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Discursive Representations of Controversial Issues in Medicine and Health

La rappresentazione discorsiva di questioni controverse in ambito medico e sanitario

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An Inquiry
into Discursive News Coverage,
Popularization and Presuppositions
Concerning Military PTSD
Treatment Options

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Abstract

Since 1980, when the term was officially associated with soldiers' traumas during combat, PTSD (Post-Traumatic Stress Disorder) has reemerged due to a significant increase in patients and its revision in DSM-V (*Diagnostic and Statistical Manual of Mental Disorders*). The media have contributed in disseminating information, promoting awareness and opening debates on the patients, the cure (Brent and Penk 2011) and the implementation of experimental PTSD treatments (Donovan 2010). The most contested consists in "memory dampening" or "memory enhancing" medication that helps patients cope but has raised questions on the ethical, legal (Kolber 2006; Snead 2011) and moral (Gross 2006) importance of memories, as well as its effect on soldiers' formation and perception (Moreno 2008). The present study observes how articles in favor of memory-modifying medication and of alternative treatments are framed and sustained in USA news published over the past 20 years. Corpus-Assisted Critical Discourse Analysis (Baker 2004; Garzone and Santulli 2004; Degano 2006; Freake 2012) is applied to identify relevant linguistic and discursive strategies in terms of text organization, lexical choices, expert advice, popularization, and common cultural references.

Keywords: bioethics; knowledge dissemination; military community in the news; military medicine; PTSD.

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1. Introduction: PTSD in the military and in the news

The present study aims at observing and analyzing the framing of arguments in favor of memory-modifying medication and/or advocating alternative PTSD treatments in news articles published in the USA over the past 20 years. The matter of treating PTSD by intervening on memory has in fact sparked numerous and significant debates on the intersection of medical treatment between the military and civilian communities and on the social, bioethical and legal impact of memory on personhood.

PTSD (Post-Traumatic Stress Disorder) has been present throughout human history but was first inserted in the American Psychiatric Association's third edition of its *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) in 1980, in the wake of the Vietnam War, as an Anxiety Disorder including a novel element: "the etiological agent was outside the individual (i.e., a traumatic event) rather than an inherent individual weakness (i.e., a traumatic neurosis)" (Friedman 2016). Although PTSD regards a vast array of subjects and circumstances, it is often associated, in the collective imagery, with the military, and more specifically service members who have returned from combat, and is often detected by symptoms experienced upon a soldier's return and connected with his or her inability to readjust to a non-threatening environment (e.g. recurring memories or nightmares, sleeplessness, loss of interest, numbness, anger or irritability, and being constantly on guard). A further distinctive feature consists in the dissociation of the traumatic event from stressors characterizing everyday life such as family, financial and professional problems. The presence of the traumatic event – or a catastrophic occurrence involving actual or threatened injury or death – is essential for PTSD to be experienced and diagnosed, and the type and severity of the patient's symptoms are influenced by the individual's perception of the event and threshold of resistance to trauma. This, along with the fact that they may manifest months or years after the triggering traumatic event (and therefore outside of any period of expectancy or supervision), makes the disorder hard to diagnose and measure with certainty because it is often comorbid with other disorders and medical and/or surgical complaints (Moore 2011). Moreover, the risk and related problems of PTSD – as well as the difficulty of diagnosing it – have increased due to multiple and longer deployments, along with the more demanding warfare entailed by the conflicts in Iraq and Afghanistan (Moore 2011). In 2013, the diagnostic criteria of PTSD were revised in DSM-V, where it is now classified as a Trauma – and Stressor – Related Disorder.

Current unconventional warfare has raised a number of bioethical dilemmas regarding terrorists, injured enemies and civilians (Gross 2006; Gross and Carrick 2016). This has also resulted in perplexity and conflict within a part of the American population, whose trust must be maintained for the military to be able to keep its morale high and perform at its best (Dempsey 2015). Service members suffering from PTSD are often afraid of repercussions in their highly structured and institutionalized profession (Dalton 2010) and being isolated from the rest of society (Fleming 2010). The image of veterans with PTSD as being dangerous or uncontrollable has been propagated by popular culture and sensationalistic news stories, fueling the fear that the use of experimental medication by the military would spurn a negative public or political reaction that would "undermine military recruitment, retention, funding or otherwise interfere with the mission of the military" (Mehlman 2015, 411).

