

20th century but is inadequate to manage the global challenges of the 21st century posed by nuclear weapons, emerging technologies, and impending ecological changes. Instead, tribalism in the form of nationalism, religion, and culture threatens to divide humanity against itself, leading to such problems as intolerance, war, and terrorism. The solution, Harari claims, is to avoid relying too heavily on any one narrative and instead to strive to see the world as it truly is. To do so, we should remain humble, seek reliable sources of data, understand our limitations and biases, and be ready for change.

As the title indicates, *21 Lessons for the 21st Century* is divided into 21 chapters, loosely organized in five parts, with a brief introduction, endnote references, and an index to round out the page count. Part I: The Technological Challenge asserts that artificial intelligence and mechanization will radically change the nature of human work, as well as enable human behavior to be thoroughly understood and eventually controlled, and these changes will worsen inequality. Part II: The Political Challenge analyzes the emergence of a global community and the limits of that community, identifying different ways in which tribal interests have divided humanity along nationalist, religious, and cultural lines. Part III: Despair and Hope describes the potential conflicts of terrorism and war and proposes that we inoculate ourselves against these threats by being humble and skeptical of both religious and secular dogmatism. Part IV: Truth delves into the “posttruth” world, explaining that the proliferation of unfiltered information undermines our ability to detect factual and moral truths. Part V: Resilience suggests that, to make our way forward, we must first understand ourselves, learn to think critically, and strive to minimize suffering rather than adhere rigidly to any particular narrative or doctrine.

The author, Yuval Noah Harari, has a PhD from the University of Oxford and is a historian and lecturer at the Hebrew University of Jerusalem. His other books are *Sapiens: A Brief History of Mankind* and *Homo Deus: A Brief History of Tomorrow*. Whereas *Sapiens* focuses on humanity’s past and *Homo Deus* focuses on humanity’s future, *21 Lessons* addresses contemporary issues.

21 Lessons is well-written and accessible, and deals with many topics of current vital concern. Although it can at times be difficult to trace the thread across different sections of the book, the prose flows well and reads

smoothly. The book’s central theme is that the stories we have told to make sense of the world (political stories, scientific stories, religious stories, personal stories) are failing to account for the massive changes that have occurred in the last few decades. As a result, people are vulnerable as they struggle to develop stories to understand their new realities and can be drawn to restrictive ideologies that offer the allure of a straightforward and simplified view of a complex and shifting society.

Although *21 Lessons* is of general interest, it has little relevance to forensic psychiatry specifically. Some of the issues discussed are tangentially related. For example, Harari speculates about the implications that an improved understanding of neuroscience and human decision-making will have on free will and personal choice. He also discusses the importance of narrative in helping people forge meaning. This emphasis on narrative will be familiar to forensic psychiatrists, who are routinely tasked with ascertaining and conveying the arc of a person’s experiences. Whether writing a report explaining how a traumatic childhood contributed to a defendant’s offense conduct or testifying about the profound effects of psychiatric disability on an individual’s day-to-day life, forensic experts recognize the powerful impact a well-crafted narrative can have.

Ultimately, *21 Lessons for the 21st Century* is a worthy read, not because it deals with topics in psychiatry or law, but because it articulates the big problems facing the global community, problems that will require the talents of scholars in many disciplines, including forensic psychiatry. Readers will likely disagree with some of Harari’s claims and conclusions, but the book provides a digestible and absorbing entry into these vexing matters.

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Ad Astra: Forensic Psychiatry in Space

Written by James Gray and Ethan Gross. Directed by James Gray. Released in the United States by 20th Century Fox on September 20, 2019.

Ad Astra is a film that follows astronaut Roy McBride (played by Brad Pitt) during a space mission to find his father. When strange power surges imperil humanity, U.S. Space Command suspects that McBride's father (played by Tommy Lee Jones), who left years ago on a mission to the outer solar system, may have something to do with these phenomena. McBride is assigned to make contact with his father as a way of addressing the power surges. To accomplish this task, McBride follows in his father's footsteps, on a journey from Earth to the Moon, Mars, and Neptune.

Ad Astra joins a growing list of recent films, including *Moon* (2009), *Gravity* (2013), *Interstellar* (2014), *The Martian* (2015), and *Lucy in the Sky* (2019), that delve into psychological aspects of human space travel. The film explores the emotional ties between a son and his distant father, the meaning of human connection in highly technological environments, and the question of whether intelligent life exists elsewhere in the universe.

The field of forensic psychiatry has paid limited attention to human spaceflight. Yet *Ad Astra* touches on a number of themes related to psychiatry and the law. The first spoken words in the film are, "I'm calm, steady. I slept well. 8.2 hours. No bad dreams. I am ready to go." Prior to working or traveling in space, McBride repeatedly undergoes automated psychological evaluations in which he wears a medical patch on his neck and speaks to a computer. A digital voice responds to his comments, typically announcing, "Your psychological evaluation has been approved," after McBride has made just a few statements. Even for the distant future, these check-box statements seem rather simplistic for determining psychological fitness to participate in potentially isolating or life-threatening space missions. Viewers soon realize that these computerized assessments are part of a wider net of psychological surveillance by Space Command. As an astronaut assigned to watch over McBride tells him, "You're going to be monitored constantly, your mental state, your emotional state."

