

Sense of self in autism spectrum disorder

Abstract

In this paper, the sense of self in a person with ASD is discussed through the synthesis and description of several studies conducted by social psychologists interested in this domain. This paper begins by exploring the concept of self, distinguishing between self-image and self-awareness, explaining the importance of knowing the self in the context of social situations, and introducing multiple theories of the self as explained by several influential psychologists. Then the paper explains how the absence of self in people with ASD is apparent in their actions, and how the daily difficulties people with autism face can negatively impact their sense of self. The paper concludes with a summary of specific studies conducted about autism and the self in order to provide the reader with a more comprehensive idea of the current published research.

What is the self?

Self-image, or self-concept, is one's ideas and experiences of themselves in various facets of their lives. One's insight of others, others' perception of them, and an individual's functioning in social and psychological contexts are believed to be the defining domains reflected in self-image. The socioecological theory states that social and physical environments play a role in the garnering of self-image, especially due to our continuous, reciprocal interactions with others and our perceptions of these interactions. We learn from others' behaviors, which shape, influence, and change our behaviors accordingly. Therefore, our interactions with others in our environment help us form our notion of self (Huang et al., 2007).

Self-awareness, placed under the term "self-concept," refers to being aware of oneself as the "object of own attention" and "one's own mental states," which could include perceptions, sensations, attitudes, intentions, and emotions. Self-awareness also includes the presence of

mind to recognize one's public image, which includes one's actions and behaviors, as well as general physical appearance. There are four levels of self-awareness, as suggested by Alain Morin (2006): unconsciousness, consciousness, self-awareness, and meta-self-awareness (Huang et al., 2007). The latter refers to being aware of one's self-awareness.

The notion of "self" is a popular topic in cognitive neuroscience and psychology, but because it encompasses several different cognitive phenomena, it can often be quite difficult to define. There have been many theories of the self introduced by some of the most influential thinkers in psychology. William James stated in his book, *The Principles of Psychology*, that the self is not a single entity, and this shaped later work in theorizing the concept of the self (Uddin, 2011).

Ulric Neisser, known as "the father of cognitive psychology," and who has done much research on the self, claims that people have five different types of knowledge about themselves. These five include: (1) the ecological self, which describes the self with respect to the physical environment; (2) the interpersonal self, which refers to one's emotional interactions; (3) the temporally extended self which implies a representation of oneself based on memory and anticipation; (4) the private self, which describes our knowledge that our experiences are exclusively our own; and (5) the conceptual self, which reflects our sociocultural experience (Neisser, 1995). This perspective represents the idea that the self is "a whole person considered from a particular point of view." Understanding and appropriately perceiving these different facets of the self is the most basic form of self-knowledge and self-awareness. Neisser's theory reflects an important perception that in order to understand oneself, one must not only look inward, but have an understanding of the self from an outward perspective, in which we understand our self from an ecologically and socially situated perspective (Uddin, 2011).

Additional research has uncovered even more theories of the self. Shaun Gallagher distinguishes between the “minimal self” and the “narrative self,” in which the minimal self is devoid of temporal extension, and the narrative self is more rich and reflects personal identity and continuity over time. It has an image which consists of our past and future in stories that we tell others about ourselves (Gallagher, 2000).

Marc Jeannerod combines neurological and psychological perspectives to explain that an important part of self-recognition is understanding that oneself is the owner of a body and the agent of actions. He claims that a sense of agency helps one develop an identity separate from the exterior world (Jeannerod, 2003).

There are even some extreme views, such as that by Thomas Metzinger, who claims that there is no such thing as a self, and rather what exists are conscious self-models which allow us to conceive ourselves as a whole and interact intelligently with our environment (Metzinger, 2003).

More recent research on the self has focused on linking the self to its neural substrates in order to understand which brain regions are important for self-awareness and other self-related processing. Most modern theories focus on a single aspect of the self, such as visual self-recognition or agency, and attempt to understand the neural basis of that specific process. Gillihan and Farah (2005) distinguished between psychological and physical aspects of the self. Physical aspects of the self are studied through self-face recognition, agency, and perspective-taking, unlike psychological aspects of the self, which tend to be operationalized through studies on autobiographical memory and self-knowledge through personality traits. Neuroimaging work has shown that both physical and psychological aspects of the self rely on distinct, large-scale networks (Uddin, 2011).

