence performed by the wife against elderly demented Woody. He is extremely stubborn, running away from home to seek the prize of one million dollars that naively he thought he had won. At the time, he is mistreated by his wife Kate, who tells him: "Do you know what I would do if I had a million dollars? I would put you in a nursing home." Furthermore, David, the youngest son, even though knowing that there would not be any financial reward, proposed to take his father (Woody) on the journey in search of the prize. On this trip, David had the opportunity to get to know his father through the report of people who knew him in his youth. When asked about being feeding the illusion of his father, David said that his purpose is only to enjoy his last moments with his father and make him happy. David loves, respects, understands and defends his demented father.

Although the family represents the main basis of care for the elderly demented, one must consider that often family caregivers (daughters, sons and wives or husbands of patients) feel overloaded and without the necessary support to promote care.

This theme was used to produce films like *The Savages* (Tamara Jenkins, 2007, USA), *La separacion* (Asghar Farhadi, 2011, Iran), and *Arrugas* (Ignacio Ferrera, 2011, Spain), showing the burden of family caregiver. In *The Savages*, elderly Lenny Savage is treated as a problem by sons Wendy and Jon.

The film takes an irreverent look at family, love and mortality through one of the most perplexing and challenging experiences of modern life: when adult siblings find themselves deprived from their daily lives, leaving their professional life to take care of elderly and demented father, visiting him frequently in the institution where he is hospitalized.

In addition to the impact of elderly demented on the family, this film also addresses the issue of physical and psychological violence against the elderly, in the scene where the caregiver takes his cereals, threatening to return them only after the patient flush the toilet.

In revenge, the elderly gets the bathroom walls dirty with feces. In *La separacion*, the couple, Nader and Samin has a marital crisis with consequent separation because her husband Nader decides to keep close to his father, who became completely dependent due to severe AD. *Arrugas* animation starts showing old man Emilio sitting in bed with a tray of food in front of him. His son and daughter-in-law claim that he eats so slowly, which prevents them from leaving. So, the old man gets angry and throws the tray on the floor, saying that he has finished eating. As a result, they institutionalized him.

The necessary preparation for the care of demented patients, even in Long Stay Institutions (ILPIs), is displayed in two opposite ways in films *El Hijo de la Novia* (Juan José Campanella, 2002, Spain, Argentina) and *Away from Her* (Sarah Polley, 2006, Canada).

In the first, institutionalized demented older woman receives love and affection from his family and formal caregivers. In *Away from Her*, Grant and Fiona are a happy couple up to when she starts the symptoms of AD. She asks her husband to take her to an ILPI when the disease progress and he, in doing so, he is faced with the prohibition to seeing his wife during the first month of institutionalization. This attitude leads Fiona to forget who her husband was and when he finally visits her, she no longer recognizes him. The rigid standards required in ILPIs without humanistic concern leads to problems to institutionalized elderly patients and their families.

Cerebrovascular disease and other neurological disorders:

Another major cause of neurofuncionnal commitment in the elderly is cerebrovascular disease. The film *Amour* (Michael Haneke, 2012, France, Germany, Austria) portrays Anne, who suffers from transient ischemic attack resulting from carotid artery disease and develops complications from surgery, finally developing vascular dementia. In this film, it is possible to identify the sudden onset of dementia, followed by gradual course of cognitive and motor abnormalities. Thus, Anne's pathology (vascular dementia) differs from degenerative dementia (such as AD), which is an insidious clinical condition, as shown in the film *Iris*. The Hachinski Ischemia Scale helps in differentiating the two types of dementia (Hachinski, 1975). The film clearly shows the three elements that are essential in vascular dementia characterization: dementia syndrome, cerebrovascular disease and temporal relationship between them (Manfrim, 2011).

Also in the film *Amour*, there is the scene in which the nurse mechanically combs Anne's hair, telling her supposedly nice words like "Look how beautiful you look ..." while forces her to look in the mirror. She refuses sharply, because she does not want to see (her view) the shadow of what she had been. Her husband George says to the nurse "I hope that one day someone treats you with the same disrespect you treated Anne and that, like her, you cannot defend yourself". The nurse did not realize the disregard in her mechanical gesture to treat Anne with physical difficulties like a fool, unable to see her condition and easily duped by empty words. This part of the film is relevant because it raises the discussion about the importance of humanized care for the elderly demented patient.

