# Possibilities of Using the GQ-ASC Questionnaire For the Screen-ing of Autism Spectrum Disorders in Female University Students

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**Abstract:** In recent years, the number of university students with ASD has increased and the distribution of students in individual study programs has changed. There are also more female students with ASD who, due to the mild manifestation of the disorder, did not need support or were not even diagnosed until now. The article focuses on the possibilities of using the GQ-ASC questionnaire for screening of autism spectrum disorder in adult women. It shows its administration on the cases of 6 female students and compares its results with the diagnostic tool ADOS 2 and anamnestic interview. Last but not least, we also discuss the possible risks of interpreting the results due to the variability of female students with ASD.

**Key words:** Autism spectrum disorder, Female university students, GQ-ASC, Counseling centres

## Introduction and Theoretical Framework

Girls and women appear to be a specific group in terms of autism spectrum disorder (ASD) diagnosis. This is due to the fact that they are able to compensate for the manifestations of the disorder to a large extent, where they try to "mask or camouflage" them in social contact, i.e. they behave in a learned or observed manner so as not to differ significantly from the majority of society. One may even say that they "pretend to be normal" in social situations, which, according to experts, leads to late diagnosis or even no diagnosis at all (cf. e.g. Thorová, 2016; Šporclová, 2018 or Bargiela, Stewart & Mandy, 2016). In fact, diagnostic criteria do not sufficiently take this into account and detect rather more severe manifestations of ASD. Although it has long been reported that ASD occurs more frequently in boys, roughly at a ratio of 4:1 (e.g., Hrdlička & Komárek, 2004), experts now believe that this may be a flawed

conclusion. This may be related to the fact that some women have not been diagnosed with autism in the past due to their ability to compensate and mask the manifestations of the disorder (Lai et al., 2017; Hull & Mandy, 2019). Current research suggests that the difference in the prevalence of ASD between males and females may be lower, for example Kim reports a prevalence ratio of ASD in males and females of only 2.5:1 (Kim et al., 2011).

New findings suggest that the social typology of individuals with ASD should be considered during the diagnostic process. Traditional divisions of social types were introduced by Lorna Wing who distinguished between **an aloof type, a passive type and an active-but-odd type** based on manifestations in social behavior (Wing, 1993; see also Sotáková & Šporclová, 2020). In order to include the specificities of girls and women, a new division based on the ability to adapt in social situations has been proposed (Attwood & Garnett in Grandin et al., 2019):

- **Introvert** (minimizes and avoids social involvement but this usually does not cause feelings of loneliness; in Wing's typology it would correspond to the lonely and passive types)
- **Intrusive Extrovert** (active in social behavior but due to deficits in core areas the activity is not adequate, the individual is unable to read and interpret social situations appropriately, therefore appears intrusive, pushy and demanding in social contact; we could associate the given type with the active-but-odd type according to Wing)
- **Masking Extrovert** (individuals who perceive their social difficulties and compensate for them by observing, analyzing and imitating the behavior of their peers; for this type, there is no clear direct connection with Wing's division, these women and girls tend to be diagnosed later, as they mask the manifestations of PAS)

As is evident, this division emphasizes masking or camouflaging the manifestations of autism spectrum disorder, which has not yet been reflected on further in the diagnostic criteria. As we have already mentioned above, this has led to a situation where women were diagnosed late or not diagnosed at all. This approach was further developed by Hull and colleagues when they examined masking in their study. They arrived at the following stages of masking ASD manifestations (Hull et al., 2017):

- **Compensation** (learning and imitating social behavior by observing peers or watching television shows, developing a "social personality," possibly compensating through excellence in a particular area or forming social relationships based on stereotypical interest)
- **Masking** (typically create a neuroty-

pical personality by imitating others, creating a social mask)
- **Assimilation** (trying to look "normal," targeted suppression of autism symptoms, acceptance of a "social mentor")

Both approaches show that girls and women with ASD often try to conform to society as much as possible in their social behavior and are able to adopt social patterns. Thus, the presence of ASD may not be evident at all in normal social interactions. Therefore, it is important to include tools in the diagnostic process that aim to identify these manifestations.

