

Neurotypical Peers' Responses to the Dysregulation of Individuals with ASD in the Movies

Zlata Neshtenko

Saint Thomas Aquinas High School, Fort Lauderdale, USA

ABSTRACT

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that is associated with a variety of public opinions and beliefs, formed by exposure to individuals with the diagnosis, and representation in the media. To date, the representation of neurotypical peers' responses to individuals with ASD has not been studied in the media. The present study aims to examine how neurotypical individuals' responses to the emotional and behavioral dysregulation of their peers with ASD are portrayed in the movies of the last decade. Four movies depicting people of four different age groups were selected to be analyzed, and the scenes portraying interactions between individuals with ASD and neurotypical peers, in which either emotional or behavioral dysregulation was exhibited, were recorded and coded for type of dysregulation and nature and valence of peer response. Results showed that there was nearly an equal representation of the positive and negative peer responses, and some similar patterns in the interactions were found as well. Inconsistencies in the movie genre, the severity of autism symptoms, and the limited amount of the movies studied are potential limitations of the study. Future research is needed to understand how the depiction of interactions with people with ASD can influence public opinions and what educational role it can play.

Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition that impacts social communication and consists of restricted or repetitive behaviors or interest (Hirota & King, 2023). The symptoms are often observed during the first 12 months of a person's life, however, in some cases symptoms may not be noticed until later (Hirota & King, 2023). With the help of modern medicine and psychological intervention the severity of the symptoms may be reduced, and the patient might show improvements, yet ASD cannot be fully cured (Lord et al., 2020). Individuals with ASD often exhibit emotional dysregulation, which is an inability to control one's emotions and their expression (Dell'Osso et al., 2023). Emotional dysregulation presents in many ways, including frequent meltdowns, an inability to self-soothe, and difficulties with appropriately expressing emotions. Due to such visible symptoms, misunderstanding of the diagnosis, and limited quality and quantity interactions with people with ASD, social stigma has developed as a critical issue (Turnock et al., 2022).

Public opinions and beliefs about autism are formed and influenced by various factors. Proper education may influence people's beliefs about ASD and improve the current level of public awareness about it (Alsehemi et al., 2017). Exposure to and communication with people diagnosed with ASD can be effective in forming positive opinions about the disorder (Kitchin et al., 2022). Furthermore, in recent years, mass media has had a profound influence on how public opinions are formed on various topics (Hu & Zhu, 2015). There have been recent investigations of how ASD is portrayed in the media, such as TV shows, movies, or YouTube videos. For example, it was determined that ASD in social media is often portrayed as a severe disorder, rather than varying in severity (Bakombo et al., 2023). Additionally, the stigmatized view that people with ASD are unable to adequately perceive emotion is often portrayed, highlighting the significant influence that media has on the public opinions pertaining to the topic (Bakombo et al., 2023).

Featuring Autistic individuals in the media can productively educate people about ASD and how to respond to the differences and behaviors of people who have been diagnosed, yet it can also result in greater stigmatization. Although the portrayal of people with ASD in the media has been studied, the representation of the peer responses in media, such as movies, has not yet been evaluated. Given the literature suggesting that exposure to people with ASD can inform more positive opinions and attitudes, it is plausible that the portrayal of neurotypical peer responses may serve as a model for how to respond and interact with individuals with ASD. Thus, the current study aimed to examine how movies produced in the past decade portray the response of neurotypical peers to dysregulation exhibited by individuals with ASD. It is hypothesized that older neurotypical peers will engage in more prosocial reactions to the dysregulation of an individual with ASD. We also anticipated that younger children compared to adults are more likely to express the dislike or avoidance of children with ASD.