The media's attention has been drawn by the development of new treatment options as a result of extensive research and technological and scientific progress. Among these, one of the most controversial entails intervening on memory and may follow two opposite approaches. The first consists in memory enhancing medication and devices (Moreno 2006; Dees 2008; Lev 2008; Wolfendale 2008; Parasidis 2015) that could improve the soldier's mental and physical performance during deployment and/or exposure therapy afterwards (Donovan 2010; Moore 2011), but at the same time could impact the person's conscious agency and responsibility, which are in turn connected to personhood and legal accountability. The second approach consists in using beta blockers to attain a memory dampening effect (Adler 2012), which would blur a traumatic memory and therefore diminish its impact on the soldier. While this may be useful in cases in which the memory triggers extreme behavior or impedes the soldier's recovery, it also impairs the memory's reliability were the soldier to be required to provide an account or legal testimony of the event or any surrounding circumstances. There are also moral implications, as memory is a component of a person's identity and perception of self, as well as of personhood (Kolber 2006; Gross 2011; Snead 2011) and tampering with it could leave soldiers in a position of vulnerability (Parasidis 2015). Such concerns have led to the inclusion of PTSD therapy's possible intervention on memory among the plethora of problematic bioethical issues that flourish in contexts of ambiguity and contention (Kruvand 2008). As a result, an array of other solutions have been proposed and range from psychological and psychiatric exper-

tise (e.g., clinical treatment, cognitive exposure therapy, counselling), to technological devices (e.g., virtual reality, audio therapy, mobile apps), creative/artistic production (e.g., filmmaking, art), physical and mental performance activity (e.g., yoga, meditation, mindfulness) and pet therapy.

The public's interest in treating PTSD is reflected in its extensive news coverage in American newspapers and leads to debates not only within the scientific community, but also among non-experts. In fact, as Michel Gross points out: "It is one of the greatest virtues of modern bioethics to admit, indeed encourage, all those with an interest in medicine, philosophy, politics, law, and religion to enter and explore the field. There are no insiders or outsiders" (Gross 2006, Preface, paragraph 1). Therefore, the popularization that emerges so strongly in these texts, as will be demonstrated, has the additional function of allowing readers to partake in the discussion.

2. Aims and scope

The present study focuses on a corpus of American newspaper articles and newswires about medical and alternative treatments of PTSD that have been written over the past 20 years in the USA and analyzes how the textual organization and argumentative/discursive strategies of these two approaches differ in their filtering and dissemination of information for an audience that is not acquainted with the intricacies of scientific research and its procedures. This entails confirming or debunking common presuppositions and assumptions in order to "actively contribute in the production of new common knowledge and opinions about science and scientists" (Garzone 2006, 84). In particular, the study will address the following research questions:

RQ1: Are there any differences in the macrostructure and discursive framing of news coverage between articles discussing 'medical' or 'alternative' treatments of PTSD in the printed media?

RQ2: How is highly specialized information concerning the treatment of PTSD 'translated' and 'popularized' in the media?

RQ3: How do journalists build upon common knowledge and presuppositions about PTSD that are already present among the layman audience to sustain or question (bio)ethically 'controversial' or 'safe' treatment?

The paper will proceed by presenting the dataset (§ 3) and Corpus Assisted Discourse Study (CADS) methodology (§ 4). It will then answer *RQ1* by analyzing the dataset's macrostructure, and in particular its textual organization and semantic fields (§ 5). *RQ2*, concerning the popularization of knowledge about PTSD, through strategic shifts in military and civilian perspectives and authoritativeness, will be discussed in § 6, while *RQ3*, regarding the use of references to widely known literary and cinematic genres and works, will be approached in § 7. The final section will draw conclusions and map out possible paths for future research.

