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'*Just trying to talk to people… It's the hardest*': Perspectives of adolescents with high-functioning autism spectrum disorder on their social communication skills.

Abstract

Difficulty with social communication is the most pervasive difficulty experienced by individuals with high-functioning autism spectrum disorder (HF-ASD). Communication difficulties are often magnified in adolescence as social demands become more intricate. This puts adolescents with HF-ASD at increased risk of social isolation and depression, as they have difficulty developing positive social identity. Yet, there is a dearth of literature addressing the communication issues of this population and even fewer studies including the voice of adolescents with HF-ASD themselves.

This study aimed to: 1) Explore the perspectives of adolescents with HF-ASD as to their social communication skills, 2) Explore what (if any) difficulties they perceive themselves as having when talking with their peers, 3) Explore if they would like help with social communication skills and 4) Determine what kind of help they think may be useful to them and establish if they already use self-initiated strategies. This study was qualitative in nature, using thematic analysis to analyse data collected from 10 semi-structured interviews with 5 adolescents with HF-ASD.

Three themes emerged revealing the participants' perceptions of their difficulties communicating, challenging feelings that they experience about communication, and their perspectives about the support for developing communication skills. The

participants indicated a need for support to aid their desire to improve communication skills and interactions with typically developing peers. In educational settings, adolescents with HF-ASD may benefit from a peer mentor system to give them opportunities to practice social communication skills with typically developing peers and to encourage inclusion amongst their classmates.

Key words: *qualitative, adolescents with HF-ASD, social communication difficulties.*

Introduction

The current study focuses on the perspectives of adolescents at the higher-functioning end of Autism Spectrum Disorder (ASD) as to their social communication skills. Adolescence begins with the onset of puberty and concludes with social independence (Steinberg, 2014). The current study focuses on the middle period of adolescence (15-17 years) characterised by continuation of physical growth, development of the pre-frontal cortex, and increase in formal operations (Curtis, 2015). Social development is characterised by a peak in peer involvement including formation of strong heterosexual groups (Bradford-Brown and Klute, 2003). At the same time, dyadic intimate relationships increase in prevalence and intensity (Bouchey and Furman, 2003; Bradford-Brown and Klute, 2003; Neinstein, 2002). Social identity in this period develops through intensive group behaviour and comparison between ingroups and outgroups that adolescents belong to (Tarrant et al., 2001).

High-functioning ASD (HF-ASD) is formerly known as Asperger syndrome (DSM-IV, American Psychiatric Association, 2000). While DSM-IV used a multi-categorical system of diagnosing, DSM-V (DSM-V, American Psychiatric Association, 2013) employs a single diagnostic dimension in the form of broader Autism Spectrum Disorder (ASD) (Grzadzinski, Huerta & Lord, 2013). Ring et al. (2008) supported the notion of a severity gradient along a single dimension of ASD rather than separate diagnostic categories and Asperger Syndrome has now become commonly referred to as HF-ASD. Within DSM-V, ASD is best represented by a two dimensional model including social-communication deficit and restricted and repetitive behaviours/interests (RRBI) (Fraizer et al., 2012; Mandy and Skuse, 2008). HF-ASD is discriminated by difficulties in reciprocal social interaction in the absence

of a significant delay in expressive or receptive language or cognitive development (Van Elst et al., 2013).

DSM-V also identifies social communication disorder (SCD) outside of autism, which encompasses impairment in social interaction and pragmatic language. Empirical support for this distinction indicates that while there is some continuity in social communication and social interactions, only children with HF-ASD exhibited RRBIs. They also showed more prominent difficulties with peer social interaction, friendship, and intimacy compared to children with pragmatic language impairment (PLI) (Gibson, Adams, Lockton, and Green, 2013). Furthermore, children with PLI had better outcomes in adult life than children with HF-ASD, suggesting a qualitative difference (Whitehouse, Watt, Line and Bishop, 2009).

Social communication refers to aspects of communication such as the ability to read social meanings, gauging the amount of information the listener needs, topic initiation and maintenance (Aldred, Green and Adams, 2004). People with HF-ASD commonly exhibit difficulties with recognising nuances of conversation, turn-taking, understanding humour and non-literal language, reciprocal conversation, following rules of politeness, knowing how to begin and end a conversation, and adjusting their language to meet the needs of the listener (Koning and Magill-Evans, 2001). They may have a restricted repertoire of interests and perseverate on topics that are of great interest to them (Frith, 1998).