The issues described above are also reflected in situations at university counseling centers, where we are increasingly encountering students who have not yet been diagnosed, are currently undergoing the diagnostic process or have only been diagnosed in recent years. Clients arrive at the centers with various requests, for example, to receive a study support assessment, to resolve personal issues, problems related to their studies or even to request a diagnosis of autism spectrum disorders. According to the current legislation, it is impossible for the counseling staff of the centers to make a definitive diagnosis (only a clinical psychologist or psychiatrist can do this). However, they often find themselves in a situation where they need to determine the level of risk of ASD in female students so that they are able to refer them to the appropriate clinical workplace and also help set up support during the diagnostic process, which can take up to a year in the Czech Republic. In these cases, it can be difficult to distinguish whether these are personality traits or whether the declared behavioral deficits are related to another type of neurodevelopmental disorder (according to the DSM 5, for example, specific learning disorder, ADHD, etc.) or whether they are in fact contected to mental problems. We therefore believe that the inclusion of screening tools in the practice of counseling centers is essential.

We have been systematically dealing with the issue of ASD at the Academic Counseling Center under the Faculty of Education at Charles University for a long time now and we also provide ASD screening for students. Based on the request of each student, a diagnostic interview (detailed anamnestic interview) is conducted with the client, supplemented by a screening questionnaire and in some cases we also use the standardized ADOS 2 (Module 4) diagnostic tool. Typically, we have used the Autism Spectrum Quotient screening questionnaire, also known as the AQ test, which was developed for diagnostic purposes by Baron-Cohen (2001). However, as more and more female students with suspected ASD whose symptoms were not so evident in their daily interactions, while they struggled with problems in social interaction in eve-

**Figure 1.** Sample GQ-ASC questionnaire (see Appendix 1 for complete questionnaire)

| **Socialising** | | | | |
|---|---|---|---|---|
| 14. I socialise quite well for a while, but subsequently feel exhausted | **1** | **2** | **3** | **4** |
| 15. I often have a facial 'mask' that hides my social confusion | **1** | **2** | **3** | **4** |
| 16. I have intense emotions | **1** | **2** | **3** | **4** |
| 17. I apologise when I make a social error | **1** | **2** | **3** | **4** |
| **Interests** | | | | |
| 18. When I was 5-12 years old, I preferred to play with girls' toys | **4** | **3** | **2** | **1** |
| 19. When I was 5-12 years old, I preferred to play with boys' toys | **1** | **2** | **3** | **4** |
| 20. My interests were advanced for my age (e.g. opera) | **1** | **2** | **3** | **4** |
| 21. I am talented in music | **1** | **2** | **3** | **4** |
| **TOTAL SCORE:** | | | | |

ryday life, starting coming to our clinic, we decided to use the GQ-ASC questionnaire for adult females (Brown et al, 2020). Our main motivation was to find a screening tool that would be effective and useful for college counselors.

## GQ-ASC Questionnaire

The questionnaire is based on a screening tool originally developed by Tony Attwood and his colleagues (Attwood, Garnett, & Rynkiewicz, 2011). In this version, it was aimed at girls between the ages of 5 and 19 in two forms (one test for girls 5–12 years old and one for girls 13–19 years old). It contained 54 items for younger girls and 58 items for older girls, all items were evaluated using the Lickert scale (strongly disagree – mostly disagree – mostly agree – strongly agree). It subsequently underwent several modifications and we use the version of the questionnaire for adult women developed by Brown (Brown et al., 2020) in 2020. The questionnaire was validated on a sample of 672 women (350 women with ASD and 322 women without ASD).

Individual items were modified to match the specificities of adult women. Furthermore, items with low predictive ability were eliminated and finally, the items were organized into five categories (imagination and play; camouflage; sensory perception; social behavior and interests). The final version of the questionnaire contains 21 items and based on the aforementioned research, a cut-off score of 57 was set, which was used to identify 80 % of women with ASD (Brown et al., 2020). The questionnaire is designed as a self-assessment screening, so that even clients themselves can use it. The scoring process is very simple where the final score is obtained by simply adding up the scores given for each response.

In 2022, a pilot study on the psychometric characteristics of the GQ-ASC questionnaire was conducted in the Czech Republic and involved 142 respondents (Aldabaghová, 2022). The questionnaire was translated and the items were adapted to be easily comprehensible in the Czech language. Additionally, items were modified to include a variant for both men and women. The sample included 70 individuals with ASD (48 females and 22 males) and 72 control group respondents without ASD (60 females and 12 males). The results of the survey in the Czech population showed that even in the sample studied, the identification of ASD based on the questionnaire was around 80% (specifically 83.3%) in women. Thus, it can be said that the study shows similar psychometric characteristics of the questionnaire in Czech respondents as the original Brown study.

