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한국판 AQ 개발을 위한 교차문화 예비연구

A Preliminary Cross-Cultural Study: The Korean Version of the Autism-Spectrum Quotient (K-AQ)

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Purpose: The AQ (Autism-Spectrum Quotient)(Baron-Cohen et al., 2001) is a self-administered instrument for measuring the degree to which an adult with normal intelligence has the traits associated with the autistic spectrum disorder. This study is aimed to advance a Korean version of the Autism-Spectrum Quotient questionnaire and investigate the autistic tendency of Korean adults. **Methods:** Total of 374 participants aged 18 - 70 without communication disorders were divided into two groups; Group 1 (91 university students, males: 22, female: 69, mean age: 20.25), Group 2 (283 general adults, males: 56, females: 227, mean age 41.99). The AQ is a questionnaire made up of 50 questions, including 10-questions each assessing 5 different aspects (Social skill, Attention switching, Local details, Communication, Imagination). In this study, the translated Korean-version AQ was used. The results were analysed using one-way Anova for comparing in each five subscale of the AQ questionnaire, and the one-sample *t*-test for comparing in three countries. **Results:** The mean AQ in Group 1 was 17.88 and Group 2 was 19.45, and there was a significant group difference in total mean AQ and two subscales, Communication and Imagination. In both Korean groups, males presented higher mean AQ score than females, but there was no significant gender difference. In the comparison between Korea, UK, and Japan, Korean data demonstrated overlapped most of the pattern of the results in previous studies, except some of the details. **Conclusions:** The results of present study corresponds to the previous studies, while it pointed out that there are some differences among Korea, UK, and Japanese results. Thus, it can be described that the AQ questionnaire can be used cultural-independent. In the future study, we should explore the cultural differences more and conduct further study, including adults with autism spectrum disorders, to support clinical significance.

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Keywords : AQ (Autism-Spectrum Quotient), autistic traits, Korean adults, questionnaire, cross-cultural comparison

목적: 이 연구는 AQ 설문평가도구(Autism-Spectrum Quotient)(Baron-Cohen et al., 2001)를 번안 검토하여 예비적으로 국내 성인들을 대상으로 그 성향을 알아보고 한국판 평가도구로 개발하고자 한다. **방법:** 이 설문연구에 참여한 대상자는 총 374명으로 18세에서 70세의 의사소통장애가 없는 건강한 대학생 및 성인들이었으며, 대상자들은 대학생인 그룹 1(91명, 남성 22명, 여성 69명, 평균연령 20.25)과 일반 성인 그룹 2(283명, 남성 56명, 여성 227, 평균연령 41.99)로 나뉘었다. AQ는 총 50개의 문항으로 구성되어있는 설문평가이며, 하위 5개 영역(사회적 기술, 주의집중 전환, 세부 사항 집중, 의사소통, 상상력)으로 구성되어있다. 결과분석은 그룹 내 성별 비교를 위해 *t*-검정과 각 그룹과 하위 영역들 간의 차이를 알아보기 위해 일원분산분석을 실시하였다. **결과:** 그룹 1(대학생)의 AQ평균은 17.88(*SD*: 5.99), 그룹 2(일반 성인)의 평균은 19.45(*SD*: 6.17)로 선행 연구들과 거의 유사한 결과들이 산출되었다. 그룹 간 비교에서는 총 평균점수에서 그룹 간의 통계적으로 유의한 차이가 있었으며 AQ하위 영역 중 '의사소통'과 '상상력' 부분에서 성별에 따른 집단 간 유의차이가 나타났다. 영국과 일본의 연구 비교에서 한국의 AQ점수가 두 나라에 비해 높은 것으로 나타났으며, 그룹 내에서 남성이 여성보다 높은 점수를 보인 경향은 두 나라와 유사하였다. **결론:** 국내 대상자들의 AQ 총점수와 하위 영역들의 점수는 선행연구들과 약간 차이를 보였으나 남성이 여성보다 높은 경향을 포함한 다수의 결과들은 선행연구의 결과와 유사하게 나타났다. 추후 연구에서는 각 나라간 차이점을 심층분석하고, 자폐스펙트럼 성인대상자를 비교하여 보다 임상적인 의의가 뒷받침 되도록 해야 할 것이다.