Although there is a substantial body of evidence reporting difficulties with social communication experienced by children with HF-ASD, there is minimal literature

addressing this issue in adolescence**.** Changes in social communication in typical adolescents include an increasing importance of peer communication (Nippold, 2000; Reed, McLeod, and McAllister, 1999). Conversations with peers increase providing new sources of information, emotional support, and well-being. Talk with friends does not displace talk with family members, but it represents a new aspect of adolescent experience. Adolescents have reported higher levels of affect when talking with friends compared to family (Raefelli and Duckett, 1989; Rawlins, 1992) and peer relations were found to play an increasingly prominent role in happiness and well-being during the transition from pre- to mid-adolescence (Raefellli and Duckett 1989). Furthermore, adolescents report that skills associated with empathy and an addressee-focus are more important for communicating with peers (Reed et al., 1999).

In relation to conversation management in adolescence, the frequency of abrupt topic shifts declines while interruptions increase in frequency (Larson and McKinley, 1988). Self-reports indicated that adolescents perceived themselves to be more relaxed and spontaneous with peers than with unfamiliar adults. When talking with peers adolescents asked more questions, obtained more information, switched to new topics more often, returned to old topics more often, used more figurative expressions, and made more attempts to entertain their partner (Larson and McKinley, 1988).

Social communication difficulties often become a greater issue for individuals with HF-ASD in adolescence as their social environment becomes more complex and a more sophisticated level of social communication is required (Burgess and Turkstra, 2010). It becomes increasingly important to conform to peer groups, which relies on components of social cognition (Happé and Frith, 2014). The social cognition

component proposed by Happé & Frith (2014) that potentially has the most significant effect on social communication is mental state attribution. It is strongly linked with the clinical diagnosis of HF-ASD and reflects itself in automatic attribution of mental states and intentional imitation. Social communication difficulties in individuals with HF-ASD relate to: (a) initiating and maintaining conversations, (b) requesting information/materials from teachers and/or peers, (c) listening to and responding to teachers and/or peers, and (d) interacting in basic games or other activities (Carter, Ornstein-Davis, Klin, & Volkmar, 2005). All of those difficulties refer to understanding mental states of others and themselves, reaching out to other people and cooperation.

Although extensive social communication difficulties are seen in people with HF-ASD, their interest in social interaction has been documented (Hees, Moyson, and Roeyers, 2015; Howard et al., 2006; Muller, Schuler, and Yates, 2008). Despite their yearning for friendships, children with HF-ASD have been found to have fewer friendships than their peers (Bauminger-Zviely, 2012) and often experience bullying and victimisation (Schroeder et al., 2014) as well as rejection and poor peer relationships (White and Roberson-Nay, 2009).

Lockton, Adams, and Collins, (2016) found that children with social communication difficulties are aware of the pragmatic rules they break in conversation. An increase in awareness of social communication difficulties occurs around adolescence, leading to social anxiety, isolation, and depression in these individuals (Church, Alisanski, and Amanullah, 2000; Whitehouse, Durkin, Jaquet, and Ziatas, 2009). Adults and young people with HF-ASD described feelings of intense loneliness and isolation that

increased as they grew older and became more aware of their social communication difficulties (Muller et al., 2008; Orsmond, Shattuck, Cooper, Sterzing, and Anderson, 2013). Interestingly, adolescents with ASD rated their social skills more positively than parent-reported measures (Koning and Magill-Evans, 2001). While this may question their awareness of the severity of the deficits, it could also be attributed to parental over-reporting of ASD traits (Johnson et al., 2009). McMahon, Lerner, and Britton (2013) suggested that although adolescents with HF-ASD rate social skills as being important, this could be a result of social skills intervention.

