




From Bones to Brain: 50 Years of Star Trek and Changes in the Stigmatization of Psychological Disorders

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Abstract

The Star Trek franchise currently includes five spin-off series and 13 motion pictures. Star Trek's central theme is the utopian future of mankind, but the series does not disregard issues that were socially relevant for its time of production. Therefore, Star Trek has functioned as a representation of history throughout its 50-year lifespan. This paper conducts a comparative analysis of fictional representations of psychological disorders and corresponding treatments to retrace the cultural changes in the portrayal and treatment of psychological disorders from the 1960s to the turn of the millennium. Video material produced between 1966 and 1999 was analysed with a focus on psychological disorders and coded according to the ICD-10. The results of the quantitative analysis indicate that the different Star Trek series demonstrate similar patterns of percentage distributions for psychological disorders. The qualitative analysis shows that psychological disorders were portrayed and treated in an increasingly realistic fashion. Changes in society's attitude towards psychological disorders can be comprehensively illustrated through Star Trek episodes produced through 1999. Psychological phenomena are increasingly destigmatized, and the necessity of treatment has not been disregarded.

Keywords Star Trek · Psychological disorders · Percentage · Prevalence · Destigmatization

Introduction: Stigmatization and Fictional Depictions of Psychotherapy, Therapists, and Patients

In sociology, stigmatization refers to the process of attributing socially negatively regarded characteristics to a person or group. These characteristics can be visible or invisible and typically deviate from the majority. Social psychology stresses

that stigmas are necessarily based on the perception of others (Goffman 1963). Therefore, there are no basic characteristics that can conclusively indicate the stigmatization of a group (Bierhoff 2000). Rather, the specific characteristics that are stigmatized can vary widely and are subject to socio-cultural change (Archer 1985; Crocker et al. 1993). However, psychological disorders have always been targets of prejudice and stigmatization due to the ease with which aberrant or irritating behaviours can be recognized and because most individuals find them difficult to relate to.

Even Thomas Willis, one of the first physicians to exclusively study mental diseases, wrote in his 1684 book *The Practice of Physick: Two Discourses Concerning the Soul of Brutes* that the mentally ill were fierce creatures with superhuman strength, who could endure cold, hunger and injury without effect and had to fear their caregivers as potential tormentors (see Whitaker 2002, page 6). Following more than 300 years of research in the field of psychological disorders, and despite improved public education, the stigmatization of affected individuals as aggressive, unpredictable and dangerous remains common (Wedding and Niemiec 2003; Niemiec and Wedding 2006).

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Changes in prejudices and stigmas over time and across cultures are traceable in not only academic writing but also the manner in which the disorders are portrayed in contemporary art and literature. Comparisons conducted by Fabrega (1991), for example, show predominantly religious interpretations of psychological disorders during the fifteenth century, such as the stigma of the “sinner” or “demoniac”. However, the increasing influence of medical explanations eventually changed these viewpoints. This change suggests that a stigma can be considered a reflection of the general population’s current understanding of the emergence and treatment of pathologies. New scientific evidence and academic interpretations of psychological disorders tend to reach wider public awareness with some delay because of a generally very limited understanding of the fields of psychology or psychiatry and limited access to scientific literature. Thus, an analysis of stigmas can highlight the gap between current scientific knowledge and the prevailing understanding of pathologies among the general population.

The medium of television has been omnipresent in the recent past and is nowadays easily accessible for many individuals. Accordingly, it has become an important medium for conveying information and influencing public opinion. However, careful scrutiny of television material quickly shows that television programmes are not typically produced to educate the public or raise awareness but to entertain by either toying with stigmas or even fomenting them.

In his analysis of the television series *In Treatment*, Strauß (2011) questioned the extent to which a significant need for societal clarification exists in terms of the work of therapists and the structure of psychotherapy. Among other concerns, Strauß (2011) noted that whether the treatment is provided by a psychologist or psychiatrist is rarely made explicit. Traditionally, psychiatrists typically act as therapists in TV shows and movies. The medical portrayal of “therapists” generally comprises heterogeneous characterizations based on positive (empathic, balanced, and competent) and negative traits (meddlesome, intrusive, manipulative, and disturbed) (Strauß 2011). Schneider’s (1987) categorization of character traits of psychiatrists strengthened this bipolar portrayal as either “Dr. Wonderful” or “Dr. Evil” with the comedic ridiculous “Dr Dippy”. Among medical practitioners psychiatrists are associated with the most stigmas. This negative view of psychiatry and of psychiatrists and psychologists is also reflected in film and television, which often emphasize not the typical attributes of medical practitioners such as physical attractiveness, calm and competence, but oddness of character (Strauß 2011). Niemiec and Wedding (Niemiec and Wedding 2006; Wedding and Niemiec 2003) added descriptions to the list of typical traits associated with psychiatrists, therapists and mental health nurse staff, namely, arrogant and incompetent, cold-hearted and authoritarian, passive and disinterested or