3. DATASET

The corpora of news stories were collected from national and local newspapers and newswires including *The New York Times*, *The Washington Post*, *US News*, *Newsweek*, *USA Today*, *Tampa Bay Times*, *Chicago Daily Herald*, *Dayton Daily News*, *Wired*, *CNN Wire*, *States News Service*, *PR Newswire*, as well as documents and transcripts, communicated via newswire, regarding emerging treatment. On the one hand in fact, there is a widespread perception that traditional, printed news is more reliable and 'official', and that "newspaper articles are the most powerful and 'democratic' of all forms of popular science, as they make scientific and technological knowledge available to anyone" (Garzone 2006, 82). Newswires, on the other hand, integrate such sources by providing updated information and documentation through electronic means, which are accessible, appealing and aligned with the preferences of today's public. Both have an acknowledged role in 'translating' complicated scientific knowledge and highly specialized terminology while contending with vague and sometimes mistaken preconceptions that have taken root in society.

An initial, thorough screening led to more focused corpora: to start, because the analysis focuses on American news and American military forces and veterans, stories on service members from other countries and those exclusively concerning civilians were excluded. Moreover, articles that simply described the disorder or debated its prevention were not considered. Inserted keywords included: military; PTSD; memory dampening; memory enhancing; propranolol memory dampener; methylene memory enhancer. The last two are the most popular and

discussed FDA-approved medicines for other purposes that are currently being tested for PTSD memory-based treatment.

The 1997-2017 timeframe covers the period surrounding the most recent military interventions in the Middle East, and more specifically Iraq and Afghanistan, including the years preceding and following deployment, in which interest in veterans' physical and mental well-being was expected to be strongest. In fact, during *Operation Desert Storm* (1990-1991), deployments were much shorter and combat followed more expected and traditional procedures, as opposed to the more imposing conflicts that took place after 9/11. Accordingly, as illustrated in *Table 1*, there is a consistent number of articles on military PTSD between 2004 and 2017, corresponding to the time of *Operation Enduring Freedom* (2001-2014) and *Operation Freedom's Sentinel* (2015-ongoing) in Afghanistan; within *Operation Iraqi Freedom* (2002-2010) and *Operation New Dawn* (2010-2011) in Iraq; and *Operation Inherent Resolve* (2014-ongoing) against terrorist forces in the Islamic State.

Table 1. – Number of articles on PTSD
treatment for American soldiers in the news (1997-2017).

Year	1997	2004	2006	2007	2008	2009	2010
Articles	1	5	4	5	5	5	7

Year	2011	2012	2013	2014	2015	2016	2017
Articles	7	6	3	5	6	3	4

The facts that *Operation Iraqi Freedom* ended in 2010 and that the drawdown of troops from Afghanistan started in 2011 most probably explain the increase in coverage in these two years. The following years correspond, as expected, to those in which the traumatic effects of the conflicts were most evident and the needs of veterans perceived as most urgent. Such a peak could also be motivated by the previously mentioned revision of PTSD in DSM-V and the persistent terrorist attacks that involved civilians around the world and resulted in concern about national and international defense.

The articles were divided into two separate corpora:
• 'Medication': 36 articles (52,249 tokens, 6,702 types) discussing the administration of memory enhancing or dampening medication to cure PTSD. This corpus includes 7 articles advocating the combination of medication and other forms of therapy.

• 'Alternative': 30 articles (32,280 tokens, 5,039 types) proposing non-medicinal treatment to cure PTSD (psychological and psychiatric therapy, technological devices, creative production, physical and mental performance activity and pet therapy).

This division was carried out to better observe differences in lexical, linguistic and discursive strategies, as well as choices in authoritative, expert sources and their interaction with popular culture representations when presenting highly specialized information on potentially controversial procedures. The resulting observations were then compared to the strategies applied in discussing other ('alternative') activities and therapies that may be considered more acceptable or less efficacious because they do not implicate any direct intervention on the patient's memory.