## Experiences with Using the Questionnaire in Practice on Female University Students – Case Studies

In the present article, we draw on our experience of using the GQ-ASC questionnaire with female university students to determine the level of risk for autism spectrum disorder. For this reason, we purposely included the questionnaire in the years 2021–2022 in the diagnosis of female students who have already received an ASD diagnosis from a clinical psychologist or psychiatrist[1]; they were in the middle of the diagnostic process or they requested ASD screening at our counseling center and were subsequently referred for clinical diagnostics. We also worked with the ADOS 2 diagnostic tool to verify the presence of ASD symptoms. Our intention is to demonstrate the applicability of the screening questionnaire in practice and to highlight possible complicating factors that may

[1] The ASD diagnosis was not confirmed until adolescence or adulthood in all students.

lead to approximately 20 % of clients with ASD (see psychometric characteristics of the questionnaire above) being overlooked. We describe how additional information can be obtained so as not to bias the results of the GQ-ASC questionnaire. Thus, in the following section, we present the cases of six female students, we show how they scored on the GQ-ASC questionnaire, the ADOS 2 test and we supplement this with information obtained from the diagnostic interview. Our aim is to show how the GQ-ASC questionnaire can be used effectively in counseling practice and what needs to be considered or added when interpreting the results of the questionnaire.

For the purposes of our work, the questionnaire was used in the original version published by Brown (2020) and was only translated into Czech by the author of this article. It did not differ significantly when compared to the translation in Aldabaghová's (2022) pilot study but it did not include female and male polarity in some items (as in the original). This proved to be a factor for items 6, 7 and 8 (see Appendix 1) for some clients that may have influenced the screening results. However, due to the fact that the screening was administered during a counseling session where it was possible to clarify these facts during the interview with the client or the client could ask questions as she answered, there was no bias in the results of the questionnaire. The Czech version of the questionnaire according to Aldabaghová (2022) is sufficiently validated for use in our environment, so we did not aspire to create our own version. Below we present brief records of our work with the clients, highlighting their characteristics important for the interpretation of the screening.

As already mentioned, for the purposes of the study, we also included an anamnestic interview and the diagnostic tool ADOS 2. The anamnestic interview was focused on the manifestations of specifics in behavior associated with ASD during childhood and adolescence. It covered the following areas:

- early childhood (deviations in psychomotor development, speech development)
- preschool age (adaptation in preschool, specific interests, specifics in sensory perception, interaction with peers)
- school age (adjustment to school, peer relationships, academic skills, interests)
- adolescence (relationships with peers, differences in experience, psychological difficulties, partner relationships, friendship)

The last method used was ADOS 2, created directly for the diagnotics of ASD. We were interested in how the results of this method, considered the "gold standard", would correspond to the result of the screening. Module 4 of this test

**Table 1.** Sample of students included in the study

| | Age | Program | Prior ASD diagnosis | GQ-ASC score | ADOS 2 total score |
|---|---|---|---|---|---|
| Student 1 | 21 | Bc. | YES | 54 | 9 |
| Student 2 | 24 | PhD | NO | 62 | 7 |
| Student 3 | 52 | Bc. | NO | 47 | 2 |
| Student 4 | 20 | Bc. | YES | 63 | 8 |
| Student 5 | 19 | Bc. | NO | 62 | 9 |
| Student 6 | 23 | Mgr. | NO | 71 | 11 |

intended for adolescents and adults is also largely based on interview and observation of specific manifestations in communication and social interaction. Unlike the anamnestic interview is more focused on current manifestations and plans for the future. Therefore it is often supplemented with an anamnesis obtained directly from the adult respondent, from his/her parents or close people.

## Student 1 (21 years old)

The student sought the services of our counseling center because she requested to be classified as a student with special educational needs due to a recent diagnosis of ASD. She had already completed one year of study at another university where she was unable to adapt, so she stopped attending school after a few months and dropped out during the second semester. As part of the study support assessment (see Kucharská et al., 2021 for more details), an anamnestic interview was conducted and the GQ-ASC as well as the ADOS 2 were administered. In social contact, the student gave a quiet impression, answering questions appropriately without any noticeable specific behavioral manifestations, although she made eye contact solely when answering a question.