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검색어 : AQ(Autism-Spectrum Quotient), 자폐성향, 한국 성인, 설문지, 교차-문화 비교

Ⅰ. Introduction

Autism Spectrum Disorders (ASD) represent a class of highly prevalent developmental disabilities that have been characterized by deficits in communication and social interaction, and by the presence of restricted and/or repetitive behaviors (APA, 2013; APA DSM-5 Task Force 2013; e Couteur, et. al., 1989; Lord, Rutter, Le Couteur, 1994). Individuals with ASD also display difficulties in sensory processing and uncommon responses to sensory stimuli across multiple sensory domains (Iarocci & McDonald, 2006; Bebko et al., 2006). The recently revised diagnostic criteria (Schopler, Reichler, & Renner, 1986; APA DSM-5Task Force 2013) classify that ASD children often show with abnormal sensory processing, including obvious struggle in sensory information integration (Bebko et al., 2006; Mongillo et al., 2008; Foss-Feig et al., 2010; Kwakye et al., 2011).

Although, there are some diagnostic instruments for autism, such as the ADI-R (Autism Diagnostic Interview), the ADOS-G (Autism Diagnostic Observation Schedule), the screening self-monitoring tools, which can assess whether individuals with normal intelligence have autism traits, were not developed until 2000.

Some standardized diagnostic tools alone are not able to identify whether an individual with normal intelligence belongs to the 'autistic traits' or 'the broader phenotype', and due to the need to develop self-management measures, Baron-Cohen et al. (2001) developed the 'Autism spectrum Quotient (AQ)'. It is used for both scientific reasons (e.g., establishing the superiority of individuals who are "affected" and those who are not "scientifically" compared) and potentially applied reasons (e.g., to help individuals make recommendations for a complete diagnostic assessment).

The AQ is mad up of 50 questions, including 10-questions each assessing 5 different aspects, social skill, attention switching, attention to detail, communication, and imagination. The items of the questionnaire were selected from the domains in the “triad” of autistic symptoms (APA, 1994; Rutter, 1978; Wing & Gould, 1979), and from demonstrated areas of cognitive abnormality in autism. Each item scores 1 point if the person responds with autistic-like behavior either slightly or strongly. To avoid a response bias, the questions are comprised with half of “disagree” responses, and the half “agree” responses. The final version of the AQ has a forced-choice format, can be self-administered, and is straightforward to score since it does not depend on any interpretation in the scoring (Baron-Cohen et al., 2001).

The first study of Autism Spectrum Quotient (AQ) was conducted by Baron-cohen et al., (2001), with 58 autistic adults with Asperger (AS) / High functioning (HFA), 174 randomly selected adults, 840 college students (Cambridge University), and 16 British Math Olympiad winners were divided into groups. According to this study, AS/HFA group showed higher scores than the control group (normal adult) as expected by the researchers, while males in the control group (normal group) showed significantly higher scores than females. There was no difference in the AQ scores according to gender in the AS/HFA group. In the general student group, science majors showed higher AQ scores than students majoring in social sciences or humanities. Through this study, the researchers obtained useful cutoff scores, with more than 79.3% of the AS/HFA group having a score of 32 or higher in the normal group, and 32 as the autistic group.

Since the study in the United Kingdom, many countries have studied the reliability and validity of the Autism Spectrum Index in each country's language. Wakabayashi et al. (2007) developed the Japanese version of the Autism Spectrum Quotient (AQ). They were divided into three groups: 57 AS/HFA adults, 194 randomly selected general adults, and 1050 college students. Japanese study was very similar to those of previous UK study, but the AQ scores in the three groups were two points higher than in the UK, and the AQ scores in the control group (normal group) and the student group were statistically respectively. However, the difference between the AQ mean score of the AS/HFA group and the normal group was similar for both countries, and 33 points were reported as the cutoff score in the Japanese study, unlike the UK where the cutoff score was 32 points.

Several studies in other cultures have reported similar results, which supports that the severity of the clinical severity of autism is expressed in a very similar way across cultures of other countries. In addition, among the many meta-analyzes of AQ, Ruzich et al. (2015) analyzed the existing AQ studies, and the AQ mean scores of the control group (normal group) ranged from 11.6 to 20 . In the autistic group, there were 27.6 and 41.14 points, respectively. The results of many studies on the ‘Autism Spectrum Quotient’ demonstrate the reliability of AQ, and the link between AQ scores and scientific competence is consistent with Baron-Cohen. (Baron-Cohen et al., 2003, Baron-Cohen, 2015)

Every year, people who are at risk or diagnosed with autism are increased in Korea; however, there is no brief

self-administered scale for measuring the degree to which any individual adult with normal IQ may yet. Additionally, several versions of the Korean version of the Autism Spectrum Index have been used, but there has been little research on reliability and validity so far, so we could not provide a concrete basis for the use and interpretation of this questionnaire.

