



# How Are Autism Spectrum Disorder and Savant Skills Treated in Cinematographic Works? A Study Focusing on Korean Movies and TV Series

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Numerous films and TV series worldwide have depicted characters with autism spectrum disorder (ASD) and savant skills. This study describes the portrayal of ASD and savant skills in Korean films and dramas. Starting with the 2005 film *Marathon*, characters with ASD have been featured in five films and four dramas. Most portrayals were based on the diagnostic criteria and pathogenesis of ASD, as outlined in the DSM-5. Of the 10 characters with ASD in these films and dramas, seven were male and three were female, with seven of them possessing savant skills. In the future, caution and guidance on the general characteristics of ASD from experts should be provided with the release of ASD-based films and TV dramas in Korea; in addition, critiques and social discourse pertinent to the reality of ASD should be provided by people with ASD, their families, and relevant experts.

**Keywords:** Savant skill; Autism spectrum disorder; Korean movie; Korean TV series.

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## INTRODUCTION

Individuals with autism spectrum disorder (ASD) may demonstrate exceptional abilities in specific areas, such as drawing, calendar calculation, and memory, compared to their overall functioning or cognitive abilities, a phenomenon that is commonly referred to as “savant skills” [1]. The American Association of Mental Deficiency defines a savant as a person who is able to perform exceptionally in a clearly identifiable domain [2]. However, Miller [3] argued that the term “savant” should only be used when the person shows remarkable performance in a particular domain in terms of population norms and when there is a disparity between performance in the domain and the individual’s overall functional level. Some common domains include mathematics (calendar calculation, arithmetic, and prime number calculation), music (especially the ability to replay a complex sequence after a single exposure), art (creating complex scenes or accurately reproducing them after a brief exposure), and memory for dates, places, paths, and facts. Other skills include pseudo-verbal skills (e.g., hyperlexia or facility with foreign languages), coordination skills, and mechanical aptitude [4,5]. Currently, there is no universally ac-

cepted definition of savant skills. However, the Autism Diagnostic Interview-Revised, a diagnostic tool, evaluates whether an individual’s performance in six areas of “special independent skills” (visuospatial ability, memory, musical ability, drawing ability, reading ability, and computational ability) is above their overall functioning or the population norm and whether it is used functionally or meaningfully [6]. Furthermore, savant skills have been observed in individuals with epilepsy, cerebral palsy, visual impairment, dementia, schizophrenia, Tourette’s syndrome, and intellectual disability; however, it has been reported to be the most commonly observed in ASD [1]. The prevalence of savant skills in individuals with ASD is estimated to be higher in males than that in females (a ratio of 6:1), with 0.5–10 per 100 individuals displaying such skills [7,8]. This prevalence is higher than the estimated prevalence of 0.5–1.4 per 1000 institutionalized individuals with intellectual disability [9].

Savant skills were discussed only in academia until the release of the 1989 film *Rain Man*. This film, which won the Academy Award for Best Picture, Best Director, Best Screenplay, and Best Actor, raised public awareness about savant skills. The film presents the story of Raymond Babbitt, portrayed by Dustin Hoffman, who was diagnosed with ASD and institutionalized. His brother, who was previously unaware of his existence, breaks him out of the institution, and travels

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with him to Los Angeles to claim their parents' inheritance. Throughout the film, Raymond exhibits heightened sensitivity to sensory stimulation, such as being fearful of flying or driving on the highway, and a strong attachment to routines, such as watching a specific TV show at 5 PM or buying his underwear only from a certain store. However, his extraordinary ability to recall the names of baseball players who played in the Major Leagues decades ago, accurately guess the number of spilled matchsticks in a coffee shop, and memorize the order in which several decks of cards were dealt in a casino brought the topic of autism and savant skills to the forefront of public attention. This movie was inspired by the true story of Kim Peek, who could recall information from over 6000 books and name every area code and zip code in the US, and had extensive knowledge of geography, music, literature, history, and sports. Additionally, he memorized the map inserted in a phone book and was able to easily navigate between cities and streets. In addition to performing advanced calendrical calculations and possessing advanced musical talent, he could read rapidly with each eye looking at a different page. Magnetic resonance imaging of his brain revealed an absence of the corpus callosum, alongside damage to other areas of the central nervous system [8,10].

