



A Review of Research Studying Film and Television Representations of ASD

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Abstract

An increasing number of characters with autism spectrum disorder (ASD) are appearing in film and television, leading to increased public perceptions of ASD. This review examined the current state of research focused on ASD representations in film and television, and the extent to which characterizations of ASD have been studied. Eighty-seven characters with ASD were discussed across the 26 articles. Characters were culturally and linguistically diverse, and portrayals of ASD appear to be moving away from typical disability-tropes. Researchers studying ASD portrayals were also culturally and academically diverse, with the majority representing fields outside of traditional ASD research disciplines. Connecting diverse methodological procedures may be a useful next-step to enhance empirical studies of ASD representations.

Keywords Autism spectrum disorder · Film · TV · Media · Autistic representation

Autism spectrum disorder (ASD) is a neurodevelopmental disorder in which individuals with the diagnosis present with social communication challenges and restricted interests and repetitive behaviors. There has been a dramatic increase in the prevalence of ASD over the past two decades, with current prevalence rates showing 1 in 58 children are being diagnosed with ASD in the USA (Baio et al., 2018; Lord et al., 2020). In response to the increase of ASD, or perhaps in acknowledgement of the increased prevalence, media representations of ASD have also increased (Conn & Bhugra, 2012). This surge of new films and television shows present characters with ASD who are now seen as a part of the pop-culture (Rohr, 2015; Veltman, 2009). Movies and television shows are able to extend ASD awareness and messaging by reaching an audience that far exceeds academic journals (Garner et al., 2015). Yet, these representations may serve as a double-edged sword. On the one hand, a wider audience has the potential to extend awareness and inclusion. On the other hand, inaccurate or narrow portrayals may also perpetuate misinformation. As such, there is a need

for ongoing research to examine representations of ASD, and the extent to which these portrayals represent authentic lived-experiences.

People with disabilities are a historically marginalized group, and the ways in which disability is portrayed in the media help to shape audience perceptions about disability groups (Berger, 2018). Looking at the wider field of disability studies research, media portrayals of disability have perpetuated negative and positive assumptions about disability, and have disproportionately extended stereotypes about disability characteristics (Berger, 2017). Television and film portrayals of ASD can be useful, because despite the increased prevalence, many people still have not had direct substantive contact or personal experience with individuals with ASD. Many people form personal perceptions of ASD based on the characters they observe on the screen (Perse & Rubin, 1987; Nordahl-Hansen et al., 2018a). Parasocial interactions, in which the viewer cognitively forms a one-sided relationship with the character on the screen, allow viewers to feel a sense of personal experience and connection with a fictional character with ASD (Perse & Rubin, 1989; Rubin & McHugh, 1987). Parasocial relationships with film and television characters with ASD are influenced by the way that ASD is represented on screen, and by the ways in which characters with ASD interact with their environment. Thus, ASD representations shape audience perceptions and knowledge of ASD.

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There has been some criticism about how ASD has been portrayed (Singer, 2017). One common criticism of these fictional portrayals is that the existing characters with ASD represent a narrow scope of the disorder with only white males in their 20 s and 30 s with savant skills (Singer, 2017), and these representations may be less relatable to cross cultural audiences. Another criticism is that savantism is overrepresented in portrayals of characters with ASD (Nordahl-Hansen et al., 2018a), even though the prevalence of savantism occurs in fewer than one in three individuals with ASD (Howlin et al., 2009). This overrepresentation of savantism inadvertently shapes misperceptions about individuals with ASD—many people assume that people with ASD have savant skills, and that is often not the case. These misrepresentations are common and can shape distorted public perception as well as lead to stereotypical thinking and stigmatization (Draaisma, 2009). Furthermore, in a study where fictional film and TV characters with ASD were evaluated against DSM-5 symptoms, a clear trend was that most characters had close to all symptoms listed in the diagnostic manual (Nordahl-Hansen et al., 2018b), which is far from the clinical picture seen in the real world. Given the criticisms of ASD representations in film and television, more research is needed to examine the cultural diversity around ASD representations, both in terms of television and film portrayals, and the academic fields that study these portrayals.