The **anamnestic interview** revealed that differences in social interaction were already evident at preschool age when she avoided her peers and did not participate in their games because she did not understand them. She described her peers as noisy. Later on in her education, she always had one friend with whom she could "talk at school" but outside school she did not seek their company and she pursued her own hobbies (astronomy and archaeology). She also had problems with the teachers who often used double entendres and irony in their speech often deviating from the

topic being taught. In such subjects, she often "switched off" and was unable to answer the teacher's questions. However, she did not have major problems with learning and completing the subject matter, using textbooks or information from the Internet, and was mostly described by teachers as unproblematic or occasionally inattentive. The transition to university was challenging for the student as there was no clear structure, she had difficulty coping with the large number of students in the classrooms or the fact that she did not have a designated seat in the lecture hall. This was further complicated by states of sensory overload; she often had to leave a lecture because she was uncomfortable in the seat that was left for her, she was bothered by artificial lighting or the increased presence of unexpected sounds (the shuffling of chairs, the sound of an object falling on the floor, etc.).

In the **GQ-ASC questionnaire, the student scored 54 points**, which is below the cut-off for pronouncing a risk of ASD. She scored particularly low on the questions related to camouflage/masking (items 6–9) and on items focused on social interaction (15 and 17). In terms of her social type – **introvert** (see above) – she did not use camouflage, did not observe or imitate women in social settings. She found social situations so challenging and overwhelming that she avoided them rather than trying to navigate them using compensatory mechanisms. On the **ADOS 2 test**, the results were consistent with the autism spectrum. In the area of communication, the student scored 4, with differences evident particularly in gestures and sustaining conversation where she was very passive. In social interaction, she was within 5 points. Eye contact, quality of social reactivity and extent of reciprocal social interaction were taken into account.

## Student 2 (24 years old)

The PhD student had not been diagnosed with ASD prior to her arrival at the Academic Counseling Center and visited the center on the recommendation of her family and because she was aware of behavioral problems that made it difficult for her to interact socially. She spoke of people treating her as "stupid" in social interactions, feeling that she did not understand them as she was often unresponsive, for example. The problem is not that she doesn't understand but often it is not clear whether she should respond or she doesn't know how to respond, in such situations she remains silent (the behavior mentioned directly refers to item 12 in the questionnaire). During the diagnostic encounter she was mostly quiet, eye contact could be characterized as avoidant.

The **anamnestic interview** revealed that her mother tongue is not Czech (at present she communicates exclusively in

Czech, with the exception of her parents, with whom she uses her mother tongue in a simple, general form), she has lived in the Czech Republic with her family since she was about three years old and she is the youngest of three sisters. She is very close with the middle sister. She has never sought out the company of her peers and does not understand them. She "survived" kindergarten, at that time she did not speak Czech well, so she just followed the others. Since primary school, she did a sport competitively, in which she was technically skilled. She was interested in the mechanisms of how she could improve but she was criticized for not joining the team and failing to show emotions. She hardly had any friendships, she remembered one friend from school with whom she was able to communicate she did not understand why she should interact with him outside of school as they had nothing in common apart from school. Academically, she had never had problems, her results were above average. Her closest person was her middle sister who always explained social situations she didn't understand ("She would take me with her when she went out with her friends, I would sit there but I often didn't understand what they were talking about. My sister always explained it to me at home afterwards, why they were acting like that and stuff.") She currently lives alone in an apartment, is perfectly happy with her situation, feels pressure from her mother to find a boyfriend, get married. She would like to understand why this is so important for the people around her as she herself does not feel lonely. She fills her life with her studies, while she earns extra money by coaching children. In her spare time she plays sports (she started running, although she won't make the national team anymore, she wants to see how far she can go), reads articles in academic journals, watches TV.

The student **scored 62 on the GQ-ASC questionnaire**. She scored low on items related to interests. Her focus for her sport was not reflected in the questionnaire but in describing what was important to her in sport, we can observe some specifics – focus on the individuality of the sport, following her sister was a motivation for the sport, then found her own goal in technical improvement, zero interaction with others in the club, problems with coaches when asked to express emotions. There were also lower scores for camouflage, where again we can relate the results to the **introverted social type**. Also the results of the **ADOS 2 test** showed the presence of autism spectrum disorder. In the area of communication, the student scored a 2, with differences particularly evident in sustaining a conversation. Social interaction was scored at 5 points. Eye contact and quality of social reactivity were taken into account. It was evident in several areas that the student is aware of her

deficits and has learned patterns of behavior, which she uses.

## Student 3 (52 years old)

This client requested an ASD screening based on studying online materials about autism spectrum disorders. The second reason was that she had met several people with ASD with whom she got along and felt she had a connection. During the encounter, there were no specific manifestations in communication or behavior. The student appeared thoughtful, actively showed emotions and described her feelings.