It is important to understand past and ongoing research on the self before delving into the topic of the self as it relates to autism spectrum disorder in order to understand the design and purpose of experiments exploring ASD and the notion of self, as well as the social, physical, and communicative implications of lack of self-awareness in people with ASD.

An Overview of Self-Awareness in Individuals with ASD

Historically, the “self” has been a central concept in what it means to have autism. More specifically, the lack of self, or rather, the lack of awareness of self is a symptom of autism. Bleuler first coined the term “autism” to characterize the social withdrawal symptoms shown by schizophrenics. Then Kanner applied this term to describe the self-focused children who came to his clinic. More recently, Frith put “the self” at the center of the observed impairments and strengths in ASD, and unlike Kanner, views ASD under the notion of an “absent self,” as opposed to the notion of “self-focus.”

From a neurological perspective, observations supporting the absent self in people with ASD include: weak central coherence, executive dysfunction, and mindblindness. A common thread through these observations is the lack of the central executive, that is, a lack of top-down control over the bottom-up processing in the frontal regions of the brain. Among people with ASD, it is also observed that they have enhanced short range but diminished long range connectivity in their brain (Lombardo et al., 2007).

From a psychological perspective, the theory of the absent self aligns with the idea that self-awareness is less developed in ASD (Lombardo et al., 2007). Individuals with ASD are mainly characterized by impairments in (1) language and communication, (2) reciprocal social interaction, and (3) repetitive behaviors, intense interests, and sensory dysfunction. Since

people with ASD have such varied symptoms, difficulties, and assets, “self-awareness can be a unique experience for each person on the spectrum” (Huang et al., 2007).

Mette Elmoose (2016) described the psychological difficulties individuals with ASD have regarding their awareness of self: (1) they do not know what they do not know, so it is difficult for them to ask questions in order to know more about themselves (self-reflective questions); (2) they struggle with distinguishing between their own preferences and emotions and others’ preferences and emotions, especially in social situations; (3) they have difficulty connecting their own behaviors to others’ actions, and to environmental and social situations; and (4) they struggle to understand themselves and other people’s thoughts and emotions (Huang et al., 2007).

It has been observed in studies that when individuals with ASD are asked to report on their daily experiences, their explanations rely more on the physical descriptions of the moment rather than their feelings or mental state during the experience. During interviews with adolescents with ASD, it was noted that they gave fewer descriptions of themselves in social contexts. Individuals with ASD also have what is known as “alexithymia,” literally meaning “having no words for emotions,” and which refers to the difficulty of identifying and describing one’s own emotions. Atypical first pronoun usage has also been documented in people with ASD, and is perceived in social psychology as an “index of self-focused attention.” This also implies abnormalities in self-referential cognition in ASD (Lombardo et al., 2007; Schriber et al., 2014).

The current research supports that this difficulty in understanding the self affects social functioning and development (including communication, empathizing, and popularity) in people with ASD. Typically functioning people have interior self-knowledge, that is, knowledge about themselves that they understand another person might not know unless they told them. We

experience pain, sensations, beliefs, and dreams in a way that other people cannot and will not fully understand, so therefore, we are the authority on self-knowledge. In typically developing children, around the age of 6 or 7, they understand this concept. In accordance with this, most people would assign more knowledge to themselves when asked how well they know when they are thinking and how well they suppose another person knows when they are thinking.

However, people with autism struggle with this, and do not understand the value, or the fact, of having “first-person privileged access” to their inner states (Mitchell & O’Keefe, 2008).