Methods

Procedures

Two reviewers searched International Movie Database (IMDB) for movies produced in the United States in the last decade. Possible movies were identified that contained a character with Autism Spectrum Disorder. Movies were then reviewed for the presence of a character with clearly identified ASD (i.e., ASD diagnosis is mentioned in movie synopsis). Movies were retained if a main character had a diagnosis of Autism Spectrum Disorder. From this pool of possible eligible movies, one movie was selected at random to represent different age groups (i.e., child, adolescent, young adult, adult). The final included movies were *Jack of the Red Hearts* (2015), *A Brilliant Young Mind* (2014), *Please Stand By* (2017), and *The Accountant* (2016).

Once movies were selected, each was reviewed for scenes that displayed social interactions between an individual with ASD and a neurotypical peer. Scenes were included for analysis if they included 1) the main character with Autism Spectrum Disorder, 2) who was interacting with a neurotypical peer, 3) and the individual with ASD exhibited emotion dysregulation, 4) and the neurotypical peer's response was displayed. Scenes were excluded if the interaction was primarily with a family member, or a caregiver who was providing direct care (e.g., helping to perform activities of daily living, providing medication or treatment).

A coding spreadsheet was developed by the primary and senior author. Each movie was watched in its entirety and timestamps were recorded for all scenes that met eligibility criteria. Narrative descriptions of scenes were generated immediately after scenes were observed. Included and excluded scenes were confirmed by the senior author. All scenes were then re-reviewed and the neurotypical peer responses were coded. This study was exempt from Institutional Review Board approval.

Measures

Dysregulation. The behavior displayed by the character with ASD was coded as *behavioral* or *emotional dysregulation*. Behavioral dysregulation refers to difficulty controlling or managing actions in response to situations, often leading to impulsive or inappropriate behavior. Emotional dysregulation is the inability to effectively manage or respond to emotional experiences, resulting in intense or poorly controlled emotional reactions.

In order to most effectively measure the exhibited dysregulation, a coding scheme was developed by the senior author. The neurotypical peer's response in each scene was coded for valence and nature. Valence was determined to be positive, neutral, or negative and the nature of response was coded as behavioral or emotional.

Valence. Valence refers to the positive or negative characteristics of an emotional or behavioral response or stimulus. Peer responses were coded by characteristics defined as positive, neutral, or negative. Positive responses

included prosocial behaviors, such as offering support or empathy. Neutral responses included disengagement or ignoring dysregulation. Negative responses included physical aggression, judgment, or fear.

Nature of response. Nature of response categorizes the type of response and refers to observable actions or expression of internal states. Peer responses were coded as behavioral or emotional. Behavioral responses included both positive and negative reactions, including offering physical support (e.g., a hug, help) or physical aggression. Emotional responses included both positive and negative reactions, including sympathy and concern or fear and frustration.

In order to extract the data the movies were watched in full, and the scene time stamps were collected for those that met inclusion criteria. Narrative descriptions of scene, dysregulation, and neurotypical peer response were recorded. Dysregulation was coded as emotional or behavioral and peer response was coded for valence and nature.

Results

Four movies were selected to represent a child, an adolescent, a young adult, and an adult with ASD. Each differed in the genres and content, depicting the lives of the individuals with ASD of different ages, and interactions with their peers. *Jack of the Red Hearts* (2015) is an American film by Janet Grillo, telling the story of a 18-year-old girl Jack, who pretends to be a professional caregiver in order to provide for herself and her younger sister. She starts taking care of an 11-year-old, Glory, who has a severe form of ASD, effectively helping her to prepare for an interview to a special needs school. *A Brilliant Young Mind* (2014), directed by Morgan Matthews, is a story of Nathan, a talented teenager, who has ASD and possesses exceptional math skills. He is being chosen to go to an International Math Olympiad, where he gets the sense of youth experiences such as high competition and falling in love. In the movie, *Please Stand By* (2017) by Ben Lewin, Autistic 21-year-old woman Wendy has a Star Trek obsession and decides to participate in the scriptwriting contest for the show, for which she is ready to make the most challenging trip of her life. The last movie, *The Accountant* (2016), directed by Gavin O'Connor, tells the story of a man Christian Wolff, who has ASD and has a talent in accounting. However, he also works for hire for various criminal organizations and gets involved in a conspiracy during the course of the movie.