During the **anamnestic interview**, the student kept coming back to her family. She was the youngest of three children born to a single mother; her siblings had a different father. Her mother was an artist who had problems with the communist regime. Her mother's lifestyle often led to difficulties in caring for the children and her grandmother's siblings helped with childcare. At the age of 10, the student was placed in the foster care of relatives by the court after both siblings left the family. She used to visit her mother, feeling remorseful that she was actually happier with her relatives. In the student's words, she liked school and always had enough friends ("People always trusted me, confided in me, I was always accepted.").

In the **GQ-ASC questionnaire, the student scored 47 points**, which is below the cut-off for pronouncing a risk of ASD. She scored low on most of the items, with the highest scores on items 1–3, 5, 16, 17 and 21. As is evident, these are items that do not refer to the specifics of ASD but rather to the specifics of female clients or are neutral (e.g., item 21 – "I have a musical talent"). In contrast, she scored low in the areas of camouflage, sensory perception or social behavior, which does not confirm the presence of ASD. The **ADOS 2 test** also did not confirm the presence of ASD. In the area of communication, the student scored 1 point due to the low representation of gestures in any form. In the area of social behavior, she scored 1 on the extent of reciprocal interaction, otherwise no specific differences were noted. For example, she differed significantly from the other students in the task "Telling a story based on a book" where she not only described the events (as most of the other students did) but also commented richly, expressed emotions over the pictures and included the thought processes and emotions of the characters in the story ("Haha, well the gentleman was wondering if he had gone mad this morning, luckily there was a report on TV about a mystery, so he realized he must have been one of the victims...")

## Student 4 (20 years old)

The student was diagnosed with ASD at the age of 18. Prior to this, she had been

struggling with mental problems based on anxiety disorder, which she said were associated with feelings of otherness, not being accepted by a peer group and problems in social interaction. At the same time, she was struggling with sensory hypersensitivity to light and unexpected sounds. During the meeting, the student wore sunglasses because of the artificial lighting and brought along a stuffed toy, which she said calmed her down (she put it in her backpack about halfway through the session). She communicated adequately, eye contact was distorted by the sunglasses and could not be assessed. She appeared shy but actively described difficult situations ("I can talk to teachers and arrange what I need. But I have to know the teacher a little bit first, and I can only do that if we are alone together and I know he or she will listen to me.").

During the **anamnestic interview**, she stated that she had been experiencing adaptation problems since kindergarten ("I cried for a long time in kindergarten, I didn't want to eat there or play with toys because they were different from what I was used to."). Adaptation problems also occurred in primary school, and she usually became "friends" with someone, typically had one friend, and then the situation improved. In adolescence, she struggled with feelings of otherness, wanting to fit in with her peers but not understanding them. She stated that at the end of primary school she had two friends but only went to secondary school with one of them ("Sometimes it was a problem that I was somewhere with one and not the other, the other one was angry about that. The fact that only two of us went to secondary school solved that. But by sophomore year we stopped being friends anyway."). In secondary school, she saw the school psychologist and became close with her. She trusted adults more than her peers because her peers were unpredictable. Problems with hypersensitivity to light and certain sounds (e.g. blowing one's nose) also worsened in adolescence. She experienced anxiety and panic attacks, which was the primary basis of her first diagnosis.

The student scored **63 on the GQ-ASC questionnaire**. Specific manifestations were present in all the areas studied, thus she scored high in all areas. However, she often used the rather agree/rather disagree option, and mostly avoided the extreme values of strongly agree/strongly disagree. For item 11, she made sure it counted, even though she had already overcome it. She described major problems in childhood (e.g. washing her hair) and said she had mastered this in adolescence (she has a routine). Socially, the student could be classified as a masked extrovert; she was active in social interactions but was already conspicuous in her appearance at first encounter, using an object (a stuffed toy) to calm herself. **The ADOS 2** test confirmed the

presence of autism spectrum disorder. In the area of communication, the student scored 3 points, with differences evident mainly in sustained conversation and gestures. Social interaction was scored at 5 points. She scored in the areas of social reactivity, reciprocal interaction and examiner directed expression. Eye contact could not be fully assessed because of her sunglasses, however, given her facial expression, we believe she would have scored here as well.

## Student 5 (19 years old)

The student sought out the services of the counseling center on her own for a study support assessment. Her diagnostic process was still ongoing, and ASD was suspected by the psychiatrist she was seeing for gender identity issues (suspected transsexuality). This was later not confirmed, however, some issues in accepting the female gender role persist. She had just started university, which meant moving to a new city, living in a dormitory and a completely new way of learning. She exhibited major adaptation problems from loss of privacy and (living in a dorm in a single room but with shared kitchen and common room) and high levels of stress caused by the large number of social interactions she was engaging in throughout each day.