It has been noted extensively that people with autism have impaired “theory of mind.” While more recent research on theory of mind refers to it as the understanding and awareness of other people’s emotions, the original concept, known as “mentalizing,” referred to the ability to represent one’s own mental state of self as well. It has been suggested by Frith (2003) that understanding the difficulty of self-awareness within ASD will unify the social and nonsocial theories of ASD, however, there is relatively little research which exists to understand self-awareness in people with ASD (Mette & Happé, 2014). Some psychologists believe that to the extent that people with ASD have difficulty understanding other people’s emotions and beliefs, they also lack the same rapport with themselves, thus having to infer their own feelings, intentions, and motivations from their own behavior in the same rigid, rule-based fashion that they apply to others. This is what is called “mindblindness” (Schriber et al., 2014). Another, less extreme perspective suggest that ASD individuals do not lack the ability to be introspective, but rather lack the ability to use meta-representational concepts to organize their introspections. This deficit, termed “conceptual incompetence” by Raffman (1999), impairs ASD individuals’ ability to solidify their self-reflections, making it difficult for them to increase their self-knowledge.

In addition to psychological factors of the lack of self-awareness in ASD, there has also been some research conducted on the neurological factors which would contribute to this

functional shortcoming, namely the abnormalities of the default network in the brain, which is comprised of the medial prefrontal cortex/ventral anterior cingulate cortex, retrosplenial cortex/posterior cingulate cortex, and angular gyrus, among other regions. It exhibits high metabolic activity when at rest, but interestingly, is also highly active when typical subjects engage in tasks which are social, emotional, or introspective in nature (Kennedy & Courchesne, 2008).

Major Characteristics of ASD and Impacts on the Self

Individuals with autism face several challenges daily, and this in turn can negatively affect their self-image, especially as they get older and realize that they act differently from others around them. They might experience ostracization, teasing, or bullying as a result of others not understanding them and perceiving them as odd. Some of the main difficulties individuals with ASD face are: (1) difficulty with transitions or changes; (2) joint attention, language, and theory of mind deficits; (3) difficulty with abstract reasoning; (4) difficulty with understanding the concept of friendship; and (5) deficits in reciprocal social communication. These difficulties will be discussed within the concept of understanding others and the self.

Individuals with ASD typically have difficulties with adapting to changes in their life. Unfortunately, as they grow, they, like other typical students, will face changes in school settings, social contexts, environments, friendships, and family interactions, among others. These changes could have a negative impact on the daily functioning of an autistic child. Adolescence brings with it more challenging social contexts and nuanced relationships and interactions, and due to their difficulty in navigating these situations, autistic adolescents poorly adjust to change, often leading to social isolation and emotional distress (loneliness, anxiety,

and depression). These emotional issues negatively impact the self-image of an individual with ASD.

Joint attention, language, and social communication skills also pose challenges to people with ASD, and can lead to difficulties relating to and connecting with peers. Since they are not proficient communicators, and cannot use language as a means to guide their behavior, regulate their emotions, create and mend relationships, and understand others, they can encounter several awkward social situations that they struggle to navigate. This reflects an endless cycle of misunderstanding and confusion from the perspective of the person with ASD. It is also noted that people with ASD have difficulty expressing their own thoughts and emotions, and as a result, teachers, friends, family, and peers may have difficulty interpreting their messages. This could in turn lead to more confusion, unfulfilling responses from others, and even social isolation. Offer et al. (1981) believed that the way a person functions in different social and psychological contexts reflects their self-image, and since people with ASD have trouble navigating such contexts, it could lead to a negative self-image. Additionally, it has been noted that verbal mediation (also known as “inner speech”), is atypical in children with ASD, and according to Vygotsky’s influential theory, one’s ability to engage in inner speech, or internalized self-talk, is an important way to “regulate one’s own behaviors, without the presence of others” (Morin, 2005; Williams et al., 2012). Deficits in this domain could lead to the inability to regulate one’s own behavior in social contexts, which could once again result in social isolation, and could have a negative impact on self-perception.

Individuals with ASD also have difficulty with abstract reasoning, which is a part of executive functioning, and which requires the manipulation of information that is not present in the immediate environment (Solomon et al., 2011). This difficulty in abstract reasoning could cause people with ASD to misinterpret the intent of the actions they observe by others. This

could in turn lead to difficulty in mirroring and imitating the behaviors of others in order to engage in appropriate and reciprocal social behavior, which will not allow a person with ASD to develop quality relationships. Since, as mentioned earlier, the way in which a person navigates social and psychological domains reflects their level of self-awareness (Offer et al., 1981), people with ASD will struggle with such navigation, which may lead to negative self-awareness.