cunning and manipulative. Patients, in turn, are portrayed as aggressive, unpredictable and dangerous. Hyler et al. (1991) identified the following six dominant stereotypes that substantially contribute to the stigmatization of patients: the mentally ill as rebellious freethinker, the homicidal madman, the female patient as temptress, the enlightened member of society who is saner than the so-called sane person, the narcissistic parasite, and the portrayal of the patient as a “zoo animal” that ridicules and degrades the afflicted. These stereotypes occur in a diverse range of genres, from comedy to drama and horror.

A medium as ubiquitous as television can not only exacerbate stereotypes but also target them to reduce prejudice. For this reason, scientists in various fields have long endeavoured to identify material suitable for raising awareness through realistic and factual portrayals of psychological disorders and treatment options based on current scientific understanding (see Hesse 2009; Prasad et al. 2009; Robinson 2009; Wedding et al. 2011). The selection criteria are straightforward: the lay audience must be able to understand the content and be better informed after watching the media source than before. There is unanimous agreement that a scientifically well-researched movie or television programme can be a helpful and effective tool to convey information, thereby having the potential to directly affect stigmatization.

This study reviewed the presentation and stigmatization of psychological disorders at different levels over several decades. The authors selected *Star Trek* as the material for analysis. The *Star Trek* franchise emerged in 1966 and has been subject to many different scientific investigations. Furthermore, the amount of material it offers for analysis is unique in the media world. *Star Trek* in particular portrays society’s conception of social and historical developments of the specific production era (Barrett and Barrett 2001; Geraghty 2007). Thus, *Star Trek* enables us to analyse the representation of psychological disorders over several decades with respect to one franchise. This investigation aimed to determine whether there was a pattern in the representation of mental disorders over the decades. For this purpose, a quantitative analysis of the frequencies and the prevalence rates of psychological disorders was performed. The authors were also interested in the presentation of psychological disorders with respect to the content and the extent to which a form of stigmatization associated with this presentation was detectable.

Material

Star Trek – The Franchise

Star Trek: The Original Series (TOS) is an American television series that ran from 1966 to its cancellation in 1969, which was due to differences regarding creative direction (personally communicated by Walter Koenig,

main cast member of TOS). However, viewers' interest in science fiction increased with the development of space travel, leading to 13 feature films and five spin-off series to date: *Star Trek - The Next Generation* (TNG, 1987–1994), *Star Trek - Deep Space Nine* (DS9, 1993–1999), *Star Trek - Voyager* (VOY, 1995–2001) and *Star Trek - Enterprise* (ENT, 2001–2005) and *Star Trek - Discovery* (DIS, 2017–Present).

Star Trek – A Product Representative of an Era

During G. Roddenberry's tenure as the series producer, new viewers could easily immerse themselves in the story and characters because the protagonists' former experiences did not factor into their currently depicted behaviour. This approach changed when the series' new producers altered the show's approach to character and storyline development after Roddenberry's death in the early 1990s. Protagonists decreasingly displayed one-dimensional, stereotypical character traits. According to Geraghty (2007), all the series shared an emphasis on "individualism and self-improvement within a supportive community" (p. 5). This commonality makes the franchise a positive role model.

Barrett and Barrett (2001) argued that so-called human morality is a central motive within the *Star Trek* franchise. On the one hand, *Star Trek* depicts a utopian vision of humanity's future defined by ethical and technological progress (Geraghty 2007). On the other hand, socially relevant contemporary issues of the particular production era influenced the content of individual episodes. Reagan (2013) argued that *Star Trek* and its 50th anniversary offer a representation of contemporary history by depicting issues and events that have moved and continue to preoccupy individuals, societies, and various fields of science. Science fiction typically engages taboo topics by transporting them into a potential future, thereby placing them at the centre of attention and creating emotional distance to put them up for discussion. However, Geraghty (2007) criticized *Star Trek*'s futuristic depictions of contemporary issues that were never quite bold enough to offer a truly provocative representation of societal grievances (p. 3). From a socio-cultural perspective, the entire *Star Trek* franchise emphasizes relevant issues during its respective production eras: racial discrimination (Weitekamp 2013), the Cold War and Détente (Reagan 2013), terrorism (Putman 2013), feminism (Dove-Viebahn 2007), eco-social topics (Jorgensen 2013), and medical issues such as fatal immune diseases (Barrett and Barrett 2001) and psychological illnesses (Schramm 2012).