Summary of Scenes

There was great variability in the valence and nature of neurotypical peer responses across movies. There were 9 scenes of emotional dysregulation and 8 scenes of behavioral dysregulation. This dysregulation was met with 8 emotional responses and 9 behavioral responses, although the relationship was not one-to-one (e.g., 29% of scenes did not have behavioral and emotional correspondence). Overall, the neurotypical peer responses tended to be negatively or positively valenced, with only one reaction classified as neutral.

Developmental Considerations

There were more instances of behavioral dysregulation (4) and behavioral responses (5) in the young child film, compared to the teen (none) or young adult film (2 and 1). However, *The Accountant*, which depicted an adult with ASD, also included primarily behavioral dysregulation and behavioral responses. This is likely due to a difference in the genre of the films, rather than a true developmental difference. Despite the fact that all of the movies fall into the genre of drama, *The Accountant* (2016) also falls into the categories of action, crime and thriller, implying that more scenes involving violence would be present, which may prompt more behavioral responses.

In terms of the valence of responses, the child movie included responses across positive (4), neutral (1), and negative characteristics (3). These responses ranged from ignoring dysregulation, responding with physical aggression, and offering physical support (e.g., offering alternative objects) and empathy. In the teen movie, there was both

a positive response of emotional empathy and concern (1 scene), and a negative response of mocking and teasing (1 scene). In the young adult movie, there were more instances of positive responses that included empathy and physical support (3 scenes). There was one instance of a negative reaction of fear during a peer's first interaction with the young adult with ASD (1 scene). In the adult movie, there were only negative responses of fear or physical aggression (3 scenes). Again, *The Accountant* was an action movie, which may bias the types of interactions that are depicted.

Table 1. Movie characteristics

Movie Title	Year Released	Character with ASD*	Neurotypical Character*	Setting	Frequency of Included Dysregulation Scenes	Duration of Dysregulation Scenes
Jack of the Red Hearts	2015	Glory(11), female	Jack (18), female	Special education institutions, Glory's family's home	1 scene per every 23.75 mins of the movie	27.75 sec (6 sec - 77 sec)
A Brilliant Young Mind	2014	Nathan(14), male	Zhang Mei (14), female Teammates (~14-15), males	School setting, International Math competition in China	1 scene per every 55.5 mins of the movie	17 sec (8 sec - 26 sec)
Please Stand By	2017	Wendy(21), female	Scottie(~40), female Paramount Pictures worker (~40), male	Group home, San Francisco's streets, California's highways	1 scene per every 23.5 mins of the movie	27.75 sec (6 sec - 49 sec)
The Accountant	2016	Christian Wolff(~30-35), male	Married couple (~50), male & female, Group of peers (~10-15), males Police officers (~30), males	Large corporation, criminal organizations	1 scene per every 42.67 mins of the movie	31.33 sec (5 sec - 77 sec)

*Note: Ages are reported as stated in the movie, or approximate estimates if not explicitly stated.

Table 2. Behavioral Dysregulation coding

Movie Title	Behavioral Dysregulation	Positive	Neutral	Negative	Behavioral Response	Emotional Response
Jack of the Red Hearts (Child)	4	2	1	1	3	1
A Brilliant Young Mind (Teen)	0	0	0	0	0	0

Please Stand By (Young Adult)	2	2	0	0	1	1
The Accountant (Adult)	2	0	0	2	1	1
Total	8	4	1	3	5	3

Table 3. Emotional Dysregulation coding

Movie Title	Emotional Dysregulation	Positive	Neutral	Negative	Behavioral Response	Emotional Response
Jack of the Red Hearts (Child)	4	2	0	2	2	2
A Brilliant Young Mind (Teen)	2	1	0	1	0	2
Please Stand By (Young Adult)	2	1	0	1	0	2
The Accountant (Adult)	1	0	0	1	1	0
Total	9	4	0	5	3	6