4. Methodology

A twofold analytical approach, known as Corpus Assisted Discourse Studies (CADS) blending Corpus Linguistics and Critical Discourse Analysis (Garzone and Santulli 2004; Parington 2004; Baker 2006; Degano 2006; Hoey *et al.* 2007; Freake 2012), was adopted. A quantitative corpus linguistics analysis of the corpora with the AntConc 3.4.6 (Anthony 2018) software elicited and extracted frequent and relevant linguistic occurrences and patterns, thus gleaning often underestimated assumptions and associations that "could be overlooked in a small-scale analysis" (Baker 2004, 346). The qualitative Critical Discourse Analysis methodological framework (Fairclough 1995; Chouliaraki and Fairclough 1999; van Dijk 2003) centered on power over knowledge and its filtered dissemination, and was fundamental in identifying the ideological presuppositions and arguments that frame the treatment at hand and implicitly persuade the reader to assume a position within the debate. More specifically, it focused on discursive positioning, popularizing strategies and authoritativeness, as well as the reinforcement or adjustment of common preconceptions in the press. Such a combination has the ability to reduce researcher bias, extract and comprehend the discourse underlying language use, detect emerging resistant and changing discourses and make productive use of the triangulation of different research approaches and tools (Baker 2006).

5. Macrostructure: text organization and semantic fields

The first step in the present analysis consisted in considering the two corpora from a broad perspective to answer *RQ1* (Are there any differences in the macrostructure and discursive framing of news coverage between articles discussing 'medical' or 'alternative' treatment of PTSD in the printed media?) by comparing two aspects, i.e. the organization of the texts and their overall tone and focus. In the medication corpus, the prevailing arguments are of a practical nature and sustained by hard data, while the texts on alternative treatments tend to opt for a democratic (civic) sort of argumentation (Allan 2002), although there is also a cultural component in both corpora, as will be illustrated. Argumentation, here, refers to "the use of verbal means ensuring an agreement on what can be considered reasonable by a given group, on a more or less controversial matter" (Amossy 2009, 252). Surprisingly, there is little use of the economic argument, which was expected due to the remarkable expenses of the presented therapies and treatment plans, especially in the current difficult economic situation. This leads to the conclusion that the general public perceives this matter as being important enough to justify any required spending.

5.1. *Text organization*

The structure and order of the arguments and information also differ in the two corpora: in the medication corpus, following the introduction of the study or a statement on the treatment or scientific/research findings, there is a simplified explanation of the occurrence, usually through popularized definitions and/or a descriptive narration of the experiment or a case study that wielded promising results. This is accompanied by a specific mention of the current standing of this sort of research within the scientific field and an illustration of future steps or questions based on current findings or limitations. They therefore follow the IMRaD structure with the integration of popularized sections for non-experts:

(1) PTSD is a serious condition characterized by chronic disability, inadequate treatment options, especially for military-related PTSD [...]. [MED # 1]

(2) Lipov pioneered the Chicago Block in 2005 as a way to rewire PTSD patient's brains. [...] the next major step in getting his treatment onto

the market is to get a major study done on the effectiveness of the injection. [MED # 2]

On the other hand, in the alternative corpus there is much more narration through denomination or designation strategies (Calsamiglia and van Dijk 2004), which is followed by an explanation of the therapy and how it would insert itself within the current situation with indications on next steps. The perspective depends on whether it narrates the study and/or the researcher or the personal story of an individual suffering from PTSD:

(3) Using a tailored behavioral change solution, [name of institution omitted] helps participants effectively address a range of issues, from PTSD to other common challenges [...]. [ALT # 1]

(4) Today, O'Hara counts himself as a yet another one of Lindenfeld's success stories. [ALT # 2]

In summary, in the medication corpus, albeit popularized, information organization and communication mirror the academic macrostructure and register that is typical of the scientific specialized language of its experts. On the contrary, alternative treatments are often based on interdisciplinary research, like in example (3), and personal situations that tend to be conveyed through descriptive narrations, like in example (4).