Following the success of *Rain Man*, characters with ASD and savant skills have been prominently featured in leading or supporting roles in various films and TV series in Korea and globally. The increasing representation of individuals with ASD in creative works appears to be influenced by growing societal interest in the disorder itself, as well as the advantage of capturing the attention of the audience using their restricted and repetitive interests and idiosyncratic behaviors. Moreover, these portrayals allow for the depiction of the internal growth of the character that resolves problems, together with the person with the disability in the plot. In numerous creative works, savant skills with diverse manifestations are often portrayed as a type of special talent that allows individuals to resolve problems effortlessly. However, because the majority of individuals with ASD do not possess high functioning and savant skills, depictions of savant skills in mass media, such as films and TV series, have faced criticism for being unrealistic and misleading the public's perception of ASD. A study that analyzed 22 American films and four TV series found that while characters in most films possessed ASD features specified in the DSM-5 diagnostic criteria for ASD, savant skills were overrepresented compared to the actual prevalence in the ASD population, with 12 out of 26 films (46%) featuring a character with savant skills [11].

In South Korea, the release of the 2005 film *Marathon* spurred the production of a number of films and dramas featuring various clinical aspects of ASD. In particular, the 2022 drama *Ex-*

*traordinary Attorney Woo* garnered significant attention for its diverse visual depiction of the main character with high-functioning ASD and savant skills. This review article described how Korean films and dramas have portrayed ASD and savant skills and explored the impact of these depictions on the public.

## DEPICTION OF ASD AND SAVANT SKILLS IN KOREAN FILMS

### **Marathon (2005)**

*Marathon*, based on the memoir "Run, Hyung-jin!" by Mi-Kyung Park (mother of Hyung-Jin Bae), was the first Korean film to feature a main character with ASD, raising awareness about the characteristics of the disorder in Korea. In addition to depicting the various challenges faced by individuals with ASD (e.g., deficits in facial recognition, avoidance of eye contact, stimming, delayed echolalia, obsession with routines, limited interests, excessive sensory seeking, and social disinhibition), the film portrays the process of self-realization experienced by the character with ASD through long-distance running. In addition, it provides a realistic portrayal of the conflicts experienced by the characters' families, as well as the father and brother who were marginalized, as the family strived to support individuals with ASD.

As this film was based on a true story, the character in the film did not exhibit savant skills.

### **Split (2016)**

The film showcases the traits of ASD and savant skills of the main character who is portrayed as a gifted bowler. The character displays typical ASD traits, such as disinterest in establishing interpersonal relationships, strict adherence to routines, stimming, and limited range of interests, including a particular preference for a certain beverage.

Interestingly, the film illustrates some of the behavioral symptoms of ASD as having been shaped from a behaviorist perspective [12]. For example, the character hates having his name called by his mother, and the origin of this aversion is attributed to an early childhood experience in which his mother yells and scolds him while calling his name. Furthermore, he habitually shouts "Let's go!" every time he throws the ball during a game, which is portrayed as a habit shaped by repeatedly watching the game footage of the main character and imitating his actions during the game.

The savant skill portrayed in this film is exceptional coordination, where the character manages to consistently land a strike almost every time despite the unusual posture.

### **Keys to the Heart (2018)**

The main character's younger brother has ASD, leading to

problems with gaze patterns, disinterest in interpersonal relationships, stammering where he mechanically says “yes” all the time, and lack of abilities to perform activities of daily living (ADLs), such as toileting, although it is portrayed humorously in the film.

However, the character has savant skills in music, being able to accurately replicate challenging piano pieces, possibly by watching videos on his cell phone, as opposed to studying the score and practicing repeatedly. In addition to his musical talent, he exhibits excellent coordination skills, as demonstrated not only in his piano playing but also in playing video games.