The original series demonstrates how pervasive prejudice and discrimination based on race or ethnicity existed in 1960s American society. These topics were shifted into the future to raise awareness and to introduce new perspectives and new ways of thinking. Thus, the original

series is credited with not only portraying a black female officer in a position of leadership rather than service but also with the first broadcasted kiss between an African-American woman (Lt. Uhura) and a Caucasian man (Captain Kirk). Another decision considered progressive for the time, in the aftermath of World War II and during the Cold War, was the presentation of a Japanese officer and a Russian officer as normal and equal crew members of the *Enterprise*. These peculiar features helped establish the liberal reputation of the series (Geraghty 2007, p. 2).

The motion picture *Star Trek IV – The Voyage Home* was produced in 1986. It denounced anthropogenic species extinction and the consequences for humankind. *Star Trek VI – The Undiscovered Country* featured the demise of the Klingon empire, which represented the Soviet Union. The downfall of this empire re-enacted the breakdown of the Soviet Union and the subsequent détente of its former enemies during the late 1980s and early 1990s.

The *Star Trek* television series of the 1980s and 1990s continued to engage the issue of contemporary socially relevant topics and prejudice against minorities in particular. For example, TNG dealt with environmental protection, drawing a parallel to environmental pollution and the associated damage of the ozone layer in the episode "Force of Nature" (season 7, episode 9). In the episodes "The Outcast" (TNG, season 5, episode 17) and "Rejoined" (DS9, season 4, episode 6) the topics of gender identity and sexual orientation and the consequent social ostracism are negotiated. The announcement of the first black commanding officer of the *Star Trek* franchise (Commander Sisko, DS9) and the first female Captain as the lead of a show (Captain Janeway, VOY) generated considerable discussions in the run-up for the respective shows. Benjamin Sisko displayed pride in his creole heritage in twenty-fourth century New Orleans and openly discusses the racial discrimination of the twentieth century. *Voyager* broke new ground by portraying women as professionals in traditionally male domains, casting not only a female captain but also a female chief engineer. Thus, the *Star Trek* series of the 1990s continued placing members of discriminated groups in leadership positions. The franchise's most recent installment *Star Trek-Discovery* (2017) has not only picked up on this trend, but also reinforced it. The new main protagonist is an African-American woman and the ship's doctor lives in an openly homosexual relationship. The series negotiates current political, social, and religious issues through the Klingon alien race.

We conclude that the *Star Trek* franchise illustrates the changing perspective regarding culturally acceptable behaviour. This paper's comparative analysis of the ways in which TOS, TNG, and DS9 depict the nature of and approach to mental diseases, and retraces cultural changes in the portrayal and treatment of psychological disorders.

Methods: Quantitative Analysis - Frequencies and Prevalence Rates of Psychological Disorders

The “International Statistical Classification of Diseases” (ICD-10), published by the World Health Organization (WHO), is a clinical cataloguing system that specifies codes for psychological disorders (International Classification of Diseases 2010). Table 1 provides an overview of the various ICD-10 categories we refer to.

The material included in this study comprises all episodes of the television series *Star Trek – The Original Series*, *Star Trek – The Next Generation*, and *Star Trek – Deep Space Nine*. These series were produced between 1966 and 1999. *Star Trek – Voyager* was omitted from the study because this series ran mostly alongside *Star Trek – Deep Space Nine*, and an analysis of this series would have resulted in a cross-sectional rather than a longitudinal analysis. For the analysis, all characters credited by name or in a speaking role for an episode were counted and the character counts of all episodes of a series were summed to calculate the “total character population” of the series.

More than 360 h of material (TOS, TNG, DS9) were screened by cognitive behavioural therapists for occurrences of psychological diseases according to the ICD-10 (International Classification of Diseases 2010). All diagnoses

were confirmed by the last author. A diagnosis was assigned when the evaluated protagonist met the main criteria and the majority of side criteria. The authors encountered problems when assigning personality disorders because the series rarely provided information on symptoms that occurred during childhood and adolescence, which are significant pre-conditions. Nevertheless, the authors decided to include personality disorders because the protagonists’ on-screen behaviours were too extreme to represent personality styles.