5.2. *Semantic fields and lexical choices*

Another relevant aspect lies in preferred lexical choices, which differ greatly upon comparing the two corpora. In fact, after excluding functional lemmas, the following frequency lists were extracted using the 3.4.6. AntConc software (*Table 2*).

The medication corpus focuses on the disorder from a physical and psychological perspective and its resulting problems with terms such as "memory/memories", "brain", "fear", and on institutions, as proven by the words "study", "research" and "university". These choices and the contexts in which they are inserted pertain to the semantic fields of medical, scientific and academic research, as well as that of physical and mental pain and suffering. In contrast, the alternative corpus emphasizes the patient rather than the disorder with words referring to soldiers' professional position like "veteran", "military", "war", and his or her personal suffering or wellbeing through an extensive use of

terms like "stress", "help", and "symptom". The semantic field is that of wellbeing and healing after trauma, and the connotation is more subjective and positive overall since the focus is on the solution rather than the problem. This correlates well with the previous section's finding that the medication corpus' more scientific register and discourse organization gives the text the authoritative effect of medical-scientific academic language, while slightly adjusting it for the general population. The organization of the alternative corpus, once again, takes on a more narrative, story-like quality with its preference for words semantically pertaining to the emotional and personal spheres of the patients' experience and therapeutic journey.

Table 2. – Most frequent words in the medication and alternative corpora.

MEDICATION CORPUS	OCCURRENCES	ALTERNATIVE CORPUS	OCCURRENCES
memory/memories	337	PTSD	389
PTSD	318	veteran	188
brain	178	military	106
fear	169	stress	101
people	150	therapy	100
study	143	health	97
stress	139	help	89
drug	135	war	83
research	120	symptoms	77
university	109	people	76
propranolol	108	combat	74
trauma	99	brain	65
treatment	94	army	64
therapy	93	soldiers	64
disorder	91	trauma	64

6. POPULARIZING PTSD

The press has taken on an important role in conveying highly and increasingly specialized news and information and since PTSD in veterans is perceived as a problem that could directly or indirectly affect the

general population, the public wants to know more about this disorder and its impact. Popular culture representations have reinforced the fear that soldiers suffering from PTSD, who have been trained for combat and immerged in intense battle, could be especially threatening if their condition is not diagnosed and kept in check. Popularized press coverage may therefore enable the non-expert audience to understand whether reality is truly alarming. In fact, lay versions of scientific knowledge and scholarly opinions and theories (Calsamiglia and van Dijk 2004; Kruvand 2008) specifically target readers with a confused or low level of knowledge due to the high specificity of the data and must reinforce or modify common expectations through figurative and linguistic means (Garzone 2006). This leads to *RQ2* (How is highly specialized information concerning the treatment of PTSD 'translated' and 'popularized' in the media?), which considers the framing of perspectives and authoritativeness.

6.1. *Shifts in perspective*

An element of particular discursive interest consists in the synecdoche-like quality of the identification and position of military subjects in relation to society as a whole. In fact, the American armed forces represent a "specialized society within society as a whole" (Fidell 2016, 2), that influences and is influenced by the surrounding civilian community in policies, decisions and the implementation of scientific and technological research. In this sense, a comparison of the two corpora reveals that an opposite shift in perspective is accomplished to portray military veterans as a supporting element in arguments favoring the medical or alternative approach at hand.

As regards the medication corpus, the shift in perspective goes from society to military, presumably in order to confer a sense of legitimization and authorization by including soldiers in the list of subjects that could greatly benefit from the proposed medical regime. Example (5) justifies ongoing pharmaceutical research and experimentation and underlines the number of categories in urgent need of this cure. Due to the previously mentioned perception of danger surrounding soldiers with PTSD, their inclusion could make the approval and promotion of such experiments more pressing. In example (6), because the prospect of using memory dampening and enhancing medication scares many non-experts, putting 'experienced' soldiers on the same level as civilian cat-

egories reassures the public and makes veterans' use of this medication seem less threatening. Veterans and soldiers are therefore integrated into society with a 'normalizing' effect through paralleling lexical constructs:

(5) the bacteria via pill, inhalation or injection could be given to people at high risk of PTSD – such as *soldiers preparing to be deployed or emergency room workers* – [...]. [MED # 3] [1]

(6) So with all these enhancement technologies that could allow us to excel *as athletes, students and soldiers*, shouldn't science come up with some way for us to enjoy these capabilities longer? [MED # 4]

On the contrary, in the alternative corpus the synecdochical movement goes from military to society, making soldiers stand out within society to justify the validity of the presented alternative treatment. In fact, American civilians perceive military research as cutting edge, for many inventions and treatments are conceived and experimented within military facilities before being released to the public (Moreno 2006), as underlined in examples (7) and (8). Because alternative non-medicinal approaches and studies could otherwise be dismissed, including indubitably deserving subjects with access to advanced treatment as testimonials endows the treatment with great authority and potential:

(7) It's work that has implications *far beyond the military*. [ALT # 3]

(8) VR has since been used to treat more benign conditions, such as phobias, *or even* how to prepare for a job interview. [ALT # 4]

In both cases, different perspectives and positions within a popularized context comforts the public by portraying military service members as a valuable community within American society that experiences the same problems as civilians but could make productive use of its privileged means to treat a disorder that ultimately concerns everyone.

6.2. *Authoritativeness*

The strategic inclusion or distancing of the military community expounded above is connected to authoritativeness (Garzone 2006), although the use of authoritative sources and expertise differs signifi-

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[1] The italics in the excerpts are the author's and have the intent of highlighting significant words.

cantly in the two corpora. In fact, as previously mentioned, the treatment options advocated in the alternative corpus could be considered less efficient or, in some cases, even useless. As a result, involved experts often create a strong connection with the military to benefit from the practical validation attributed to a community that is perceived as highly performative and uninclined to waste time or resources:

(9) director of the Office of *Veterans Services*. [ALT # 5]

(10) a psychiatrist who has *worked with the military* and pioneered [...]. [ALT # 6]

The opposite happens in the medication corpus, where the endorsement of memory-modifying medication comes from the scientific community whose experts are introduced with their title and institution to prove that they are independent from the military, and therefore completely unbiased:

(11) *associate professor* in the Department of Integrative Physiology [MED # 5]

(12) *President* of the Brain and Behavior Research Foundation [MED # 3]

Interestingly, the medical corpus refers to bioethicists, who serve as mediators between purely scientific and religious viewpoints (Kruvand 2012, 23) and always hold the role of moral gatekeepers. They testify as experts who voice concerns surrounding the righteousness and broader consequences of modifying traumatizing memories and memory in general:

(13) a medical ethicist at Washington University in St. Louis who serves on the *President's Council on Bioethics*, which condemned the research last year. "We don't have an omniscient view of what's best for the world". [MED # 6]

(14) "Would dulling our memory of terrible things make us too comfortable with the world, unmoved by suffering, wrongdoing or cruelty?" asks the *bioethics council* in its report. [MED # 7]

The ongoing debate about the appropriateness of intervening on memory, even for treatment purposes, is thus addressed by the media's use of authoritative figures. This context, along with the references to popular culture that follow, is also where moral and ethical matters emerge most clearly.

7. Popular cultural references

The final part of the present analysis centers around *RQ3* (How do journalists build upon common knowledge and presuppositions about PTSD that are already present among the layman audience to sustain or question controversial treatment?). The technique of analogy or association (Calsamiglia and van Dijk 2004), by means of which a problematic issue is related to an idea or object that is familiar to the layman, represents a starting point. In both corpora, this is accomplished through explicit or casual conversational references to shared popular culture, i.e. well-known literary works or contemporary movies. However, the reference may aim at further alarming or reassuring readers about the research at hand based on the public's presupposed connection between the scientific findings in the real world and the extreme consequences that are portrayed in the referred book or movie. The analysis of the two corpora will be divided into separate subsections here to better outline such relevant differences for popularizing and argumentative purposes.