### **Innocent Witness (2019)**

The main character of this film, written by Ji-Won Moon (the writer of the drama *Extraordinary Attorney Woo*), is depicted to have high-functioning ASD. The movie deals with the main character’s experience after witnessing a crime and being called upon to testify in court. The main character is portrayed as speaking in monotonous tone, reading books, and facing challenges with facial recognition, such as initially perceiving the physical features of a person’s facial expression and then understanding the corresponding emotions. Additionally, the main character lacks interest in other people, as shown by her watching animations on her cell phone, even when there were people around her; she also exhibits social disinhibition, shown as sending text messages late at night. She is unable to appropriately deal with teasing from boys, prefers only blue jelly, and has a high sensitivity to auditory stimuli, experiencing severe anxiety due to the sound of barking dogs while walking to and from school or the soft ticking of a small clock in a courtroom. As the physician observing the deposition process notes, the main character exhibits characteristics of Asperger’s syndrome, such as high intelligence, seemingly youthful manner of speech and behavior but actually speaking like a “little professor,” and ability to present well-organized statements. In addition to describing social prejudices, such as “people with ASD cannot lie,” “people with ASD may misjudge situations they have witnessed because they have a disability,” and “people with ASD are mentally ill,” the film also introduces principles for investigating people with disabilities, including creating a supportive and non-leading atmosphere during legal statements.

The character possesses advanced artistic talent, mathematical skills, and factual memory, portrayed as accurately counting the number of droplets knitted on a handkerchief at a glance, hearing sounds that are inaudible to others, and recalling the sounds *ad verbatim*.

### **Nocturne (2022)**

This documentary chronicles the life of Sung-Ho Eun, who

has learned to play the piano and clarinet at a young age, with level 2 ASD over an 11-year period (2008–2019). The story involves his younger brother and mother. The main character exhibits a fixation with routines, such as repeatedly turning his hairbrush to precisely position it to his satisfaction and getting off the subway at the usual destination without regard to his mother or instrument. In addition, he exhibits social disinhibition, where he constantly peeks over other people’s portable gaming devices on the subway. As for ADLs, he required assistance from his mother or younger brother for personal care and other ADLs, such as managing appearance, opening bottles, and pouring water in his instant noodles. The documentary also bluntly highlights sibling rivalry and consequent emotional conflict between Sung-Ho and his chronically marginalized brother throughout the years of providing therapies and music education for Sung-Ho.

The savant skill described in this film is musical talent, as Sung-Ho shows a musical talent that is more advanced than his overall functioning and uses it functionally or meaningfully, considering the level of his ASD.

## **DEPICTION OF ASD AND SAVANT SKILLS IN KOREAN DRAMAS**

### **Good Doctor (2013)**

This TV drama, which has been adapted in the US, shows the journey of a medical school graduate from Chuncheon, Gangwon Province who completed his internship and began a pediatric surgery residency at a prestigious university hospital in Seoul, where he transported an injured child after providing first aid. The main character exhibits problems with verbal communication, disregards hospital administrative procedures, changes the department arbitrarily to save patients, and places patients in the operating room. Initially, the main character’s behavior was attributed to ASD; however, it was later explained to be a result of psychological trauma caused by his parents abandoning him at 8 years of age and his consequent fixation on the happy memories with his older brother that led to his childlike behaviors. The drama depicts how the main character can nearly “overcome” his disability through his experiences in various episodes and with the help of his fellow pediatric surgeons.

The main character’s savant skills include extensive medical knowledge based on exceptional memory, heightened perceptual sensitivity to various medical findings, and strong analytical skills that enable him to make precise differential diagnoses.

### **Catch the Ghost (2019)**

The TV drama portrays the main character’s twin sister as having ASD. The main character is a rookie detective in the

subway police force who had been the sole caretaker of her sister with level 2 ASD. With extreme burnout, the character hysterically responds to her younger sister and leaves her alone on the subway, after which the sister is lost. The main character regrets her decision and attempts to locate her sister, leading her to apply to join the subway police force. During her search, she becomes involved in the investigation of a serial killer who abducts and kills people. The drama's portrayal of ASD is very brief and ambiguous, and no traits related to savant skills are depicted.