Individuals with ASD also struggle with their understanding of friendship and what it entails. The three basic functions of friendship are: companionship, intimacy-trust, and affection. The quality of one's friendship is directly related to one's sense of self and can help one avoid suffering from anxiety, depression, loneliness, and other psychopathology (Solomon et al., 2011). People with ASD have difficulty conceptualizing the definition of a friend, which can make it difficult to keep a friend. They often engage in friendships with different durations, frequencies of meetings, and types of activities enjoyed together. This limits healthy social interactions with others and can lead to emotional issues such as social anxiety, depression, loneliness, and social isolation. This can negatively impact the wellbeing and sense of self within the autistic individual.

Due to the general lack of meaningful social experiences and theory of mind deficits discussed in this paper, individuals with ASD have difficulty appropriately reciprocating complex social interactions. This could lead to much misunderstanding of other people's attitudes towards them. People with ASD might not realize that others have a negative perception of them as individuals with ASD, which could limit their self-development. If they do realize this, it can have a negative effect on their self-concept.

Self-awareness is unique to every individual, especially between individuals on the spectrum because they embody a wide range of abilities, difficulties, and strengths, and is vastly affected by their level of cognitive functioning and ability to adapt (Huang et al., 2007).

Summary of Present Research on the Perception of Self in Individuals with ASD

In a study by Daniel P. Kennedy and Eric Courchesne, it was found that people with autism had functional abnormalities in their default network during a resting state. The default network is responsible for social, emotional, and introspective processing in typical individuals, but abnormalities in this network in ASD could account for the difficulties exhibited by people with ASD in their understanding of self. They conducted a study to understand the abnormalities of this default network in people with autism by asking participants to complete specific social and introspective tasks. The participants (13 autistic and 12 control participants) were asked to make true/false judgments for different statements about themselves or a close other person, in which the statements pertained to either psychological personality traits or observable characteristics and behaviors. An analysis of fMRI scans showed reduced activity in the ventral medial prefrontal cortex/ventral anterior cingulate cortex in the autism group across all judgment conditions and a resting condition, which suggests task-independent dysfunction of this region (Kennedy & Courchesne, 2008).

In another study, Mette Elmoose and Francesca Happé studied self-awareness by assessing the meta-memory of children with autism. Meta-memory is “the knowledge and regulation of memory processes, and constitutes one aspect of meta-cognition.” They studied this by asking participants with ASD to judge their own memory performance and compared the data with typically developing (TD) children. The results showed comparable levels of accuracy between the ASD and the TD groups. It was found that children with ASD were more accurate in judging their own memory for nonsocial rather than social stimuli, and the opposite was found true for TD participants. These findings imply that children with ASD have relatively good self-awareness of their own memory (Mette & Happé, 2014).

In a study on self-referential cognition and empathy in autism by Lombardo et al., it was found that individuals with autism have broad impairments in both self-referential cognition and empathy. Their results also show dysfunction in ASD participants within cortical midline structures of the brain such as the medial prefrontal cortex (Lombardo et al., 2007).

Contrary to most of the current research on ASD and the self, Schriber et al. conducted a study which found that individuals with ASD showed significant levels of understanding into their personality through self-insight. This suggested that autistic individuals recognize, to some extent, that compared to typically developing individuals, they tend to be more socially withdrawn, less empathetic, less organized, less responsible, and less emotionally stable. They also seemed to recognize that, to some degree, these traits define them (Schriber et al., 2014).

Many studies have shown that the notion of the self is impaired in people with ASD, and this could be due to neurological, psychological, or environmental factors. Inherent characteristics of ASD could also lead to negative impacts on the self. Despite this, there is also some research suggesting that individuals with ASD have reasonable levels of self-insight. Needless to say, more research is necessary in order to answer important questions about the notion of self in people with ASD, including the extent to which they engage in self-reflection, their possible sources of self-knowledge, and their view of themselves in relation to others and society.

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