7.1. *Medication corpus*

The use of analogy is much more extensive in this corpus, presumably because the presented research is highly specialized and therefore harder for a non-expert to grasp without clear scenarios. As concerns literature, the cutting-edge quality of the scientific study or finding easily recalls the troubling futuristic imagery of dystopian novels and the possible application(s) and impact such progress could have on everyday life and society:

(15) There are all sorts of *dystopian things* one could do with these drugs. While tyrants have often rewritten history books, modern science might one day allow them to rewrite us, wiping away genocides and atrocities with a cocktail of pills. [MED # 8]

(16) Before you rush off into a panic about the *dystopian possibility* of mind control or memory deletion, it's important to recognize that procedure in Dr. Kindt's study only weakened the subjects' fear memory and avoidant behavior. [MED # 9]

(17) George Orwell foreshadowed a *hauntingly similar distopia* [sic. dystopia] occurring in "1984." Perhaps he was only off by a decade or two. [MED # 10]

Such use of literary sci-fi and dystopian imagery and preconceptions is especially interesting when considering that the examples above all come from different articles and sources. There is also a significant difference in the corpora's uses of and references to iconic movies. The most frequently quoted cinematic genre is that of sci-fi movies, and especially *Men in Black* (1997). The reference to the two secret agent protagonists who maintain the status quo within society by using technology to erase (traumatic) memories implicitly introduces the semantic fields of 'secrecy' and 'conspiracy':

(18) *It's not the miraculous memory-erasing device from the 1997 hit movie "Men in Black,"* but it has a similar goal. [...] Propranolol [...] could provide potential relief for post-traumatic stress disorder sufferers. But it's not the "flashy memory thingy" from the movie. [MED # 11]

Another indicative sci-fi movie used to represent memory dampening medication is *The Matrix* (1999), and in particular the scene in which the protagonist must choose between the 'blue pill' and the 'red pill'. In example (19), choosing the blue pill (of memory dampening) means choosing the bliss of ignorance and forgetfulness, as opposed to facing the struggle and suffering of remembering and being fully aware by taking the red pill. This image turns memory dampening PTSD treatment into an extraordinary two-path dilemma:

(19) Healy was engaged in a pilot study to test whether administering drugs immediately after a traumatic event could prevent the development of post-traumatic stress disorder. *Did Kathleen want to be part of the study?* "I thought it might be a good idea," Kathleen said recently. [...] I knew I was prone to post-traumatic stress disorder" [...] *she took a blue pill* four times a day for a week and a half and then gradually reduced the dosage over the course of another nine days -- a total of 19 days of treatment. [MED # 7]

The most frequently referenced movie is the comedy-drama *Eternal Sunshine of the Spotless Mind* (2004), which explores the emotional and legal implications of erasing memories. The movie's importance also lies in the fact that its release and popularity actually led people to critically reflect upon this drastic measure and this is mirrored in its vague references:

(20) they [questions bioethicists are asking] *eerily remind me of the premise of a movie* that came out in 2004: The Eternal Sunshine of the Spotless Mind. [MED # 12]

(21) This research is *particularly relevant to public concern following the release of such films as "Eternal Sunshine of the Spotless Mind"* that present a science fiction view of memory erasure. [...] McGough does not discourage ethical reflection about the applications of research into memory formation, yet <u>wonders whether popular culture and science fiction movies, such as "Eternal Sunshine of the Spotless Mind" have sensationalized the actual research and benefits</u>. [MED # 13]

The medication corpus therefore refers to well-known literary genres and movies to voice commonly feared drastic consequences and loss of control linked to the implementation of problematic treatment. Although the source is undoubtedly a scientifically questionable one, the reference makes the portrayed hypothetical outcome more vivid in the reader and public's mind.