Studies have shown the importance of including people with ASD in research in order to better understand their perspectives and experiences (Carrington et al., 2003; Howard et al., 2006; Muller et al., 2008). For example, Muller et al. (2008) found that adults with HF-ASD were able to provide invaluable information as to the most beneficial ways of supporting their social skills development. Participants eloquently described self-initiated strategies they had implemented and intense feelings of isolation, difficulties with communication, and particularly initiation. Adolescents with HF-ASD indicated that they had difficulty identifying the characteristics of a friend, but found that their best friendships were based around very specific interests such as computer games (Carrington, Templeton, and Papinczak, 2003). Although including people with ASD in research can be challenging, a critical understanding of their views and experiences can be successfully obtained (Harrington, Foster, Rodger, and Ashburner, 2013). A qualitative design allowed the researcher in this study to gain the most in depth insight into how adolescents with HF-ASD understand and perceive their experiences (Hansen 2006). Qualitative research underpins the concept that one must understand the significance and explanation that people give to

situations, experiences, their own actions and to the actions of others, for one to comprehend human behaviours and actions (Hansen 2006).

While the aim of the current study was to gain insight into the perspectives of adolescents with HF-ASD about their social communication skills, peer interactions were the primary focus. Another aim was to explore whether participants would like to receive help with social communication skills and what kind of help they think may be useful. There are few evidence-based interventions for teaching social communication skills to this client group and the optimal way of establishing the type of help needed by adolescents with HF-ASD may be to ask them directly (Burgess and Turkstra, 2010). A final aim was to establish whether participants already used self-initiated strategies in social communication.

Method

Qualitative methodology was adopted in this study to explore the social communication experiences of adolescents with HF-ASD. The study received full ethical approval from the local Health Service Executive Research Ethics Committee in the Republic of Ireland.

Participants

Five participants were recruited through convenience sampling. Three of the participants were recruited from a youth café for adolescents with ASD and the other two participants were recruited through the local speech and language therapy service. Details of the participants can be seen in Table 1 below. The role of gender in

communication was not a focus for this study. It was by chance that a mix of male and female participants signed up to participate in the study.

In order to gather a rich, in-depth understanding of the participants' experiences, a small sample size was chosen and two interviews were conducted with each participant (Hansen 2006). As qualitative research elicits much data from participants, sample sizes are often quite small, requiring between two and five participants (Macnee & McCabe, 2008). All participants had a formal diagnosis of Asperger syndrome based on DSM-IV criteria or a formal diagnosis of HF-ASD based on the DSM-V criteria. As per parental report, they had adequate language skills to participate in interviews and were attending mainstream education. Exclusion criteria included intellectual disability or a concomitant disorder such as dyspraxia similar to Gibson et al. (2013). The inclusion and exclusion criteria were decided upon when considering the group to whom the results would be applicable, the underlying aim of the study, and the research question as recommended by DePoy and Gitlin (2016).

Table 1: Participants

Pseudonym	Gender	Age
Jack	Male	17
Mark	Male	17
Cian	Male	16
Maria	Female	16
Hannah	Female	15

Data Collection

The first author, who was a speech and language therapist in training at the time, conducted two face-to-face interviews with each of the five participants resulting in a

total of 10 interviews. All interviews were conducted in a quiet room at participants' homes with only the researcher and the participant present in the room. Interviews were audio recorded and later transcribed. The researcher also took notes during the interviews. The interviews lasted approximately 20 minutes. The first interview aimed to build rapport with the participant and allow them time to reflect on the phenomena being discussed (Harrington et al. 2013). A second in-depth, semi-structured interview was then conducted with each participant. This particular format was chosen as it combines pre-planned questions with questions that follow from the participant's responses and allows for more responsiveness and flexibility to emerging themes (Guion, Diehl, and Macdonald, 2011). Furthermore, this approach allowed for the collection of rich data in order to address the aims of the study in-depth (Charmaz, 2008). As recommended for individuals with ASD, the participants were given up to twenty seconds of extra processing time during the interviews and were provided with a "stop card" which they could use to terminate the interview at any stage (Harrington et al., 2013).

To gain an insider perspective of the experience of adolescents with HF-ASD before the interviews as well as to build rapport with the participants, the first author volunteered for 16 hours at the centre which three of the participants attended. Research has shown that breaking down the barriers between the researcher and the participant can considerably strengthen the quality of the data (Hansen, 2006). The other two participants did not attend the centre so the researcher met them for the first time on the day of the initial interview. It was noted that these participants made less frequent eye contact with the researcher, which may suggest that they felt more uncomfortable answering the questions than the participants who were known to the

researcher. The researcher's voluntary hours also helped to design the interview schedule as the interviewer saw that it would be necessary to use probe questions to maximise the amount of information given by the participants and further explore the topics.