Other films that show the elderly in the context of cerebrovascular diseases are: *Legends of the Fall* (Edward Zwick, 1994, USA), *Se tivéssemos tempo* (José Eduardo de Oliveira, 2007, Brazil) and *Hannah Arendt* (Margarethe Von Trotta, 2013, Germany, France). The latter portrays patient with hemorrhagic stroke as a result of cerebral aneurysm rupture.

The film *A Late Quartet* (Dustin Hoffman, 2013, UK) shows relevant aspects of the Parkinson's disease (PD). Character Peter Mitchell, a famous cellist who is part of a string quartet, starts to have difficulty playing with the group, because he shows slowness of movements and discrete tremors due to PD.

One scene portrays a doctor's appointment, showing Peter's difficulty performing alternating movements, as well as his slightly stiff gait accompanied by loss of balance arm mostly on the right side. Peter quickly initiates treatment and the film does not show the late manifestations of the disease. However, it clearly demonstrates the fear of Peter of becoming dependent and without autonomy. PD affects both sexes, regardless of ethnicity or social class, and clinical signs predominantly start between 50 and 70 years.

The aging process is closely linked to this disease due to accelerated loss of dopaminergic neurons over the years. There are about 10 million people affected worldwide while in Brazil, it is estimated that there are 300,000 affected people (Santos, 2009). It is a chronic and progressive disease of the central nervous system characterized by rigidity, akinesia, bradykinesia, tremor and postural instability, affecting the quality of life of affected patients, as shown in the film. Bradykinesia is the most common feature of PD in the elderly, which is the slowness or difficulty initiating voluntary or automatic movements (Manfrim, 2011).

Rest tremor affect around 50% and begins at the distal ends, decreasing or disappearing with the onset of some action and may arise again when the patient maintains action or prolonged posture (Souza, 2011).

The film *Tuesdays with Morrie* (Deepa Mehta, 1999, UK, Canada) shows the challenges that life imposes on Professor Morrie when he, aged 79, is diagnosed with Amyotrophic Lateral Sclerosis (ALS), also called the Lou Gehrig Disease. ALS was first described in 1874 by Charcot, being characterized by progressive degeneration of motor neurons.

The term amyotrophic is related to muscle atrophy, weakness and fasciculations, which are indicative of the lower motor neuron involvement. The incidence of ALS is one to five cases per 100,000 inhabitants, preferably affecting men. It is related to genetic factors (familial ALS) in 20% of cases, while 80% are sporadic ALS.

Average five-year survival occurs in 25% of cases (Pallotta, 2012). The film shows, in a very didactic way, the progressive physical losses of Morrie, which began to have trouble walking and inexplicably stumbled at a friend's birthday party. Then, when driving, he had no strength to put his foot on the clutch. Morrie soon realizes he needs a walking stick to help him walk and he can no longer undress by himself, needing to hire a caregiver.

Being affected by a neurodegenerative disease that brings limitations and disabilities is a potentially deconstructive experience. In these cases, both patients with the disease as their families and / or caregivers require attention and care from health professionals, both from physical and mental areas. Dealing with physical losses is something disruptive, as it requires the subject to reshape his body image, and adapt on the acquired limitations (Silveira, 2011).

Concluding remarks

Humanism should be an important part of the graduate medical education, as it provides the formation of a professional able to understand patients and treat them holistically. The historical origin and essence of the physician is in the diseased person's care. Caring requires, above all, to understand thus provide proper care.

The significance of understanding in the medical-geriatric context is broad. Understanding the elderly patient means understanding the person, his life story, his disease and the meaning that the disease has for the patient. This issue is fundamentally important in the context of geriatric care, especially in regard to patients with neurodegenerative diseases, which are responsible for significant negative impact on quality of life of both the elderly patient and his family. Here, the concept of medical humanization becomes absolutely important and necessary, considering the current context of medical practice.

Professionals have paid more attention to the research process of knowledge of diseases and therapeutic resources than to the patient himself. Re-humanizing medicine becomes then a challenge.

In this sense, when expressing the human condition and favoring critical reflection, cinema becomes an instrument capable of contributing to intellectual training more sensitive to the human condition and its social reality.

Cinema is particularly useful to educate the affectivity of future physicians, their ability to recognize feelings and values of elderly patients and their families, thus building a more democratic and humane doctor-patient relationship.

Films often provoke experiences full of emotions that arouse reflection on life and reality. This increases the ability to see and hear of the future doctor, making him more sensitive and empathetic to the situation of those who seek his help.

So, the real role of the physician in caring for the elderly patient is established: to promote health and consider patients in their physical, mental and social integrity and not only biological. Humanizing medicine is, in addition to an educational requirement, a success condition for professional performance especially in the context of geriatric care.

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