This study is aimed to develop the Korean- version AQ and to verify the questionnaire, then explore the autistic tendency of general Korean adults using the Korean-version AQ. Also, this study examines the issue of whether the AQ, which has been proven by previous studies, is culturally independent or non-independent in the Korean culture as replicating the previous studies (Baron-Cohen et al., 2001; Wakabayashi et al., 2007) with similar methodology, and explore the differences among Korea, UK, and Japan.

The questions of this study were following as:

1) What are the total scores of Group 1 (University students) and Group 2 (General adults)? 2) What are the differences between Group 1 and Group 2? and, 3) What are the differences in the autistic traits among Korean, UK, and Japanese adults?

II. Methods

1. Participants

Total 374 Korean volunteers who aged over 18 participated and were divided into two groups. Group 1 was made up of 91 university students (Males: 22, Females: 69) who are attending university in Korea and the mean age was 20.3 (*SD*: 2.77, Range: 18-27), and Group 2 comprised 283 adults selected at random (Males: 56, Females: 227) from general adults, and the mean age was 42 (*SD*:13.23, Range: 22-70). All participants are assumed to have normal range IQ because all of them have completed general high school or hold a university degree. The occupations of participants reflected their mixed socioeconomic status (SES).

표 1. 연구대상 정보

Table 1. Demographics of participants

	Group 1	Group 2	p-value
Male	22	56	-
Female	69	227	-
Total Num.	91	374	-
Age	20.3±2.27	42±13.23	p<.001***
Age range	18-27 yrs	20-70 yrs	

(***p<.001)

2. Data Collection

All participants were recruited via advertisement and all provided their consent to take part in this survey study. In the previous UK and Japanese study, the three groups of participants were tested; AS/HFA adults, General adults, and University students. This study replicated the procedures of the studies in UK and Japan, however, we excluded an AS/HFA group. Because the study was aimed to be a preliminary step to validate the Korean-version AQ, we will include a clinical group in next step after examining whether the AQ is culture-specific or culture-independent to the general Korean population. The questionnaires were sent by post or email to the participants, who were asked to complete and send it back to researchers by post. All participants were instructed how to respond to the questions in Korean-version AQ and asked to complete on their own.

3. The Autism-Spectrum Quotient

Autism-Spectrum Quotient (AQ) is a self-administered scale for measuring the level of autistic traits in individual adults with normal IQ. It was made up of 50 questions, including 10-questions each assessing 5 different sub-areas (social skill, attention switching, local details, communication, and imagination). The items of the questionnaire were selected from the domains in the "triad" of autistic symptoms (APA, 1994; Rutter, 1978; Wing & Gould, 1979), and from demonstrated areas of cognitive abnormality in autism. Each item scores 1 point if the person responds with autistic-like behavior either slightly or strongly. To avoid a response bias, the questions are comprised with half "disagree" responses, and half with "agree" responses. The final version of the AQ has a forced-choice format, can be self-administered, and is straightforward to score (Baron-Cohen et al., 2001)(See Appendix).

4. Item-translation

The Korean-version AQ was translated by the Korean speech-language pathologists from the original English AQ version into Korean. Then the translated Korean-version of AQ was reviewed by three people who have lived and studied in English speaking countries. They are a scholar of Linguistics and a specialist in English and checked for whether the translation corresponded with the original English items.

5. Scoring the AQ

"Definitely agree" or "slightly agree" responses scored 1 point, on the following items: 1, 2, 4, 5, 6, 7, 9, 12, 13, 16, 18, 19, 20, 21, 22, 23, 26, 33, 35, 39, 41, 42, 43, 45, 46. "Definitely disagree" or "slightly disagree"responses scored 1 point, on the following items:3, 8, 10, 11, 14, 15, 17, 24, 25, 27, 28, 29, 30, 31, 32, 34, 36, 37, 38, 40, 44, 47, 48, 49, 50. (Baron-Cohen et al., 2001)

6. Data Analysis

The results were analyzed using *t*-test (SPSS, V.25) comparing two groups, including total AQ score and five subscales, communication, social skills, imagination, local details, and Attention switching. Comparing the data of Korea, UK, and Japan using a one sample t-test of total mean AQ score and all subscale scores, in each of corresponding groups.