Data Analysis

Thematic analysis was used to identify and connect themes in the transcripts through a coding process (Clarke & Braun, 2014). This process involved coding for initial meaning in the data and then establishing meaning patterns or themes. Thematic analysis was chosen as the method for data analysis as it is a flexible approach that allowed for the generation of unexpected insights (Braun & Clarke, 2006). An inductive approach to data analysis was taken, meaning that the themes generated were strongly connected to the data and were not based on pre-existing theories. The analysis included the following steps:

a) *Familiarisation:* The first author immersed herself in the data by reading and re-reading the transcripts from the interviews. Potential codes and areas of interest were highlighted in this phase.
b) *Coding:* This process involved examining the data for commonalities that could be broken down into codes. The researcher analysed the data by asking questions, looking for similarities and differences and making comparisons. Semantic codes were created based on the exact content of the data.
c) *Themes:* This phase required the researcher to consider the wider patterns of meaning in the data to form themes that related to the research aims. The related codes were clustered together in a meaningful way to form themes. This was achieved by investigating the context, conditions, strategies and consequences associated with the

phenomenon being studied.

d) The main themes were refined and systematically related to others by ordering the analysis using core headings to form a 'storyline.'

Accuracy and Rigour

DePoy and Gitlin (2016) describe six strategies to ensure accuracy and rigour in qualitative research: triangulation, saturation, member checking, reflexivity, audit trail, and peer debriefing. Three of these six strategies were used in order to ensure accuracy and rigour in the study. Triangulation, member checking and audit trail were not used on this occasion due to time constraints of the researchers.

a) *Reflexivity:*

Reflexivity refers to the systematic process of self-examination (DePoy & Gitlin, 2016). Creswell (2013) states that qualitative research is essentially interpretive. While an inductive approach to the analysis was adopted, the concept of reflexivity simultaneously suggests that it is unlikely that the researcher will achieve an entirely objective position from which to study the social world (Creswell, 2013). In this study, the primary researcher was a speech and language therapist in training at the time of data collection and analysis. The primary researcher got to know the participants through her observations and voluntary work in the centre. The primary researcher also had experience of working with young people with HF-ASD through her clinical placements and, therefore, had prior knowledge of the phenomena being studied. All three authors reflected on the possible influence of their professional experience on interpretation of the data. In being explicit about professional and

personal experiences, the authors strove to ensure that the findings are reflective of the participants' experiences (Curtin and Fossey, 2007).

b) *Peer Debriefing:* This step in the reliablility process involved the second and third authors examining and confirming codes and extracted themes. Peer debriefing was employed to uncover any biases or assumptions about the data on the researcher's part (DePoy and Gitlin, 2016). This process also allowed the researcher to test and defend emerging hypotheses and gain new perspectives on the data.

(c) *Saturation*

Saturation is another way in which rigour was ensured in the study. After ten interviews and initial immersion in the transcripts, clear indications of data saturation were observed. These indications were that the primary researcher was no longer surprised by what participants were saying and no new stories were being told (DePoy & Gitlin, 2016).

Results

The initial stage of coding generated 72 codes. Similar codes were then connected, establishing 12 themes. Finally, the codes were refined to generate four main distinctive, yet inter-related themes, to address the research aims. The themes and sub-themes are presented in Table 2.

The four inter-related themes that emerged are: 1) difficulty with specific components of communication, 2) managing challenging feelings, 3) limited opportunities for social communication and 4) a desire to improve social communication skills. The

first three of these themes are interlinked. It appears from the analysis that the participants perceive themselves as experiencing difficulties with components of social communication such as initiation of conversation and shared knowledge of topics. They then experience negative communicative events with their peers, which increase challenging feelings including anxiety around interactions. These are then followed by avoidance of interaction with peers or rejection by their peers for being different, which results in limited opportunities to practice social communication with peers. Meanwhile, the participants expressed a desire to communicate with their peers in school and improve their communication skills.