Looking Beyond Traditional ASD Research Fields

Empirical research examining ASD representations in the media extends beyond traditional ASD research fields. Film and television production, for example, uses a multidisciplinary approach when creating characters, and in marketing the shows. Given the variety of perspectives involved in the production of these characters, research examining ASD representations also extends beyond disciplines that traditionally study ASD. However, to our knowledge, no studies have mapped and systematized the possible diversity of research on ASD portrayals on film and TV. A scoping review informing researchers, practitioners, and stakeholders of the available research on this topic is important moving forward for two key reasons. First, it is necessary for future research endeavors to take into account what has already been done as well as to assess the status quo of the field. Second, as research on portrayals of ASD on TV and film, and in broader media as well is relatively new, it is important to inform the research community about the emerging research field. Thus, the purpose of this paper is to analyze the current state of research that is focused on film and television representations of ASD, and to understand the diversity of

scholars who pursue this work. This research seeks to investigate how characters with ASD are being studied across disciplines, by asking the following research questions: (1) What is the current state of research examining ASD in film and television? (2) How is ASD representation in film and television being studied?, and (3) What are the demographic attributes of the characters with ASD discussed in the articles included in this review?

Methods

We conducted a systematic search of the research literature to find empirical studies addressing ASD on film or television. The literature search was conducted by an information retrieval specialist at one university (Østfold University College) in April, 2020. A selection of broad data bases covering publications from various disciplines were used to ensure a comprehensive search. The databases were the following; PubMed, PsycINFO, ERIC, Web of Science, and Scopus. An example search string including Boolean operators is as follows; Autism OR Autistic OR asd OR Asperger* OR Pervasive development* disorder* OR pdd OR pdd-nos AND Film OR Movie OR Cinema OR TV OR Television.

Inclusion and Exclusion Criteria

Articles were screened using the following inclusion criteria; first, studies and letters to the editor must have been published in scientific journals, and either written in English or an English translation was available. Second, the article focused on film or television portrayals of ASD, such that a character or characters with ASD were the focus of the article. Third, the focus character with ASD was played by an actor, thereby excluding articles about reality television or documentaries. There were no time period restrictions set for the search.

Screening and Selection

The search yielded 1560 (2020), totaling 865 after the removal of duplicates. Four additional articles were removed because they were not written in English, and no translation was available. One article was removed because we were unable to get access to the article and the author is deceased. Another article was removed due to lack of access and a subsequent lack of response from the author. The first author read through the title and abstract of 861 articles and excluded articles that obviously did not meet criteria. This initial screening yielded 53 articles. In the second phase of screening, both authors screened title and abstracts of the publications. Inter-rater reliability between two coders was assessed using intraclass correlation coefficient for the 53

articles ($ICC=0.85$). Disagreement on the remaining three articles was resolved through consensus after reading each of the articles in their entirety. The final search yielded 26 articles, which were coded by both authors and included in this study (Fig. 1).

Analysis

Articles were coded for the following parameters: (a) method and study design, (b) authors' academic field, participant location (film or television show country of origin), (c) author's country of origin, (d) total participants (character with ASD), (e) and (f) participant demographic characteristics, including age-range, ethnicity, sex, LGBT-QIA + identity, cognitive ability, language, and savantism. Thematic features included the article focus as it relates to the portrayal of ASD in film and television.

Results

Publications that focused on characters with ASD include literature reviews ($n=7$), single character case study ($n=8$), comparative case study of two or more characters ($n=8$), and quantitative analysis of ASD trait endorsement ($n=2$). Researchers represented diverse academic fields that

extended beyond traditional ASD research, also revealing diverse methodological procedures and theoretical frameworks used to examine ASD representations across disciplines. Academic areas included the following: American Studies, Asian Diaspora, Education, Emergency Medicine, English, Film, Mass Communication, Journalism, Psychology, Psychiatry, Sociology, and Spanish. The type of journal extended beyond traditional ASD-specific journals; articles were published in journals focused on Psychiatry ($n=5$), Cultural Studies ($n=3$), Communications ($n=3$), ASD ($n=2$), Culture and Mental Health ($n=2$), Media Studies ($n=2$), Medicine ($n=2$), Medical Humanities ($n=2$), Developmental Disabilities ($n=1$), Disability Studies (1), Biological Sciences ($n=1$), Sociology ($n=1$), and Semantics ($n=1$). Researchers studying ASD representations were also from diverse geographical backgrounds. Countries of origin included Australia, Canada, Germany, India, Norway, Spain, The Netherlands, Turkey, the UK, and the USA (Table 1).