These scenes raise several questions for forensic psychiatrist viewers. Which criteria are used to screen in or to screen out space travelers? Can an

astronaut have a mental disorder, or would any such condition or a subset of mental disorders be considered disqualifying? What about substance use disorders? Are these screening criteria codified in legal statutes, or are they developed outside of regulations as best practices within the military or commercial industry?¹

A 2016 report by the National Aeronautics and Space Administration noted, "While mood and anxiety disturbances have occurred, no behavioral emergencies have been reported to date in space flight" (Ref. 2, p 9). *Ad Astra* explores the significance of seemingly subtle behavioral health factors during space travel. Traveling to Mars, McBride and the crew of the ship *Cepheus* encounter a spacecraft broadcasting a distress signal. Captain Tanner (Donnie Keshawarz) says that they are "obligated to stop," which mirrors existing space treaties outside of the film with regard to assisting astronauts in distress.³ In a moment of apparent fear, First Lieutenant Stanford (Loren Dean) hesitates to go, so McBride volunteers to help. Tanner is killed during this detour, and Stanford assumes command of the ship. Later, when a power surge jeopardizes their approach to Mars, Stanford again freezes at a critical moment, unable to maneuver the ship, and McBride takes over controls to safely land the spacecraft. Given that Stanford presumably underwent psychological screening prior to spaceflight as well, viewers are left to wonder the degree to which these screening tools serve their intended purposes. Upon landing, McBride says to Stanford, "Captain, I believe you understand why I did that. I will not report it to SPACECOM." This remark highlights not only the astronauts' awareness of potential reprisals from authorities due to performance concerns, but also how astronauts might subvert systems put into place to mitigate behavioral health risks.

Additional behavioral health supports are shown throughout the film. After McBride boards *Cepheus* to travel to Mars, Tanner says, "Command, we're going to give out the mood stabilizers now," as pills are distributed in zero-gravity to the crew members. Tanner quips that Space Command would not want one of the astronauts "getting all emotional again." This scene touches on important questions about

psychotropic use during human spaceflight.⁴ For long-duration space missions with limited resources and storage, how are decisions made about which and how much psychotropic medication to bring onboard? When might astronauts be permitted, or even required, to take psychotropic medications during these missions? On Mars, McBride spends time in “comfort rooms” that display calming nature scenes on the walls, indicating the use of nonpharmacologic interventions. A crisis counseling sign (“There is hope, make the call”) is also shown on Mars.

Nick Kanas, a psychiatrist and an expert on space psychology, wrote in 2015 about some unknowns regarding the future of space travel and crime: “Will there be a jail for criminals and sociopaths? What sort of legal system will there be, and how will law-breaking be enforced?” (Ref. 5, p 135). In *Ad Astra*, the Moon is divided into warring territories, and a gun battle erupts during a rover chase. In a video transmission from the outer solar system, McBride’s father describes how “some of our people have been unable to handle the psychological distress of being so far away from home” and discloses that he killed off his colleagues by disabling their life support. To reach Neptune and his father, McBride hijacks the *Cepheus*, leading to the deaths of several crewmembers.

It is intriguing to consider the ways in which legal frameworks related to psychiatry will develop alongside space exploration. In 2005, Jonas Rappoport wrote, “Does forensic psychiatry have a future? Will it be around in 2029, 25 years from now? I believe it will be here and with increased recognition of what the field has to offer” (Ref. 6, p 263). For those who wonder about our field’s place decades, or perhaps centuries, in the future, *Ad Astra* provides a launchpad for discussion.

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Forensic Psychiatry and The Silent Patient

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The Silent Patient is a New York Times bestseller and has been optioned as a movie. Alicia Berenson, the titular character, who had appeared to be a happily married woman, shot her husband five times in the face prior to becoming mute. She was admitted to a forensic psychiatric hospital after trial, and the reader learns her thoughts through diary entries. While *The Silent Patient* was a page-turning thriller, it often portrays an inaccurate picture regarding forensic topics, leading to concern that it propagates misunderstandings about forensic psychiatry and forensic patients.

Forensic psychiatrist characters have long been portrayed in fiction, and different types have previously been identified, including Dr. Evil, Activist, and Jack-of-All-Trades. For example, Dr. Hannibal Lecter, a Dr. Evil character, used his vast psychiatric knowledge for his own evil ends.^{1,2} Another recent Dr. Evil is Dr. Peter Teleborian, the forensic child psychiatrist from Stieg Larsson’s *The Girl with the Dragon Tattoo*.³ An Activist forensic character has been described as going far beyond their job description, instead using cases as vehicles for another agenda. The Jack-of-All-Trades forensic psychiatrist engages in behaviors that are outside our role such as investigating crimes or acting as a policeman.^{1,2} Dr.