She gave a calm impression during the social interaction, asking questions if she did not understand something. For some questions in the anamnestic interview, she stated that she had to think about her answer. She was reserved in terms of reciprocal interactions. For questions focused on experiencing social situations and the emotions associated with it, she reported that it was too difficult a question, that she could not recall the feelings of a given situation since it happened long ago. After some time (about 25 minutes), a slight tension became noticeable, with the response that it was difficult to answer now being repeated more often. After the meeting, the student sent an email to add to some of these responses.

The **anamnestic interview** revealed that the student's family is very important to her, especially her parents. She is the youngest of three siblings, where they tolerate each other and like each other but basically do not communicate (currently both older siblings have been living away from home for several years). Home is the base where the student was used to "shaking off" the stress of daily demands (school). Since childhood, she showed differences in social behavior, never seeking the company of peers, she had no friends (did not need them). Her family and other families within the parish she and her parents attend are an important group for her. There she follows the activities of others, is rather passive but has no major problems getting involved. In her social behavior and communication, she says she often has

problems with not clearly understanding the content or substance of communication, and is bothered when people make contact with her for no reason ("I was sitting in a lecture and a student sitting in front of me turned around and asked if I had already signed the attendance sheet, even though the attendance form had been sent by the lecturer from back.") and unexpectedly ("In seminars, they call on us in no clear order and want us to respond immediately to a question on a topic we are discussing for the first time!").

In the **GQ-ASC questionnaire, the student scored 62**, but only after items 6–8 were rescored. She reached 53 points when the test was scored initially. This was related to the fact that she more or less negated the answers related to female imitation in her first answers. It was only after the administration was completed that she asked whether observing and imitating others could apply to both women and men. She explained that she had primarily observed men to see if she was closer to them than to women. She has more difficulty understanding women's social behavior. After being reassured that this can also apply to men, she changed her answers, which led to an increase in her score. Here, we can infer that problems in accepting gender identity and gender roles have led her to not identify with women. One could also discuss here Baron-Cohen's E-S (empathy-systematization) theory, i.e., the "extremely masculine brain" theory in individuals with ASD (Baron-Cohen, 2002) or the influence of the social type (Attwood & Garnett in Grandin et al., 2019). We could say this client was an introvert type but there is an emerging ability to camouflage in familiar social settings. The student scored a 9 on the ADOS 2 test. The resulting communication score was 4 points, and specifics were evident in all areas observed except for the stereotypical use of words. Social interaction was scored at 5 points. Specifics were present in almost all areas but the student is able to meet the demands of daily life independently and responsibly. She finds social interaction difficult to understand and exhausting, and there is little reciprocity in social interaction, although for a limited period of time the student can function adequately in social interactions.

## Student 6 (23 years old)

The student came on the recommendation of the university's officer for students with special educational needs. She was managing her studies fine academically speaking but she was experiencing non-specific "seizures" (tremors, paralysis, inability to react) during lectures and seminars and a psychiatrist diagnosed her with an anxiety disorder. In her own words, the student perceived her surroundings during such states but was unable to react. Faculty members often

did not know how to handle these situations; the duration varied from a few minutes to an hour. In face-to-face contact, there was a clear avoidance of eye contact and her speech was monotone.

During the **anamnestic interview**, the student reported that she had experienced social contact difficulties since childhood but her parents were not willing to admit any problems ("My parents told me that I was smart and we were doing well, so I had to manage everything, and so I did"). She respects her parents but prefers to do as she is told, not seeing them as a support unit. She herself spoke of a certain mask she used. The seizures started to occur in high school; an interesting fact was that they only occurred at school and the parents were never present during the episodes. The situation recurred at university, very often with lecturers whose lectures the student liked. Most often the attacks manifested themselves before the end of the lecture, which caused organizational problems.

The student scored **71 on the GQ-ASC questionnaire**. When answering some of the items, she seemed surprised at how consistent this was with her experience ("I totally agree, this is what I've always tried to do," she said for item 7). She scored highly on the items and there was no area that was significantly different. The student only stated that she had no musical talent. **The ADOS 2** score was the highest of the students observed – the student scored 11 points. The communication score was 4, and we arrived at a score of 7 in social interaction. In communication, the student responded to questions but did not initiate the communication herself, she hardly used gestures and was passive in the conversation. Eye contact was unusual, facial expressions were not directed at the examiner and there were deficits in reflecting on the emotional states of others, although she stated, "My parents tell me that I annoy other people, that others find my attacks bothersome." She repeated this several times. The quality of social reactivity and reciprocal interaction was reduced.