### **It's Okay to not be Okay (2020)**

In this TV drama, the older brother of the main character is depicted as having a high-functioning ASD, with remarkable memory and drawing as savory skills. The older brother also displayed difficulties with eye contact, awkward posture during conversations, monologue and circumstantial expressions during conversations, social disinhibition, repeatedly seeking confirmation from the other person, and extreme tactile sensitivity.

### **Extraordinary Attorney Woo (2022)**

Moon Ji-Won, the screenwriter of the film *Innocent Witness*, wrote the TV drama as inspired by her producers who imagined what it would be like if the main character of *Innocent Witness* grew up and became an attorney [13]. The name of the main character of this drama appears to have been derived from the expression "idiotic savant," which was first coined by J. Langdon Down in 1887 to describe individuals with savant skills as "clever and foolish" [8]. The protagonist was diagnosed with autism because she could not talk at all until the age of 5. Later, she spoke by reciting the statutes of bodily harm in the criminal code during a confrontation between her father and the landlord. She demonstrates a lack of empathy for others and learns to recognize emotions in people's facial expressions by taking polaroid pictures of her father's facial expressions in various situations, similar to the protagonist in the film *Innocent Witness*. In addition, the drama portrays the characteristic features of ASD in detail, including the use of monotonous and formal speech style despite having a brilliant mind (as demonstrated by her graduation from law school at the top of her class), lack of flexibility in social situations, social disinhibition, obsession with routines when eating and on her way to work, fervent interest in dolphins and whales, and persistently carrying on a conversation about this topic regardless of others' intentions. In addition, the protagonist displays comorbid symptoms of hypersensitivity to everyday noises and developmental coordination disorders, as demonstrated by the difficulty in using revolving doors. The protagonist is high functioning and has mild

symptoms, and thus appears to have a close friend and non-sexual affection, albeit to a limited extent.

In the third episode of this 16-episode drama, a man with low-functioning ASD is introduced; the man contrasts the main character. The man is depicted as obsessed with the character Pengsu and is prone to angry outbursts in inappropriate situations. In addition, the man is considered legally incompetent and mentally incapacitated because of his limited communication skills, such as mechanical responses of "yes" to all questions or difficulty expressing his intentions due to his use of fragmented sentences.

The savant skill depicted in this drama is exceptional memory. The character has photographic memory, and almost every episode visualizes her ability to recite legal statements and various pieces of evidence without error using advanced computer graphics.

## **CONCLUSION**

Starting with the 2005 film *Marathon*, a total of five films and four TV dramas have depicted a character with ASD in Korea. With the exception of the drama *The Good Doctor*, most characters appear to have been portrayed based on the diagnostic criteria and etiology of ASD described in the DSM-5. In the films, four men and one woman had ASD, and in the TV dramas, three men and two women had ASD. In films, four out of five characters with ASD had savant skills, while in TV dramas, three out of five characters with ASD had savant skills. Although the male to female ratio is similar to that reported in the DSM-5 (3:1), the high prevalence of savant skills in creative works is consistent with that observed in American films [11]. Although most Korean films and TV dramas depicting a character with ASD were, in their portrayal of ASD, in line with the features of ASD in the diagnostic criteria for ASD in the DSM-5, seven out of 10 characters with ASD (70%) had savant skills, which exceeds the prevalence in the actual ASD population and that portrayed in American films (45%).