Table 2: Themes and subthemes

Themes	Subthemes
Difficulty with specific components of communication	The School Setting
	Unfamiliar Conversation Partners
Managing challenging feelings	Anxiety
Limited Opportunities for Social Communication	Rejection
	Self-Segregation
	Use of the Internet and Social Media for Communication
Desire to Improve Social Communication Skills	Wish for Help with Social Communication Skills
	Communication Strategies

Theme 1: Difficulty with Components of Communication

All participants reported problems with aspects of communication, both verbal and non-verbal. In particular, they identified problems with initiation of conversation and lack of interest and/or knowledge related to topics of conversation within their peer group, for example:

Extract 1: Jack, 17 years, Interview 1, Line 70 (Jack/17/I.1/L.35)

"Well like unless someone starts first and it's something I'm interested in then it's not going to really work out."

Mark claimed that when somebody comes up to him he feels "*awkward*" as he does not know what to say. Maria, Hannah, Jack and Cian also spoke of being unsure of what to talk about due to having limited shared knowledge on the interests of their peers, for example:

Extract 2: Cian/17/I.1/L.46

"I don't really have a problem talking to people it's just what to talk about is my main, you know, difficulty."

Less frequently, participants mentioned difficulties with interpreting emotion, humour and maintaining eye contact. In relation to eye contact, Maria reported that maintaining eye contact feels sore at the back of her eyes.

Two particular contexts were reported as sites of difficulties with aspects of communication: the school setting and unfamiliar conversation partners.

Subtheme 1.1: The School Setting

Three participants disclosed feeling it is more difficult to communicate with people in school than in other settings. Mark and Maria explained that there is a higher chance of being judged in school. They also described increased repercussions in school if they say something that their peers consider strange as they meet peers every day. Maria also explained that the school setting is difficult for her as withdrawing from

conversation is not easy in the school context. She explained how she could have a conversation in an oral exam situation as it is pre-planned and structured. However, she spoke of the difficulties she would encounter if she were to sit down with a group of girls her own age after the exam, as she would not know what to say to them.

Subtheme 1.2: Unfamiliar Conversation Partners

The five participants expressed a difficulty with communicating with unfamiliar people. They explained that it is easier for them to talk to people they know very well. Maria and Hannah found it easier to talk to adults as they felt that they understand them better than their peers. Hannah reported adults are "a bit more mature about the whole thing". Maria also found it is easier to communicate with other people with ASD because of their shared understanding. For Jack, Mark, Hannah and Maria, the majority of their friends appear to be adolescents with ASD that they have met through a centre for young people with ASD, confirming the above statement.

Theme 2: Managing Challenging Feelings

All participants discussed managing their own feelings during communication with peers, for instance:

Extract 3: Jack/17/I.1/L.61

"It's different than like learning how to talk to them. It's just getting the nerves to talk to them."

All participants spoke about themselves as communication partners in a negative light, for example:

Extract 4: Cian/16/I.1/L.18

"*…I'm just an outcast so no one really likes to talk to me…*"They also used phrases such as "*I'm not very good at it*", *"That's all I'm pretty much good at."*

Subtheme 2.1: Anxiety

All participants revealed that they were afraid of saying the wrong thing or being judged by their peers. Maria described being *"paralysed with fear"* during social situations. She also mentioned that her anxiety around peer interactions had recently resulted in her staying at home from school for two weeks as she was being bullied for having immature interests. Mark discussed how he is afraid of *"saying something stupid,"* as in the past his peers have laughed at him for doing so while Cian mentioned feeling "*nervous"* and Jack reports being made fun of frequently.

Theme 3: Limited Opportunities for Social Communication

There were recurring reports from all participants that they often felt isolated, leading a largely solitary life in school. They discussed being rejected by their peers, but also times when they segregate themselves for a number of reasons.

Subtheme 3.1: Rejection

The participants reported many incidences of being isolated by their peers and being alone most of the time in school which limits opportunities for social communication, for example Maria reported "*getting very panicky and worried and it probably doesn't help that I don't have very many friends at school. In fact I don't really have any friends at all*." (Maria/15/I.1/L.6)

Subtheme 3.2: Self-Segregation

Participants also described incidences when they segregated themselves from others. Maria described how she has become a "*wallflower*" in school. Jack, Hannah and Cian also recounted how they "*keep a low profile", "stay silent", "listen"* and *"observe*" in school. Jack reported how he finds a *"quiet corner"* at parties and stays there and Cian reported that he likes to be alone sometimes.