Eighty-seven characters with ASD from film and television shows were discussed across the 25 articles (see Fig. 2). Raymond Babbitt from *Rain Man* was discussed most frequently across the articles (36%), followed by Donald and Isabelle from *Mozart and the Whale* (25%), by Linda from *Snowflake* (21%), and Adam from *Adam* (21%) (Fig. 2). Television and film productions primarily

Fig. 1 Flowchart of the search process

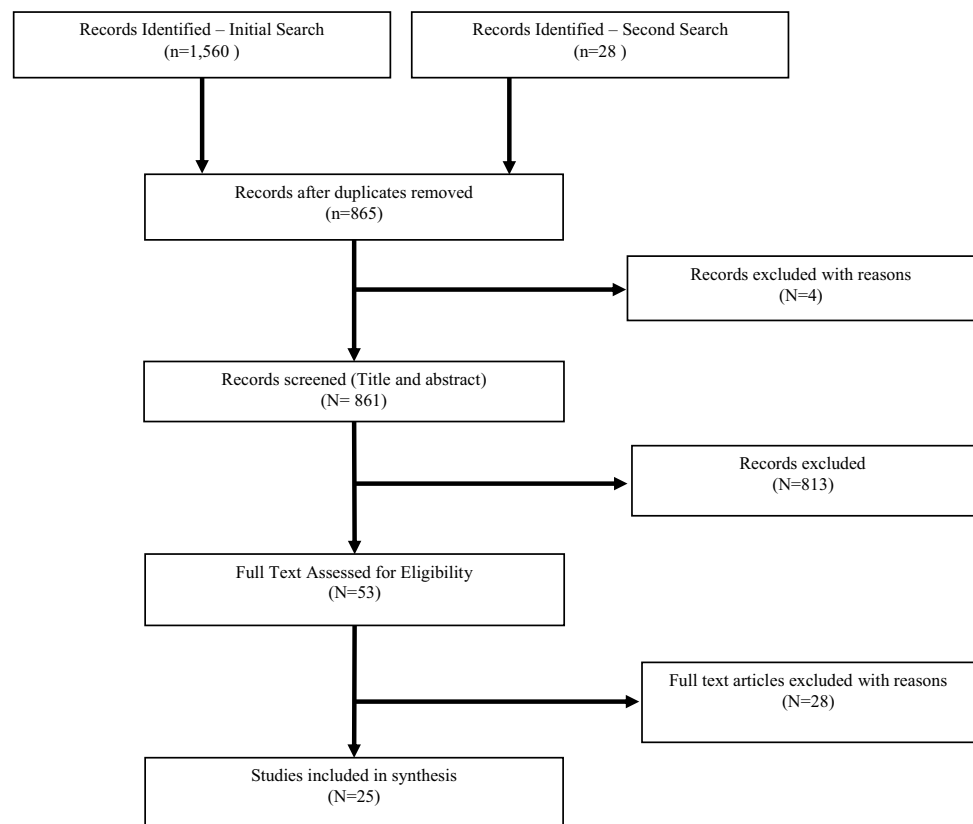


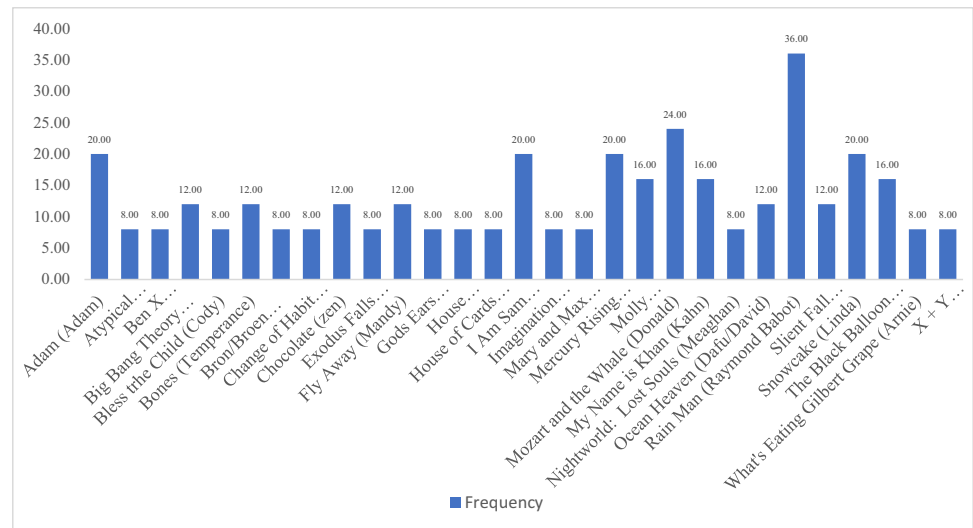
Table 1 Descriptive characteristics of articles

Authors	Study design and method	Main focus	Production country	Main field	Study country of origin
Acosta-Alzuru, 2013	Case study Qualitative	Case study of the creation of a female soap opera character with ASD	VEN	Journalism and mass media	USA
Allen, 2017	Exploratory comparative Qualitative	An analysis of narratives about mothers with children with ASD	USA	American Studies	USA
Banos, 2018	N/A	Autism portrayal in <i>The Good Doctor</i>	USA	Neurology	UK
Baron-Cohen, 2015	N/A	Autism portrayal in <i>X + Y</i>	UK; CHN; SWE	Psychology	UK
Conn & Bhugra, 2012	Grounded theory analysis Qualitative	Hollywood film portrayals of ASD	AUS; CAN; IND; USA	Emergency Medicine & Psychiatry	UK
Draaisma, 2009	Case study Qualitative	An analysis of ASD stereotyped representations in popular media	USA	Psychology and Philosophy	NLD