## Discussion

We summarize the results of our study conducted on six female university students below. For all of them, we included the GQ-ASC questionnaire in the autism spectrum disorder screening. We supplemented it with an anamnestic interview and the ADOS 2 test to analyze the results of the questionnaire and to observe areas that may affect the interpretation of the questionnaire. All students underwent the same procedure, with two of them already having been diagnosed with ASD disorder by a clinical psychologist or psychiatrist, while two others received this diagnosis after the study support assessment was carried out. One student chose not to undergo clinical diagnosis at this time, even though she was considered to

be at high risk for the presence of ASD (Student 2). In the last student, none of the diagnostic tools used indicated the presence of ASD and the differences in functioning and social behavior could be explained by the family situation in childhood and adolescence, which could have had an impact on personality development, therefore a clinical examination was not recommended.

We recognize that our study has major limitations. We worked with a small number of respondents, not all female students were clinically verified as having suspected ASD (students 2 and 3). We used an unverified translation of the English original. Although we cannot generalize the results of the study, its conclusions bring interesting findings applicable to counseling practice. Studies by Brown and Aldabagh (Brown, 2020; Aldabagh, 2022) show that there is no doubt about the relatively high reliability of the GQ-ASC questionnaires in women with ASD (see above).

From the data presented above, we can see that the GQ-ASC questionnaire corresponded to the results of the ADOS 2 test in most of the female students; its authors also declared that they based the questionnaire on the parameters of this test (Attwood, Garnett & Rynkiewicz, 2011). The ADOS 2 confirmed the presence of ASD in only one female student (Student 1), although the GQ-ASC questionnaire score did not indicate the presence of the disorder. We believe that this may have been due to the social type, which we identified in the student as an introvert type (Attwood & Garnett in Grandin et al., 2019). Another student (Student 2) with similar manifestations in social behavior (disinterest in social contact, shunning others) also scored lower on the camouflage/masking domain. It is the reduced need for social contact that leads to the fact that they may not develop the need to imitate the behavior of others, to "mask normality." Student 5, who had long-standing gender identity issues, also scored low in this area. It was important to her that there was a male polarity in the items, so she adjusted her answers, making sure that she could imitate men in items 6, 7 and 8. Therefore we would recommend to modify items 6, 7 and 8 to be neutral, e. g. "I avidly observe other people socializing" instead of "I avidly observe other female socializing". Moreover, she was also the introvert social type, although she manifests as a masking extrovert in her social environment. On the other hand, for student 6, it turned out that camouflage was an important compensatory mechanism for her. She used it to regulate her emotions. She learned this in her family where ASD symptoms were not tolerated. This led to meltdowns in an environment where she felt safe (mostly school) and the screening process was one of the first opportunities to talk about it.

We consider the data obtained from

the anamnestic interviews to be important. They can significantly contribute to the interpretation of the screening results, explain the specifics of the clients or help the counselor to distinguish specific behavioral manifestations based on autism spectrum disorder from those associated with other problems, environmental influences, etc. The anamnestic interview also allows one to track symptoms over the course of an individual's development, which can be crucial in distinguishing ASD from, for example, mental health problems. Indeed, the manifestations of ASD must be present since childhood, even if they differ in degree and in their demonstration in the client's behavior (Thorová, 2016). In our sample, it was important how clients talked about friendships from childhood. For most of them, relationships with peers were challenging, they did not have many friends and three of them (Students 1, 2 and 5) did not seek social interaction at all. In contrast, Student 3, who did not meet the criteria for ASD, spoke of having abundant social relationships, friends confiding in her and discussing personal problems with her. Thus, understanding and involvement in social situations during development may be another indicator that we can use in determining risk for ASD. Last but not least, the anamnestic interview may provide information that we would not have found from the questionnaire alone, while it could bias the results of the questionnaire. For Student 5, this information included problems in gender role acceptance and uncertainty in gender identity development; for Student 1, it was a description of the need for repetitive patterns (always the same seat in the classroom) or problems coping with situations with large numbers of people.