Subtheme 3.3: Use of the Internet and Social Media for Communication

Technology, namely the internet, was a popular communication medium that became evident among the three male participants. Jack and Cian's "best friends" are individuals who they speak to online. They find it easier to talk to these friends online as they share a common interest in video gaming and it is "*less assertive*" *t*han talking to someone in person. Jack has never met his virtual friend but they have similar interests. They met while playing an online video game and he described him as his "best friend" as they have loads to talk about every day. Mark and Hannah also found talking to their friends by text easier. Simultaneously, Cian reported that *"Not a lot of my friends ever talk to me though"* (Cian/16/I.1/L.40). In comparison, Maria preferred to talk to people in person and did not use social media sites as she felt that *"there's no real tone of voice set*" and that she is better able to explain herself if there is a miscommunication in a face-to-face conversation.

Theme 4: Desire to Improve Social Communication Skills

Subtheme 4.1: Wish for Help with Social Communication Skills

All participants expressed a desire for help with their social communication skills, in order to interact with their typically developing peers and make friends. Mark and

Maria gave suggestions of some areas of communication that they would like help with. Maria stated that any help with social situations would be beneficial and, *"it would be helpful if someone could like just write a guidebook"* about communication. Mark would also like to have a greater understanding into the way he has a conversation compared to how adolescents without ASD have a conversation. Hannah, Jack, and Cian conveyed a wish for support with social communication, but they were uncertain as to the precise type of help that would be beneficial for them:

Subtheme 4.2: Communication Strategies

Mark, Hannah and Maria have already tried some strategies to make communication more successful for them. Mark tries to think of topics that may interest his peers and then attempts to change the subject if it does not work. Maria and Hannah use scripting to plan for conversations that may occur the next day. However, Maria also revealed significant limitations of this strategy in that she tended to stay awake late attempting to generate scripts.

Discussion

This study aimed to explore social communication difficulties from the perspective of adolescents with HF-ASD. Secondly, it aimed to establish the type of support, if any, they feel would be advantageous in improving these problems and finally, if they are already using any beneficial self-initiated strategies. The results of the study will be interpreted in relation to these three research aims.

Perceived Difficulties

The five participants with HF-ASD in this study find social communication difficult. In line with current literature, the main components of communication that the participants reported difficulty with were initiation of conversation and unfamiliar topics (Klin and Volkmar, 2005, Gibson et al., 2013). This significantly limits their chances to communicate: if they will not initiate conversation, they are dependent on others to do so. Having different interests to their peers and not having knowledge about topics of conversation further limits opportunity for communication. Although previous studies found that adolescents and adults with HF-ASD talk at length about their special interests with little regard to the interests of the conversation partner (Klin and Volkmar, 2003), in the current study the majority of the participants were aware that their special interests were not interesting to their peers. They choose to stay silent as they do not know what else to talk about. One adolescent also spoke about how he tries to think of topics that may be more interesting to his peers. This has been reported to be easier for third level students with HF-ASD as the common area of study gives them a shared interest with peers (Hees et al., 2015).

The participants' difficulties with communication are deeper than their problems with initiation and finding topics for conversation. Managing anxiety during social communication appears to limit their opportunities to interact with peers due to rejection and self-segregation (De Bruin et al., 2007; Joshi et al., 2010). Heightened arousal related to social-emotional information may also interfere with the way social cues are interpreted and responded to (Joseph et al., 2008; Kyllianinen, Hietanen and Skin, 2006). Anxiety contributes to inadequate interactions (Kleinhans et al., 2010; Myles, Barnhill, Hagiwara, Griswold, & Simpson, 2001) that in turn contribute to

increased anxiety (Bellini, 2006). Social awkwardness may become more obvious in adolescence and contribute to negative attitude and responses from peers (White et al., 2009). Individuals with HF-ASD are often aware of their deficits leading to increased anxiety (Klin & Volkmar, 2000; White et al., 2009). Increased anxiety may lead to avoidance of social contacts which could further lead to fewer opportunities to develop skills involved in social interaction (White et al., 2009). This bidirectional relationship between inadequate social communication and social anxiety has been considered within the framework of cognitive behavioural therapy (CBT) (Spain, Blainey and Vaillancourt, 2017). Repeated unsuccessful social interactions become associated with negative experience leading to social anxiety that in turn leads to negative thoughts, expectations and avoidance of social interactions limiting further opportunities for developing and practicing social communication skills. CBT-based approaches to social skills intervention have been shown to lessen social anxiety in adults (Spain et al., 2017) and children (Wood et al., 2009).