Discussion

Behavioral and emotional dysregulation are depicted in films that focus on a main character with ASD. Neurotypical peer responses vary greatly, with almost equal representation of negative and positive responses across selected movies. There appears to be some correspondence between the type of dysregulation (i.e., behavioral or emotional) and the type of peer response (i.e., behavioral or emotional) that are depicted, although this is not always consistent. There is also a potential developmental effect, with more behavioral dysregulation depicted among the youngest characters with ASD. However, the movie genre also appears to have an important role in how these interactions are illustrated, such that the movie centered on an adult with ASD was an action movie and included only scenes of intense behavioral dysregulation and negative behavioral peer responses.

Findings from this study should be considered in light of a few limitations pertaining to the chosen movies, their quantity, the inclusion criterias used for the scenes and the coding method. Scenes of dysregulation appeared more frequently across the movies than were included in the present study. However, additional scenes were excluded due to the engagement of a parent in the interaction, involvement of direct care-taking tasks, or a non-peer (e.g., different developmental stage) interaction. This influenced the number of the scenes from which the data was collected, decreasing it and not allowing to fully record the nature of the actions and responses of the individual with ASD. Additionally, the movie genres were not controlled for, and therefore, the type of movie and plot likely contributed to differences in portrayal of dysregulation and peer responses due to the specific traits typical for a certain movie genre. For example, in the action movie *The Accountant* multiple scenes portraying violence were included, resulting in the larger number of behavioral dysregulation and negative behavioral peer responses. Additionally, severity of

ASD symptoms were also not controlled for, which may introduce bias into the frequency of dysregulation and peer responses, and also make it difficult to compare the movies between each other. Residential situations, living independence, and caregiving support also differed across characters, which might have influenced the exhibited attitudes and reactions of the peers, which could be caused by the lack of education or other factors. Also, only one movie per age group was included, providing only a single example of behavioral scenarios, exhibited by a person with ASD of that age group, limiting the perception and understanding of their behavioral patterns and peer interactions. The limitations were also present during the coding stage as there was only one coder, which makes it impossible to compare the different views on the scenes present in the movies and the situations they portrayed.

The conducted research had not supported the hypothesis about the older individuals' engagement in more prosocial and positive interactions with their peers with ASD. It could not be supported as we saw more positive responses in the movie with the child, the teen, and the young adult with ASD, in comparison to the absolute absence of any positive peer reactions in the movie with an adult. Such results were likely due to the limitations of the study such as the single movie being chosen per age group and the differing movie genres across the groups, which did not allow for clear comparisons between the represented age groups. The findings show that there is a portrayal of a variety of scenarios and interactions between the people with ASD and their neurotypical peers in the movies released in the past decade. This signifies that the audience is being exposed to the different aspects of interactions with people with ASD, which allows them to see a more realistic picture of how a potential interaction with a person with ASD might go. The movies can serve as good educational material when the positive ways of interacting with a person with ASD of any age are displayed. Furthermore, it is already established that exposure to individuals with ASD and media representation influence attitudes about ASD among neurotypical peers, however, it is not clear what is the exact influence of such an exposure and how it contributes to how peers learn to respond to individuals with ASD (Bakombo et al., 2023). Media exposure may be the first experience of someone with ASD, and if it is not portrayed pleasantly or in a positive light, it might be a discouragement for one to try to engage in a conversation or any other kind of interaction with a peer, exhibiting the signs of ASD. The next step of the study would include the evaluation of the effects of different portrayals of neurotypical peer responses on peer attitudes in real-life. This could provide more information on how to more efficiently educate people about the correct and appropriate way to interact with their peers with ASD, in addition to spreading general awareness on the issue, which could make the lives of those diagnosed with ASD easier.

Acknowledgments

I would like to thank my advisor for the valuable insight provided to me on this topic.

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