The aim of our report was to show the potential use of the GQ-ASC questionnaire in counseling practice. Although the questionnaire was originally constructed mainly for self-diagnosis of ASD, we believe that it can be used by psychologists and counselors for basic screening for the presence of ASD. Studies by Brown (2020), as well as a pilot study by Aldabaghová (2022) in the Czech Republic show relatively good psychometric properties of the questionnaire. According to both authors, it is able to capture more than 80% of adolescent girls and women with autism spectrum disorder and their scores are significantly higher than those of women from the neurotypical population or men with ASD. It follows that the questionnaire is well suited specifically for the identification of women with ASD. Using the cases of clients from the Academic Counseling Centre under the Faculty of Education at Charles University, we attempted to show that it can be beneficial for the accuracy of interpretation of the questionnaire results if the questionnaire is used during a learning support assessment. This is because clients may not fully understand

some of the items or may require clarification in items relating to the past, as Aldabaghová (2022) also points out. If we supplement the screening results with the anamnestic interview, we may also detect clients who would have scored lower than the cut off score during the self-diagnostic interview. In addition, we may detect ASD symptomatology already in childhood, which can provide support for the potential risk of occurrence. The simplicity of administration and evaluation of the questionnaire is certainly an advantage for counseling work, as a screening it can be well used to determine the risk of ASD in female students even without previous experience with this developmental disorder. Based on it, counselors can also determine the basic specifics of female students (way of communication, involvement in social interaction) and set basic support measures that will help them successfully meet the demands of their studies. The GQ-ASC screening, with its focus on the specifics of adult women with ASD, effectively identifies the compensatory mechanisms that prevent these clients from being diagnosed. These can then be used to support the client or they can be identified as hindering the further development of social and communication skills in turn helping us to seek other, more effective approaches.

# Appendix 1

GQ-ASC: Adult Women

## GQ-ASC: Adult Women

This screening questionnaire is designed to identify behaviours and abilities in cisgender and trans women that are associated with autism.

**INSTRUCTIONS:** *Here is a list of questions and statements. Please read each question and statement very carefully, and rate how strongly you agree or disagree with it by circling your answer.*

| | Definitely disagree | Slightly disagree | Slightly agree | Definitely agree |
|---|---|---|---|---|
| **Imagination and play** | | | | |
| 1. I enjoy fantasy worlds | 4 | 3 | 2 | 1 |
| 2. I am interested in fiction | 4 | 3 | 2 | 1 |
| 3. When I was 5-12 years old, I played as imaginatively as other girls | 4 | 3 | 2 | 1 |
| 4. When I was 5-12 years old, I had imaginary friends or imaginary animals | 4 | 3 | 2 | 1 |
| 5. When I was 5-12 years old, I created my own complex 'set ups' with toys | 4 | 3 | 2 | 1 |
| **Camouflaging** | | | | |
| 6. I copy or 'clone' myself on other females | 1 | 2 | 3 | 4 |
| 7. I avidly observe other females socialising | 1 | 2 | 3 | 4 |
| 8. I am attracted to females with strong personalities who tell me what to do | 1 | 2 | 3 | 4 |
| 9. I adopt a different persona in different situations | 1 | 2 | 3 | 4 |
| **Sensory Sensitivities** | | | | |
| 10. I am attached to certain objects or toys (e.g. favourite toy, pillow, piece of cloth) which I carry, touch, or rub to calm myself | 1 | 2 | 3 | 4 |
| 11. I expressed distress during grooming (e.g. I fought or cried during fingernail cutting, haircutting, combing) or when I am touched (e.g. someone touches my feet) | 1 | 2 | 3 | 4 |
| 12. Some social situations make me mute | 1 | 2 | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| 13. I am distressed by certain smells or I avoid certain tastes that are a typical part of a diet | 1 | 2 | 3 | 4 |
| **Socialising** | | | | |
| 14. I socialise quite well for a while, but subsequently feel exhausted | 1 | 2 | 3 | 4 |
| 15. I often have a facial 'mask' that hides my social confusion | 1 | 2 | 3 | 4 |
| 16. I have intense emotions | 1 | 2 | 3 | 4 |
| 17. I apologise when I make a social error | 1 | 2 | 3 | 4 |
| **Interests** | | | | |
| 18. When I was 5-12 years old, I preferred to play with girls' toys | 4 | 3 | 2 | 1 |
| 19. When I was 5-12 years old, I preferred to play with boys' toys | 1 | 2 | 3 | 4 |
| 20. My interests were advanced for my age (e.g. opera) | 1 | 2 | 3 | 4 |
| 21. I am talented in music | 1 | 2 | 3 | 4 |
| **TOTAL SCORE:** | | | | |

**SCORING:** Sum all response values to calculate the total score.

A total score of **57 or higher** indicates a high level of autistic traits; sensitive to 80% of cases.

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