The participants do not have difficulty interacting with other individuals who have ASD as they often have common interests. They are also more inclined to initiate conversation with each other as they believe there is shared understanding and a lesser chance of being judged than with their typically developing peers. This is similar to the findings by Jones and Meldal (2001) who found that other individuals with HF-ASD are a source of friendship and support.

Participants sometimes exclude themselves from social situations due to anxiety related to communication. Combination of self-segregation, and rejection by peers means that the participants stay silent and observe their peers from the outside which

further limits their chances to practice communication. Adolescents with HF-ASD cannot be expected to improve their communication skills until they can gain positive experiences interacting with their peers. According to theories of experiential learning, experience is essential to learn new skills and transfer knowledge (Kolb et al., 2001).

Use of social media for communication influences social communication of adolescents with HFSAD in multiple ways. On one hand it further limits the participants' opportunities for face-to-face communication, but, on the other hand, gives that the opportunity to communicate under less stressful circumstances. Four out of the five participants often use technology to communicate with their friends. They find it less assertive than the instant nature of face-to-face conversation as they have time to think about how to respond. It is also easier for them to find people with similar interests online. Previous research found that people with HF-ASD consider the internet a useful way of forming and maintaining relationships making it empowering communication medium for those with ASD (Benford and Standen, 2009; Jones & Meldal, 2001). Nevertheless, although the internet is an undeniably useful way for people with ASD to meet like-minded individuals, an over-reliance on virtual communication limits their opportunities to practice face-to-face communication.

Help with Communication

Historically it was believed that individuals with ASD had no desire to communicate with others (Kanner, 1943). Although the adolescents in this study tend to self-segregate in school, the data indicates that participants have a desire to interact and

make friends, but they do not always possess the skills, opportunities and confidence to do so. This supports previous research indicating that adolescents with HF-ASD were motivated to develop friendships and enjoyed interacting with their friends (Church et al., 2000; Howard et al., 2006). In contrast, there was sometimes a sense of passivity among one of the participants, in particular, regarding his perceived inability to change and influence his own experiences.

Self-initiated Communication Strategies

The subtheme 'Communication Strategies' indicated that participants were trying to improve their social communication by preparing topics and scripts for interactions with peers. While these strategies can be helpful, participants reported that extensive planning of potential communications tends to keep them awake at night.

Clinical Implications

The final aim of the study was to propose possible methods of social communication coaching for people with HF-ASD. On the basis of the themes that emerged from this study, the following social communication training can be suggested:

Social Communication Intervention

For adolescents demonstrating limitations in conversational skills, Nippold (2000) suggests structured, small group activities designed to strengthen their skills. This kind of intervention is considered important due to the significance of conversation for adolescents' well-being (Rawlins, 1992). Such activities should aim to provide them with positive experiences and constructive feedback about how they use the selected important conversational behaviours such as: staying on topic, asking relevant questions, making supportive comments, interrupting appropriately, turn-

taking, smooth topic shifts, using figurative language and humour skilfully, being discreet when disclosing personal information about the self and others, understanding others' perspectives, and using facial expression and body language to enhance interactions (Larson and McKinley, 1988). Reed et al. (1999), using written questionnaires with adolescents, also recommend focusing on skills related to empathy and an addressee focus in interaction. Following from the perspectives of the adolescents in this study, how to initiate a conversation and having a repertoire of general topics to talk about could be included in such intervention. In conjunction with these skills, it would also be important to explore the relational reasons for developing the particular skills being worked on. Opportunities to generalise the particular skills in natural settings should also form part of the intervention. Nippold (2000) suggests that in this phase of intervention, adolescents should avail themselves of feedback from a close friend or trusted adult about their interaction i.e., a communication mentor.