Ejaz (2019)	Qualitative	Cross cultural comparison of ASD representation	USA; IND	Communications	USA
Garner, 2015	Diagnostic analysis of ASD symptoms portrayed in film Quantitative	ASD symptomology relative to the actual population with a diagnosis	USA	Education; Social Sciences	AUS
Holton, 2013	Case study Qualitative	ASD representation in the show "Parenthood"	USA	Communications	USA
Ignagni, 2009	N/A	The growing prevalence of autism in mainstream media	USA	Disability Studies	CAN
Levin & Schlozman, 2006	Case study Qualitative	ASD symptomology in <i>Napoleon Dynamite</i>	UK; CHN; SWE	Psychiatry	USA
Ma, 2016	Comparative Case Study Analysis Qualitative	An analysis of Asian representations utilized with characters with ASD	AUS	Asian Diaspora; Asian American Literature and Film	USA
McCulloch, 2008	N/A	ASD representation in the film <i>Black Balloon</i>	SWE	Psychiatry	UK
McHugh, 2018	Case study Qualitative	An analysis of the gaze patterns of a female character with ASD	USA	English/Film	USA
Nordahl-Hansen, 2017	N/A	Atypical: TV representation of autism	USA	Special Education	NOR
Nordahl-Hansen et al., 2018a	N/A	The benefit and barriers of ASD representations on film and television	USA	Special Education; Psychology	NOR; USA; UK

Table 1 (continued)