For the quantitative analyses, the diagnoses were grouped into 19 categories of related illnesses (Table 1). The percentage of each category of diagnoses for a series was calculated by dividing the number of these diagnoses by the sum of all diagnoses for the respective series and multiplying the result by one hundred (Table 2). The prevalence describes the frequency of an illness, or the number of people within a group who were afflicted by a specific illness. Prevalence rates for each show were calculated by dividing the sum of the diagnoses by the number of characters in the respective series and then multiplying the result by one hundred to calculate percentages (Table 3, Fig. 1). When determining the total population of the three series, the authors had to consider the unique narrative structure of *Star Trek*. As previously mentioned, the series typically consist of stand-alone episodes, with the occasional exception of two-part episodes. Additionally, almost

Table 1 Legend to Tables 2 and 3 and Fig. 1, providing associations between ICD-10 code and descriptions of mental and behavioral disorders

Cluster of diagnoses	Description
F00 - F09	Organic, including symptomatic, mental disorders
F10 - F19	Mental and behavioral disorders due to psychoactive substance use
F20 - F29	Schizophrenia, schizotypal and delusional disorders
F30 - F39	Mood (affective) disorders
F40 - F41	Phobic anxiety disorders; Other anxiety disorders
F42	Obsessive-compulsive disorder
F43	Reaction to severe stress, and adjustment disorders
F44	Dissociative (conversion) disorders
F45	Somatoform disorders
F51	Nonorganic sleep disorders
F60	Specific personality disorders
F61	Mixed and other personality disorders
F62	Enduring personality changes, not attributable to brain damage and disease
F64 - F66	Gender identity disorders; Disorders of sexual preference; Psychological and behavioral disorders associated with sexual development and orientation
F68 - F69	Other disorders of adult personality and behavior; Unspecified disorder of adult personality and behavior
F70 - F79	Mental retardation
F80 - F89	Disorders of psychological development
F90 - F98	Behavioral and emotional disorders (onset in childhood, adolescence)
F99	Unspecified mental disorder

Table 2 Percentage distribution of diagnoses for TOS, TNG und DS9

Cluster of diagnoses	TOS	TNG	DS9
F00 - F09	11·43⁴	6·71⁵	3·33
F10 - F19	16·19³	10·98³	8·67⁴
F20 - F29	9·52⁵	1·22	10·67³
F30 - F39	0·00	1·22	4·67
F40 - F41	1·90	3·66	0·67
F42	0·00	0·61	0·67
F43	17·14²	17·07²	26·00²
F44	4·76	2·44	2·00
F45	0·00	0·00	0·67
F51	0·00	6·71	0·00
F60	7·62	35·37¹	30·00¹
F61	20·00¹	7·32⁴	0·00
F62	9·52⁵	0·61	5·33⁵
F64 - F66	0·00	0·61	0·00
F68 - F69	0·00	0·00	2·00
F70 - F79	0·95	0·61	0·00
F80 - F89	0·00	0·61	4·67
F90 - F98	0·00	4·27	0·67
F99	0·95	0·00	0·00

¹⁻⁵Marks the five most frequent diagnoses

every episode focuses on the same group of characters. These main characters, as well as a few recurring supporting characters, are thus faced with a highly unrealistic number of dramatic situations and traumatic experiences. This set-up makes it difficult to compare prevalence rates calculated from a group of fictional characters and real-world data. There is little use in comparing individual

Table 3 Prevalence of psychological disorders in TOS, TNG and DS9 compared with the US population (World Health Organization 2003; Pearson et al. 2006; Plassman et al. 2007; Richardson et al. 2010; Sar 2011; Munjiza et al. 2014; National Institute of Mental Health 2016)

Cluster of diagnoses	TOS	TNG	DS9	US population
Total	10·70	7·49	6·10	18·50
F00 - F09	1·22	0·50	0·20	13·90
F10 - F19	1·73	0·82	0·53	1·70
F20 - F29	1·02	0·09	0·65	1·10
F30 - F39	0·00	0·09	0·28	9·50
F40 - F41	0·20	0·27	0·04	18·10
F42	0·00	0·05	0·04	1·00
F43	1·83	1·28	1·59	3·5
F44	0·51	0·18	0·12	10·00
F45	0·00	0·00	0·04	0·00
F51	0·00	0·50	0·00	17·40
F60–61	2·96	3·19	1·83	9·10
F62	1·02	0·05	0·33	4·6

real persons with recurring characters because most episodes do not have repercussions in later episodes. For the purpose of this study, all characters in an episode were therefore counted and evaluated as “new” characters. Thus, the total population of each series included multiple counts of recurring characters. Diagnoses that were identified over the course of a multi-episode arc were only assigned once to avoid distorting the results by deviations from the typical narrative structure. Temporal dimensions further complicate a direct comparison between prevalence rates for series populations and real populations presented in research. The prevalence rates of psychological disorders are generally specified as a 12-month prevalence in the literature. However, it is nearly impossible to calculate a 12-month prevalence for a fictional series population because it is usually not clear how much time passes between events. However, if the narrative structure or the Star Trek series suggests that the characters of each episode are considered independently, then it becomes irrelevant how much time has passed between episodes. Rather, the events of all episodes of each show can be considered to happen simultaneously among the total population of the series.