Peer Mentor

Importantly, the current study indicates that adolescents with HF-ASD do not have difficulty interacting with other people with ASD. This should be considered when planning social communication intervention programmes. Adolescents with HF-ASD find it difficult to communicate with their typically developing peers. Therefore, the focus should be on developing skills for communication with their typically developing peers. It may be advantageous for this group to have a peer mentor system, by which to practice taught social communication skills such as initiating conversation with a typically developing peer. From the perspectives of the participants in this study, help with communication is not solely about help with

specific components of communication, but about building their confidence around social situations and helping them to deal with their own feelings. A peer mentor system would give these adolescents positive experiences with peer interaction and help to build their self-confidence in communicating with their typically developing peers. They would have the opportunity to practice social communication skills that they find difficult, with the aim of generalizing these skills to their everyday interactions with peers (Nippold, 2000). School was identified as the most difficult setting in which the participants have to communicate, so a peer mentor system would also give them a source of social support at school. As the peer mentors learn about people with HF-ASD, it may also raise awareness among their classmates and lead to better understanding and acceptance of the nonconformities associated with people with HF-ASD.

Methodological Limitations

Although this study had a small sample size, each participant was interviewed on two separate occasions, to ensure the richness of the data. Two interviews gave the participants time to ponder over the phenomena discussed in the first interview, before the second one (Hansen, 2006). Two interviews also allowed for exploration of participants' thoughts, feelings, intentions, actions, and contexts (Charmaz, 2008). Furthermore, the primary researcher volunteered in the centre that three of the participants attended, to build rapport, as it is known that individuals with ASD do not feel comfortable talking to unfamiliar people. However, it must also be acknowledged that completing two interviews with each participant lead to repetition of the content being discussed with participants. The first interview was also more prescriptive in nature, which was not as conducive to inductive analysis.

Reflexivity, peer debriefing and saturation were used by the researchers to improve accuracy and rigour in this qualitative study. However, future research should also incorporate data triangulation, audit trail and member checking to maximise confidence in the results. As these strategies were not employed in this study, it may have reduced the accuracy of the interpretation of the findings.

Conclusion

The difficulties with social communication experienced by adolescents with HF-ASD are complex, comprised of more than the problems with specific components of communication by which HF-ASD is characterised. The most pertinent difficulties with social communication from the perspectives of the participants in this study are: initiating interaction, shared conversation topics, and managing their own feelings in social situations. They also indicated lack of opportunities to communicate with their peers due to rejection and self-segregation. Nevertheless, all participants showed desire to improve their communication skills. Therefore, they may benefit from social communication intervention through direct instruction and a peer mentor system. While the results of this study are preliminary, and are not intended to be generalised to the population of adolescents with HF-ASD, they are valuable in giving a voice to adolescents with HF-ASD and they indicate that further research in this area is warranted.

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Interview Schedule 1

- How is school going for you?
- What kind of things do you find hard in school?
- How do you find talking to people in your class at school?
- How do you feel about talking to groups of people?

  Probe:

  - Are there certain times where you find it difficult talking to people?
  - Can you tell me more about this?
- What parts of talking to people do you think you're good at?
- Do you ever find it difficult to make friends? Why?
  - Tell me about your friends. What are they like?
- Do you use any social media sites such as Twitter or Facebook?
- What do you think about talking to people on Facebook/Twitter?

  Probe:

  - Is it easier/harder? Why?
- What do you think having a friend on Facebook means?
- Do you think you would like some help with talking to people?
- What would you like to know about talking?

  Probe:

  - What kind of things would be helpful to know about talking to your friends in school?
- Did anyone ever help you with talking to people before?
- If, so was this helpful?
- What made it helpful?

Interview Schedule 2

- Do you ever avoid situations where you have to interact with people? Why?
- How do you feel about parties?
- Have you ever got in trouble in school?
- How do you feel about talking to your teachers?
- How do you feel about answering questions?
- Do you ever fight with people in school?
- What do you hope to do when you finish school?
- How do you feel when you experience an awkward conversation?
- What are you like at listening to people who are talking to you?
- What do you do when you're upset?
- How do you feel when other people get upset?
- What do you do to make interacting with people with easier?
- What parts of communicating do you think are the hardest?
- Tell me some of the things that are good about being you.
- Tell me some of the things that aren't so good about you.
- Can you think of anything you would like help with?