The increased portrayals of characters with ASD in films and TV dramas contributed to the rise in public awareness of the disorder, but has also been criticized for fostering stereotypes by failing to reflect the diverse symptoms and adaptations of people with the disorder [14]. The recently aired drama *Extraordinary Attorney Woo* has been criticized for its portrayal of the main character, as it failed to accurately reflect the reality faced by people with ASD in Korea. In Korea, the vast majority of people with ASD are excluded from social support pertinent to employment and education. This misrepresentation in the drama may create a sense of disparity and raise concerns about potential discrimination among

people with ASD and their families who are working hard to overcome these challenges [15]. Therefore, it is important that caution and guidance from experts are provided from the development of scenarios to the release of the final production to ensure that future films and TV dramas accurately depict the general characteristics of people with ASD to the public. Critiques and social discourse about the reality of ASD from individuals, families, and relevant experts will also help address concerns and promote realistic portrayals of people with ASD in the media.

#### Availability of Data and Material

Data sharing not applicable to this article as no datasets were generated or analyzed during the study.

#### Conflicts of Interest

Jun-Won Hwang, a contributing editor of the *Journal of the Korean Academy of Child and Adolescent Psychiatry*, was not involved in the editorial evaluation or decision to publish this article.

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### REFERENCES

- 1) **Bölte S, Poustka F.** The relation between general cognitive level and adaptive behavior domains in individuals with autism with and without co-morbid mental retardation. *Child Psychiatry Hum Dev* 2002;33:165-172.
- 2) **Grossman H.** Classification in mental retardation. Washington, DC: American Association on Mental Deficiency;1983.
- 3) **Miller LK.** Defining the savant syndrome. *J Dev Phys Disabil* 1998; 10:73-85.
- 4) **Heaton P, Wallace GL.** Annotation: the savant syndrome. *J Child Psychol Psychiatry* 2004;45:899-911.
- 5) **Howlin P, Goode S, Hutton J, Rutter M.** Savant skills in autism: psychometric approaches and parental reports. *Philos Trans R Soc Lond B Biol Sci* 2009;364:1359-1367.
- 6) **Park GR, Yoo HJ, Bong GY, Cho IH, Cho SH, Lee MS, et al.** Korean version of autism diagnostic interview-revised (ADI-R). Seoul: Hakjisa;2007.
- 7) **Geschwind N, Galaburda AM.** Cerebral lateralization: biological mechanisms, associations, and pathology. Cambridge, MA: MIT Press;1987.
- 8) **Treffert DA.** The savant syndrome: an extraordinary condition. A synopsis: past, present, future. *Philos Trans R Soc Lond B Biol Sci* 2009;364:1351-1357.
- 9) **Saloviita T, Ruusila L, Ruusila U.** Incidence of savant syndrome in Finland. *Percept Mot Skills* 2000;91:120-122.
- 10) **Peek F, Hanson LL.** The life and message of the real rain man. New York: Dude Publishing;2008.
- 11) **Nordahl-Hansen A, Tøndevold M, Fletcher-Watson S.** Mental health on screen: a DSM-5 dissection of portrayals of autism spectrum disorders in film and TV. *Psychiatry Res* 2018;262:351-353.
- 12) **Foxx RM.** Applied behavior analysis treatment of autism: the state of the art. *Child Adolesc Psychiatr Clin N Am* 2008;17:821-834.
- 13) **Lee T.** “The girl from the movie ‘witness’ grew up to become ‘Woo Young-woo’”. *Chosunilbo* [Internet]. 2022 Jul 26 [cited 2023 Feb 1]. Available from: [https://www.chosun.com/culture-life/culture\\_general/2022/07/26/B4224HABD5FBFC4CRYQ5DGVJ2A/?utm\\_source=naver&utm\\_medium=referral&utm\\_campaign=naver-news](https://www.chosun.com/culture-life/culture_general/2022/07/26/B4224HABD5FBFC4CRYQ5DGVJ2A/?utm_source=naver&utm_medium=referral&utm_campaign=naver-news).
- 14) **Nordahl-Hansen A, Øien RA, Fletcher-Watson S.** Pros and cons of character portrayals of autism on TV and film. *J Autism Dev Disord* 2018;48:635-636.
- 15) **Kim Y.** We just met only one ‘Woo Young-woo’ today. *Sisain* [Internet]. 2022 Aug 4 [cited 2023 Feb 14]. Available from: <https://www.sisain.co.kr/news/articleView.html?idxno=48111>.