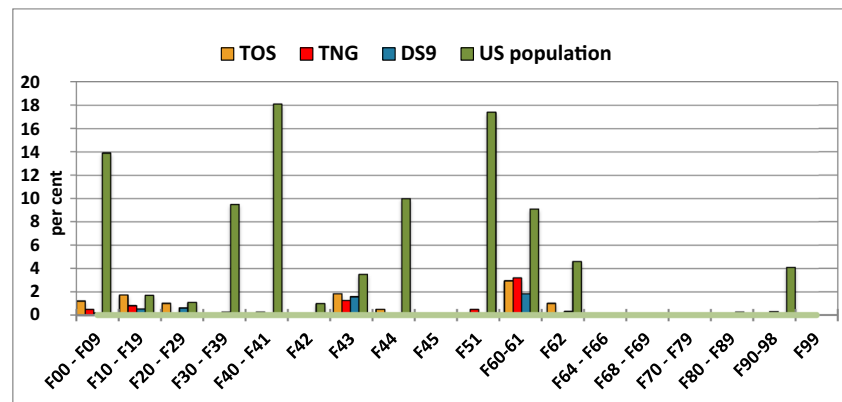
Therefore, the authors argue that it is appropriate to analyse fictional depictions of psychological disorders using the methodological approach described above and comparing the prevalence rates within the Star Trek series with real-world prevalence rates found in the literature (World Health Organization 2003; Pearson et al. 2006; Plassman et al. 2007; Richardson et al. 2010; Sar 2011; Munjiza et al. 2014; National Institute of Mental Health 2016).

Results of the Quantitative Analysis

Percentage

The analysis of the proportions of specific categories of diagnoses shows similar patterns in TOS, TNG, and DS9 (Table 2). In all three series, personality disorders account for the largest share of diagnoses but also occur in different diagnostic categories among the five most prevalent diagnosis groups. This difference is due particularly to the narrative structure of TOS and TNG, which are based on “a villain” posing a unique threat contained within an episode. The diagnostic form of recognized personality disorders changes only because of improved coding systems and more specific differentiations. All series score high within the F 43 (“reaction to severe stress, and adjustment disorders”) field because all protagonists are members of Starfleet and therefore frequently encounter armed conflicts, causing them to react highly emotionally. Disorders from the fields of F 0 (“organic, including symptomatic, mental disorders”), F 1

Fig. 1 Prevalence of psychological disorders in TOS, TNG and DS9 compared with the US population (World Health Organization 2003; Pearson et al. 2006; Plassman et al. 2007; Richardson et al. 2010; Sar 2011; Munjiza et al. 2014; National Institute of Mental Health 2016)



(“mental and behavioural disorders due to psychoactive substance use”), and F 2 (“schizophrenia and delusional disorders”) are also among the most frequent categories of diagnoses in all three series. It is easy for the untrained viewer to swiftly identify a phenomenon from these diagnosis clusters as “pathological.” This disconcerting subliminal effect is crucial for the series’ narrative strategy, and viewers can draw from it even without scientific background information.

Prevalence Analysis

Steel et al. (2014) analysed the global 12-month and lifetime prevalence rates of psychological disorders. Their results showed lower prevalence rates in North and Southeast Asia and in countries south of the Sahara than in western countries. Therefore, the analyses and conclusions of our study are limited to western cultures, particularly the United States, as this country represents the site of production and the main target audience of the source material.

Scientists are currently engaged in an extensive debate regarding whether prevalence rates for psychological disorders have risen over the last decades. Opponents of the theory of rising prevalence rates (Häfner 1985) argue that diagnoses and diagnostics of psychological disorders were not adequately differentiated and scientifically based prior to the 1970s. Demographic change has also led to an increase in verifiable psychological illnesses, particularly within the field of geriatric psychiatry. Additionally, increasing awareness of psychological disorders has improved detection rates for long-term symptoms (Häfner 1985). Following the experimental approach that suggests that socio-economic stress factors only marginally influence or increase the prevalence rates of psychological disorders, it is possible to compare modern-day, scientifically sound prevalence rates with the prevalence rates of psychological disorders calculated for TOS, TNG, and DS9, which were produced in the 1960s, 1980s, and 1990s, respectively.