7.2. *Alternative corpus*

This corpus presents fewer popular culture references, presumably due to its less scientific and more narrative/descriptive approach that makes them less necessary and even potentially redundant. Furthermore, as mentioned previously, its references to veterans as patients in need of assistance are more explicit and have a positive reassuring effect even when referring to science fiction in example (22) and the epic war film *Apocalypse Now* (1979) in example (23), which are usually negative. The latter is further connected to PTSD in soldiers by the fact that it is set during the war in Vietnam. The finding or experiment in question thus becomes a promising discovery that could lead to a solution for everyone rather than a catastrophic trespassing or source of problems:

(22) The Army also funds research that *may seem like science fiction, but is in fact science reality*. [ALT # 7]

(23) There's also "ocean therapy," which advocates surfing as a workable cure for the terrors of war, a treatment *arguably first proposed by Francis Ford Coppola in the movie "Apocalypse Now"*. [ALT # 8]

In this corpus, military science and activity is once again associated with potential and potency by means of imagery that is more familiar to the public than alienating, albeit precise, numerical and statistic data.

8. Concluding remarks

The present study has delved into the manners in which a contested bioethical issue, like the treatment of PTSD in soldiers and the (un)appropriateness of intervening on memory, is framed in the American press. It did so by comparing a corpus of newspaper and newswire articles encouraging the use of memory dampeners or enhancers with another advocating alternative, non-medicinal approaches. This inquiry yielded relevant findings on many levels. Firstly, the very macrostructure of the article seems to reflect the degree of 'scientificity' of the treatment and the semantic fields consequently focus on research in the medication corpus and on the person's wellbeing in the alternative corpus. Popularization strategies were another essential part of the framing process and consisted in the extensive use of narration – of experiments in the medication corpus or patients' journeys in the alternative one – along with simplified explanations. A further point of difference regarded positioning soldiers as a separate "they" community, albeit on the same level as other subjects, in the medication corpus in view of its more denotative approach, or as a more experienced portion of the "us" category that could greatly contribute to society's wellbeing in the alternative corpus in search of validation. Such an observation also correlates with the differing preferences in consulted experts, who are chosen from the more objective and neutral scientific community in the medication corpus and from the military field when discussing alternative treatments. However, in the medication corpus the search for security and objective validation is occasionally undermined by fears expressed by skeptical and cautionary bioethicists who represent a community of experts uniting authority in matters of medicine and morality. The choice in authoritativeness therefore creates a balance between the military and civilian perspective in matters of treatment and its impact outside of the military community. A final and significant means of making such a complex bioethical debate more accessible to a non-expert public consists in a clearly divergent use of widely known literary and cinematic references to alert or calm the expected fears of the civilian public, proving that cultural presuppositions may also contribute in popularizing highly specialized knowledge.

Future research on the construction and deconstruction of assumed knowledge and positions on controversial bioethical issues in the news could follow a number of paths. One of these could be to focus on specific linguistic and rhetorical-discursive aspects such as reformulation

strategies, implicatures, presupposition triggers, agency or avoidance in reference to desired or undesired ideas and information. Another important comparison could stem from the fact that a significant part of the strategies that emerged in the present study sought to make the information more accessible and were therefore found in newswires rather than printed sources, proving that "the new affordances on the Internet are being taken up to spread and exchange information in a more spontaneous and immediate way" (Turnbull 2013, 9). This could lead to in-depth reflections on how online newswriting influences the way contested matters are argued. Yet another, perhaps even more telling, approach could compare corpora written from a civilian perspective with articles in newspapers and news media written by and for the military community to observe how the debate is framed and supposedly defended from an internal perspective with different needs, information, and preconceptions than those of the general, non-expert public.

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Appendix: Quoted sources from the corpora

1. *Alternative corpus (ALT)*

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4. VA Post Traumatic Stress Disorder Programs, *Federal Document Clearing House Congressional Testimony*, March 11, 2004.

5. USF explores new PTSD therapy, *University Wire*, November 4, 2013.

6. Sniper killing aftermath: 5 things to know about PTSD, *CNN wire*, February 5, 2013.

7. Army science conference to focus on 'disruptive technology', *Defense Department Documents and Publications*, November 25, 2008.

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5. AAAS Capitol Hill Briefing: Neuroscience Raises Dramatic Hopes and Key Social Issues, *States News Service*, August 22, 2011.

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10. Memory loss, *University Wire*, December 18, 2006.

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