Authors	Study design and method	Main focus	Production country	Main field	Study country of origin
Nordahl-Hansen et al., 2018b	Analysis of ASD symptoms portrayed in film and TV Qualitative	An analysis of autism symptomology in film and television	AUS; BEL; CAN; CHN; DNK; IND; LUX; SWE; THA; UK; USA	Special Education; Psychology	NOR; UK
Poe & Moseley, 2016	Case study Qualitative	An analysis of ASD representation on three primetime TV dramas	USA	Communications	USA
Raya et al., 2018	Case study Qualitative	An analysis of ASD representations in "Teen TV"	USA	Communications	ESP
Rohr, 2015	Case study Qualitative	An analysis of ASD representations in comparison to traditional depictions of madness	USA	American Studies	DEU
Rourke & McGloine, 2019	Case study Qualitative	An analysis of Sheldon Cooper	USA; FRA	Communications	USA
Selimovic, 2015	Case study Qualitative	An analysis of social spaces throughout the presence of a character with ASD	USA	Spanish	USA
Tharian et al., 2019	Case study Qualitative	Analysis of media representations of women and girls with ASD	IND; KOR; SRB; UK; USA	Psychiatry	UK
Turkmen, 2015	Case study Qualitative	Analysis of ASD trait endorsement in one character	USA	Sociology	TUR
Veltman, 2009	N/A	Adam: A shift in ASD representation since Rain Man	IND	Journalism	USA
Winston, 2016	Case study Qualitative	An analysis of genius character traits presented in Sheldon Cooper	USA	Psychology	IND

Fig. 2 Percentage of articles discussing film or television show



originated in the USA (56%). Film and television representations of ASD were also produced in the UK (8%), India (6%), Sweden (5%), Canada (5%), China (4%), Australia (2%), and France (2%); Argentina, Belgium, Finland, Germany, Hungary, Indonesia, South Korea, New Zealand, Serbia, and Venezuela each produced one film or television show with a character with ASD (Table 1).

Characters were predominantly white/Caucasian (76.5%), followed by Asian (12.9%), Black/African American (7.1%), and Latin (3.5). About one-half of the characters with ASD were male (52.9%) or female (47.1%). LGBTQIA+ identity descriptions were not available for 52.2% of the sample. Of the remaining characters, two were described as LGBTQIA+ (8.0%), while the remaining of 39.8% of the characters were described as having heterosexual relationships. Characters were categorized into the following age-cohorts: (a) child (22.0%), (b) adolescent (34.1%), (c) young adult (35.2%), (d) middle-aged (8.7%), and senior (0%). The story arch of five characters spanned across two age categories (i.e., adolescent and young adult), and these characters therefore were entered into both categories. A majority of the characters with ASD were described as having average or above average intelligence (73.3%), while the descriptions of 22.1% of characters indicated cognitive impairment; cognitive level was not described in the remaining characters (4.6%). Language abilities were described in most characters, with 71.8% of the characters described as speaking and 24.7% of characters were described as minimally speaking or non-speaking; language was not described in 3.5% of the sample. Savant skills were described in 35.5% of the sample.

Discussion

This study sought to examine the current state of research related to film and television representations of ASD, and to explore diversity across the academic disciplines that study these representations. This systematic review of the literature—which, to our knowledge, is the first of its kind—provided a thorough overview of how ASD characters have been studied. Our findings suggest that studies that focus on ASD representation in film and television primarily originate from academic disciplines outside of traditional ASD research fields. The wide range across disciplines allows for a variety of perspectives and interpretations about ASD representations. Although stereotypical patterns were evident in the ASD representations included in this review, a burgeoning diversity among ASD representations was also revealed. These findings are important because they highlight the diversity that exists within the fields that create and study characters with ASD. The multidisciplinary approaches to character analysis reveal patterns across ASD representations that otherwise might have been missed using a single-disciplinary lens. Knowledge about current research methodologies may be beneficial to stakeholders within the ASD community, who are invested in increasing awareness and acceptance of ASD through the promotion of positive ASD messaging and authentic representations.

Although no time restrictions were used in the search of studies, the first publication dated back to 2006, indicating a fairly new research interest in character portrayals with ASD. The increasing number of characters with ASD in film and television is building a modernized view of disability, with a growing diversity of characters