On the micro-level of prevalence rates for individual disorder groups, TOS results are closest to contemporary valid prevalence rates for certain diagnosis groups despite the marginally differentiated classification systems of its time. However, TNG and DS9 also show elevated prevalence rates for the same fields. These elevated rates particularly apply to the F 1 (“mental and behavioural disorders due to psychoactive substance use”) and F 2 (“schizophrenia and delusional disorders”) diagnosis groups, which include symptoms that are easily recognizable for viewers and thus cause a subliminal sense of disturbance. All three series portray the F 43 (“reaction to severe stress, and adjustment disorders”) category in a relatively realistic way that corresponds to scientifically sound prevalence rates (Table 3). We argue that this portrayal enables the viewers’ understanding and therefore depathologizes reactions to distressing events.

On the macro-level of general prevalence rates for psychological disorders, psychological disorders occurred with decreasing frequency throughout the source material (Table 3, Fig. 1). We interpret this pattern as a depathologizing and destigmatizing portrayal of psychological disorders because psychological disorders gradually lost their plot-significance within the Star Trek universe.

The results of the following qualitative analysis show that the few cases of treatment methods depicted increasingly correspond to contemporary cognitive behavioural interventions.

Methods: Qualitative Analysis – Specific Examples for Addressing Psychological Phenomena

The authors used a standard text for interventions in psychotherapy (Margraf and Schneider 2009) as a reference for the qualitative analyses. They aimed to compare the steps of psychotherapeutic treatments portrayed in individual episodes with current cognitive behavioural approaches to treating the respective disorders. In regular advisory boards, the results were collated and discussed by the authors.

Results of the Qualitative Analysis

The following sections describe and discuss three exemplary portrayals of psychological phenomena in particular Star Trek episodes to illustrate changing approaches between the 1960s and the turn of the millennium.

Star Trek – The Original Series

At the beginning of the 1969 episode “Whom Gods Destroy” (Season 3, Episode 16), Captain Kirk informs the audience that the Enterprise is transporting a cure for the 15 remaining incurably ill patients in the galaxy suffering from psychological disorders (“to eliminate mental illness for all time”). The episode neither elaborates whether mentally ill is tantamount to incurably ill nor indicates whether new incidents of psychological disorders will occur. The episode portrays common prejudices towards people with psychological disorders or in mental health institutions. Affected persons are depicted as violent and megalomaniac (“Why can’t I blow off just one of his ears?”). Furthermore, the episode depicts widespread anxiety regarding psychiatry, including the fear of losing control and the pain caused by encounters with abusive therapists. The episode is a crucial example of the fictional representation of society’s view of psychological illnesses during the 1960s. Medication is the treatment of choice and is expected to fully restore dangerous individuals’ capacity to become functioning members of society.

Star Trek – The Next Generation

Beginning in the early 1990s, the producers relied on advice from medical professionals to depict somatic and psychological symptoms realistically (Forrest 2005). The following paragraph outlines how the series portrayed different symptom clusters and interventions according to modern diagnostic criteria and treatment plans in an increasingly realistic manner. The third season of TNG (1989/1990) introduced the first crewmember who was neither physically nor psychologically perfect: Lt. Reginald Barclay.

Anxiety Disorders

Anxiety disorders are defined as excessively strong fears of objects or situations that elicit fear in others. Those with anxiety disorders recognize that their fears are either disproportionate or unfounded. The protagonist Reginald Barclay, among others, fulfils the criteria for a social phobia (F 40.1). He mentions and exhibits a clear fear of being at the centre of attention in social situations and of acting in an embarrassing manner (“Hollow pursuits”,

season 3, episode 21). Barclay displays a high level of physical tension and high emotional stress due to his fears and worries, causing him to avoid social interactions.

In the episode “Realm of Fear” (season 6, episode 2), Reginald Barclay consults the ship’s counsellor Deanna Troi to address his fear of beaming, which is negatively affecting his freedom to act and his work performance. In this case, he satisfies the criteria for a (fictional) specific phobia (F 40.2). The character shows explicit vegetative symptoms and avoids the subject of his phobia. He discusses possible strategies to manage his fears with the counsellor. The strategies mentioned in these discussions are consistent with current cognitive behavioural therapy treatments (see Margraf and Schneider 2009). Possible interventions for anxiety disorders include severe exposure as confrontation without relaxation or systematic desensitization. The latter uses methods of active relaxation to achieve a reciprocal inhibition of fear reactions.

In this case, Counsellor Troi teaches her patient Barclay a relaxation method to counteract his fear reaction. Lt. Barclay promptly decides to confront his phobia. This confrontation with the fear-inducing stimulus is meant to elicit a strong emotional response and physical arousal, which must be endured until emotional and physical symptoms abate. The realization that fear cannot increase indefinitely, but wears off, eventually results in a re-learning and the insight that the fear-inducing situation is not threatening.