with ASD who are situated within and across a variety of contexts. Findings from this review suggest that it is *the new normal* to see ASD characters in film and television (Rohr, 2019; Ignagni, 2009; Veltman, 2009). Although some narrowly focused representations still exist, an increasing number of ASD representations appear to be deviating away from historically common disability-tropes (Rohr, 2019; Ignagni, 2009). Past disability-tropes, for example, tend to over-emphasize one personality trait for dramatic effect, which can lead to misperceptions about the disability—not all people with disabilities exude these specific traits (like individuals with ASD and savantism)—so the portrayals can be misleading (Berger, 2017; Rourke & McGloin, 2019; Winston, 2016). Other ASD representations move beyond common disability tropes and present more nuanced and complex characters. Some ASD-related tropes articulated in our analysis include, for example, the *Asiatic Aspie*, who cherishes Asian cultural symbolism (Ma, 2016), the empowered woman (McHugh, 2018; Tharian et al., 2019), whose ASD trait endorsement contribute to professional successes, and the American teenager/emerging adult (Raya et al., 2018; Veltman, 2009), who has developmentally appropriate challenges and aspirations.

ASD representations in the media do not solely rest on the extent to which an actor endorses the ASD behavioral phenotype. Film and television industries use multidisciplinary approaches to create characters with ASD—the cinematic lens, the script, editing, and acting are all different mediums that are used to show how a character with ASD interacts with the environment and with other characters. In line with this approach, our research suggests that it is also beneficial for researchers to look across scholarly disciplines when examining these portrayals. While some studies looked at character endorsement of ASD behaviors (Garner et al., 2015; Nordahl-Hansen et al., 2018b), scholars outside of traditional ASD research fields utilized methodologies that enabled the examination of, for example, (a) cinematic perspective (McHugh, 2018; Selimovic, 2015), (b) messaging, or the information about ASD that is conveyed through ASD characters and storylines (Allen, 2017; Draaisma, 2009; Holton, 2013; Ma, 2016; Rohr, 2015), and the (c) character development processes (Acosta-Alzuru, 2013; Raya et al., 2018). So, while typical ASD-related research fields tend to examine the extent to which characters endorse the behavioral phenotype of ASD, other disciplines tend to look more broadly at cinematic technique or communications-messaging. The distinct, yet overlapping, methods of study suggest that interdisciplinary research collaborations may be a useful next step to enhance future research examining ASD representations.

The diversity of study around ASD representations may play an important role in our understanding of how film and

television representations of ASD shape audience perceptions. Selimovic (2015) provided an example of cinematic analysis. The author examined ASD representation in a young female character living in a rural Argentine society and found that the cinematic production (camera angles) were the primary tool to represent the social isolation that the young, female character with ASD experienced in the film. Using a different methodology, Allen (2017) examined the model of ASD family dynamics that were represented in three films. Findings suggested that maternal dialogue revealed maladaptive maternal coping behaviors, and the negative coping appeared to be the result of having a child with ASD. The way that ASD was represented in these films suggested that having a child with ASD negatively affects maternal experience. This representation, then, reinforces outdated messaging about mothers of children with ASD and concomitantly promulgates misleading messaging about ASD family dynamics. In thinking about these two examples, if researchers had only measured ASD-trait-endorsement, important aspects about how ASD was represented would be overlooked. These two examples, then, highlight the need for researchers to utilize multidisciplinary approaches to examine ASD representations. While ASD researchers have the clinical tools to examine trait authenticity (Garner et al., 2015; Nordahl-Hansen et al., 2018b), other fields use research methods that are designed to capture different types of nuance in ASD representation. Capitalizing on the academic and cultural diversity surrounding the study of ASD representations could further our understanding about the impact of these portrayals and the subsequent messaging about ASD that audiences receive.

The analysis revealed patterns of underrepresentation of characters with ASD from minority groups, and this pattern is consistent with the historic underrepresentation of minority groups in popular film production (Annenberg Inclusion Initiative, 2020). Most of the characters discussed in the selected articles were white/Caucasian; this over representation may perpetuate a stereotype that ASD primarily exists in white/Caucasian communities. The underrepresentation of characters with ASD of color echoes existing disparities within ASD communities—individuals with ASD of color also experience inequitable access to quality services (Harstad et al., 2013; Mandell et al., 2009). Similarly, characters who identify as LGBTQIA+ also have a history of being underrepresented in film (Annenberg Inclusion Initiative, 2020), and although the LGBTQIA+ data in this study are limited, characters with ASD included in this review appeared to follow a similar trend. The relationships of many characters conformed with heteronormative social norms; only two characters—both female—were described in terms of a non-binary identity. Given

the high rates of individuals with ASD identifying as LGBTQIA+ (Hall et al., 2020), interdisciplinary research is needed to examine how the relationships of characters with ASD are portrayed, as well as the extent to which the LGBTQIA+ identity is represented. Exploring and understanding stereotypes and patterns of underrepresentation may help to guide the future creation of a diverse body of authentic characters.