Thus, the Star Trek franchise begins depicting anxieties as comprehensible human reactions that can be professionally treated. However, TNG does not disregard the social stigmas encountered by those who suffer from anxiety.

Star Trek – Deep Space Nine

Deep Space Nine’s pilot episode “The Emissary” (Season 1, episodes 1 and 2) introduces Benjamin Sisko, the commanding officer of the titular space station, in direct connection to a traumatic experience. The pilot constitutes the pinnacle of complexity and detail regarding the fictional representation of psychological symptoms and ways of dealing with these symptoms.

Post-Traumatic Stress Disorder

Jennifer Sisko, the wife of Benjamin Sisko, was killed during a dramatic attack on Earth by an alien species. Her husband and their son Jake narrowly escaped death and were forced to leave her body behind. Three years later, Benjamin Sisko is trying to establish a home for himself and his son in one of the most remote sectors of the Alpha-Quadrant. During conversations with his commanding officer, Captain Picard, whom Sisko holds

responsible for the death of his wife, Sisko appears irritated and aggressive.

Over the course of the series pilot, it becomes apparent that Benjamin Sisko suffers from post-traumatic stress disorder (PTSD, F 43.1). Pursuant to ICD-10, Commander Sisko fulfils criteria A, B and C for this disorder. He was exposed to a traumatic event of disastrous proportions that would moreover have elicited feelings of deep despair in any person, and he reports, “When I close my eyes, I can see her lie there”, satisfying the criteria of persistent memory. His avoidance strategy is to try to build a new home for himself and his son in a seemingly safe, remote location, where violent conflicts seem unlikely to occur. Commander Sisko exhibits mental arousal in the form of increased irritability and aggression when interacting with Captain Picard. However, no information is provided regarding the onset of the aforementioned symptoms.

Notably, the entire pilot episode of DS9 represents the treatment of PTSD in condensed form, which follows the principles of cognitive behavioural therapy approaches. Commander Sisko encounters telepathic beings who inhabit a cosmic “worm hole” and do not understand the concept of linear time. Sisko attempts to explain this concept to them, and the naïve-curious questioning of the aliens leads him to realize that the extent to which his past experiences are affecting his present life and distressing him. The aliens effectively engage in a form of Socratic dialogue with Benjamin Sisko, which highlights the contradictions in the thinking and behaviour of the commander.

Treatment of Post-Traumatic Stress Disorder

Depending on an individual patient’s requirements, the focus of cognitive behavioural treatment (see Margraf and Schneider 2009) depends on the elements of diagnostics and psychoeducation regarding the emergence and treatment of the disorders. Confrontation in sensu / in vivo, cognitive restructuring (reinterpretation of the traumatic experiences and the subsequent avoided situations) and the reduction of dysfunctional patterns of behaviour in general and safety behaviour in particular, are all aspects of therapy.

The purpose of the confrontation is to elaborate the traumatic memory and incorporate the event into autobiographic memory. This internalization of the traumatic event is designed to decrease incidences of reliving. Because of their telepathic abilities, the worm hole beings can visualize for Commander Sisko the situations of emotional importance that keep him preoccupied. Hence, Sisko repeatedly finds himself on the damaged spaceship where he witnesses his wife’s death. Initially, his response is indignation because the aliens repeatedly confront him

with the traumatic situation. However, the beings respond with the words “We do not bring you here”, “You bring us here”. Thus, they reflect the commander’s own mental attachment to the situation and his associated reliving of it. Through this method of telepathic confrontation, which feels very real for the commander, Benjamin Sisko realizes “I never left this ship”, to which the aliens respond with the words “You exist here”.

Commander Sisko asks the beings for an opportunity to telepathically show them other experiences. The beings respond with two sentences of high cognitive-disputative meaning: “We cannot give you what you deny yourself. Look for solutions from within, Commander”. The aliens emphasize the responsibility of the sufferer to make the decision to process the traumatic experience. They further question in this Socratic manner his assumption that he should have died with his wife, or rather, his inability to imagine a life without her. Commander Sisko had merely intended to explain the unfamiliar concept of linear time to the aliens. In response, however, they highlight that Sisko does not follow this concept in his own life. Because of his emotional attachment to the traumatic moment, he is emotionally stagnant and cannot continue his life in a linear manner.

Consistent with this insight, a dismantling of dysfunctional behaviours and the reinterpretation of the traumatic events, follow. Commander Sisko begins, likely for the first time, to openly discuss the events. His strategy of avoidance until then had been, among other strategies, to suppress the emotional reaction to his wife’s death. In tears, he tells the aliens of his pain and openly identifies symptoms such as reliving the events and flashbacks, and experiences visible emotional relief. This initial change in how he engages with his traumatic experience is reflected in the following scenes, in which Sisko interacts with Captain Picard in a relaxed manner and decides to accept rather than decline a new professional challenge.