Despite the overrepresentation of white young adults, the findings also identified ways in which characters deviated away from the stereotyped portrayals. For example, there were nearly as many female characters with ASD discussed in the review as there were male characters. This finding is surprising due to the disproportionate ratio of males to females with and ASD diagnosis, as well as an under-representation of females in population-based research studies (Begeer et al., 2013). A growing body of research has identified gender differences in the social behaviors of males and females with ASD (Dean et al., 2017; Hull et al., 2019). As such, more research is needed to examine female portrayals of ASD, and to examine the extent to which existing portrayals embody a female versus male endorsement of ASD symptomatology. Although young adults were most represented, the characters overall represented a wide age range, spanning from early childhood to middle-age—although there was a total lack of representation in the senior category. ASD representations evinced some linguistic diversity. While most characters were speaking, nearly a quarter of characters were minimally speaking or non-speaking. Finally, the increasing number of international film and television productions with characters with ASD (Conn & Bhugra, 2012) highlights a growing cultural diversity of ASD representations. Indeed, the characters included in this study were representative of sixteen different countries and four different continents. Hollywood may have the largest impact on the film and television industry globally, but portrayals of ASD extend beyond the USA.

Movies and television shows are able to extend ASD awareness by reaching an audience that far exceeds academic journals. In addition to increasing ASD awareness among the general populations, media representations of ASD are often used as an educational tool in medical-training and education-training settings to cultivate experiences with an individual with ASD (Conn & Bhugra, 2012). Given this wide-spread reach of film and television portrayals, it is important for the ASD community to thoroughly examine the authenticity of these representations and the subsequent ASD messaging. More advocacies are needed to expand cultural and linguistically diverse representations. It also is important for ASD stakeholders to weigh in on ASD messaging—to validate

authentic representations, or to construct counter messaging for narrowly focused, stereotypical, or inaccurate representations.

Limitations

This review sought to understand the current body of research focused on portrayals of ASD in film and television. The list of characters with ASD discussed in this review was the focus of research studies; this list of characters is by no means comprehensive of all film and television characters with ASD. While a strength of this paper is the multidisciplinary review of research studying ASD portrayals, some disciplines may not be qualified to determine an ASD diagnosis; some portrayals may not have been intended to depict ASD, *per se*, but were nevertheless analyzed as a character with ASD. As a result, it is not certain that all characters included in this review would qualify as having ASD if more clinical assessment measures were used (i.e., Garner et al., 2015; Nordahl-Hansen et al., 2018a, b). These findings emphasize the benefit of a cross-disciplinary approach for future character analysis studies. A partnership between researchers with the clinical acumen to assess characteristics of ASD with researchers skilled in media analysis may provide the most thorough approach to the analysis of these characters.

Future Research

Our data suggest that no existing research focuses on the effect that film and television portrayals of characters with ASD have on audience perception. We suggest that future research investigate how audiences perceive portrayals of fictive characters and other content of individuals with ASD. Such studies (e.g., surveys) could increase understanding as to what degree and how audience perceptions might change for better or worse in terms of stereotypes, stigma, knowledge, and awareness towards individuals with ASD. Missing from our current understanding of portrayals of ASD is the perspective of individuals with ASD. Future studies that include individuals with ASD and other ASD stakeholder groups as participants are needed to contribute to larger discussions about ASD representation. Missing from the current review are studies including the perspective of individuals with ASD, whose lived experiences can be affected by increasing awareness as well as misinformation or stereotyped portrayals (Gillespie-Lynch et al., 2017).

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Declarations

Ethics Approval This study was a review of published research. As such, no ethical approval is required.

Conflict of Interest The authors declare no competing interests.

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