The Star Trek episodes of the late 1990s show a change from the episodes of the 1960s in terms of the treatment of grief and pain. Regarding TOS, Spock erases the painful memories and associated grief Kirk feels over his wife’s death from his memory. Spock, however, enforces this action without Kirk’s permission or even knowledge (“The Paradise Syndrome”, season 3, episode 3). Rather than avoiding pain and grief, DS9 shows the importance of confronting these emotions to improve one’s quality of life in the long-term. Geraghty (2007) summarized this supportive, even role-modelling aspect of Star Trek by asserting that Star Trek offers “life lessons” for difficult life events, such as deaths of loved ones. His analysis of fan mail showed that Star Trek, or rather its positivistic ideology and certain protagonists’ fate, played a central role in viewers’ processing of their own trauma and

healing processes (p. 109). Geraghty (2007) emphasized that the Star Trek franchise “provides social connectedness integral to the healing process, whether it be mental, physical, or a combination of the two” (p. 122).

Discussion

Our results traced a specific profile of the frequency distribution of psychological disorders. The results showed that psychological disorders and associated treatments were portrayed in an increasingly realistic manner based on current cognitive behavioural approaches. Negative stigmatization decreased over the decades of production.

We conclude that Star Trek material produced between the late 1960s and the turn of the millennium highlights society’s changing attitude towards psychological phenomena. At the same time, Star Trek prompted transformation. Geraghty (2007) frequently emphasized the series’ transformative power on fans’ everyday life. He even argued that Star Trek connects with its viewers on a deeply emotional level (p. 6) and offers them guidance, assistance and coping mechanisms for the trials of everyday life (p. 13, p. 106). The different series therefore provide their spectators with a metaphorical screen on which to project the processing and subsequent improvement of emotional distress. Roddenberry’s initial utopia depicted a version of humanity that was willing to change for the better and strove to help themselves. This change becomes evident in the original Star Trek’s treatment of psychological disorders. Weaknesses or disorders are managed in a swift and effective fashion according to the social norms of the late 1960s, enabling the patient to strive for perfection. However, the show’s treatment of human reactions to distressing events changes towards the turn of the millennium. Although Star Trek’s core message remains the individual pursuit of improvement and personal development, fictional societies of the later series treat weaknesses or illnesses with more compassion and willingness to assist. Psychological phenomena are depicted as increasingly less stigmatized. At the same time, the necessity of treatment is not disregarded but instead is portrayed as a helpful tool to alleviate suffering.

According to Geraghty (2007), the Star Trek universe offers an exemplary therapeutic approach for the viewer through certain episodes or experiences of individual protagonists. Therefore, we argue that specific episodes or scenes can serve as positive role models for a patient undergoing psychological treatments.

Generally, in an era in which entire societies revolve around the aggressive success of the individual and the exclusion of individuals perceived as being “different”, moral and ethical guidelines and optimistic utopias are needed more than

ever. Positive models, such as Star Trek, can provide hope for the future by showing that humans can transcend their limitations to advance both themselves and the community. We can observe the potential for the use of certain televised material as a positive role model in therapy and for society in general.

Limitations

Structured prevalence rate research did not exist until the late 1970s. Therefore, our interpretation of the data constitutes a thought experiment because we apply contemporary prevalence rates to data from the 1960s, 1980s, and 1990s. We must further note that our diagnoses are based on the ICD-10 (International Classification of Diseases 2010), whereas scientifically based prevalence results are usually based on diagnostic measures according to the DSM-IV (American Psychiatric Association 2000). We have little information regarding symptom manifestations during childhood and teenage years, which could have been significant for some diagnoses.

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Compliance with Ethical Standards

Conflict of Interest Author M. Basilowski declares that she has no conflict of interest. Author B. Schönfeld declares that she has no conflict of interest. Author S. Esser declares that she has no conflict of interest. Author A. Jatho declares that she has no conflict of interest. Author M. Kownatka declares that she has no conflict of interest. Author J. Signerski-Krieger declares that he has no conflict of interest. Author H. Esselmann declares that he has no conflict of interest. Author M. Grabemann declares that he has no conflict of interest. Author C. Mette declares that he has no conflict of interest. Author L. Strunz declares that she has no conflict of interest. Author M. Zimmermann declares that he has no conflict of interest. Author E. Lajszak declares that he has no conflict of interest. Author N. Scherbaum declares that he has no conflict of interest. Author J. Wiltfang declares that he has no conflict of interest. Author B. Kis declares that he has no conflict of interest. Author M. Abdel-Hamid declares that she has no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

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