Ⅲ. Results

1. Results of Group 1 and Group 2

1) Total AQ score

In the results of total AQ score, Group 1 showed 17.88 (*SD*: 5.99) and the range of scores was between 6 to 32. Specifically, male students presented higher mean AQ score (19.23±6.89) than female students (17.45±6.17).

In Group 2, the mean AQ score was 19.45 (*SD*: 6.17) and the AQ range was placed between 6 to 38. The total AQ score in Group 2 displayed similar as Group 1, males presented higher AQ scores (19.54±6.0) than females (19.42±6.23)(see Figure 1.). In both groups, males displayed higher total man AQ than females.

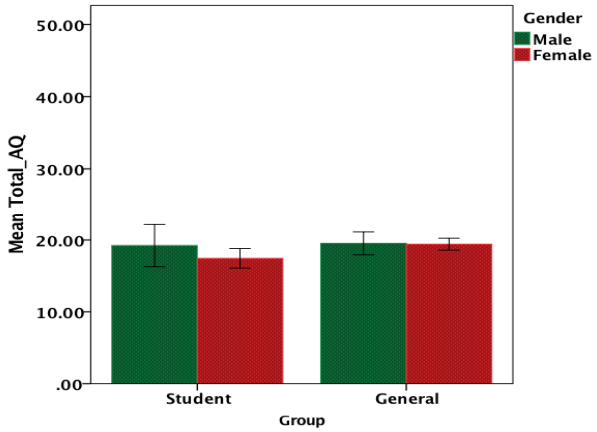


Figure 1. Total AQ scores of male and female in both groups

2) Subscale scores

In the Group 1 results, male students displayed their lowest score in Social skills (2.86), but the female students showed in Communication (2.03). In the results of subscale scores, both male and female students showed their highest scores in Attention switching as same as group result. There was no gender differences in any subscale score in Group 1(see Figure 2.).

The results of subscale scores in Group 2 demonstrated as the same as Group 1 that both males and females presented the highest score in Attention switching and the lowest score in Communication. There was the significant gender differences in Imagination (t=3.353, p=.001) and Local details (t=-3.369, p=.001) in Group 2, contrary to the Group 1(see Figure 3.).

표 2. 대학생 그룹과 일반 성인그룹의 AQ 평균 및 표준편차
Table 2. Mean and *SD* of AQ scores in both Group 1 and 2

		Group 1 (Student)			Group 2 (General)		
		Male	Female	Total	Male	Female	Total
Num.		22	69	91	26	227	238
Comm	*M*	2.91	2.04	2.25	3.23	2.71	2.83
	SD	2.16	1.77	1.89	1.89	1.88	1.89
Social	*M*	2.86	2.93	2.91	3.29	3.57	3.51
	SD	2.80	2.57	2.61	2.48	2.55	2.53
Immg.	*M*	3.09	2.32	2.51	3.93	3.02	3.20
	SD	2.0	1.52	1.66	2.01	1.77	1.85
Local.	*M*	4.45	4.52	4.51	3.61	4.66	4.45
	SD	1.71	2.36	2.21	1.89	2.14	2.13
Atten.	*M*	5.91	5.64	5.70	5.48	5.46	5.47
	SD	1.80	1.48	1.55	1.66	1.85	1.81
Total	*M*	19.23	17.45	17.88	19.54	19.42	19.45
	SD	6.89	5.67	5.99	6.00	6.23	6.17

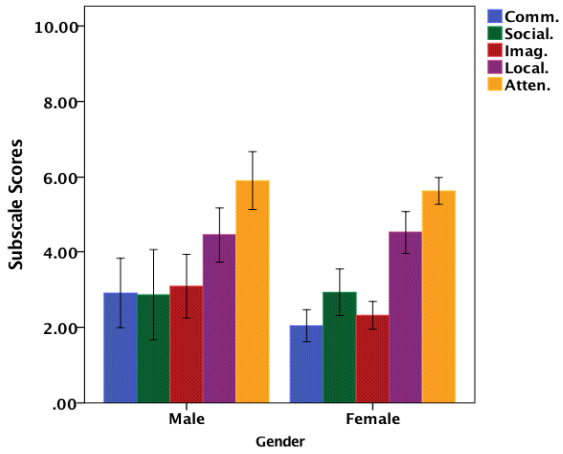
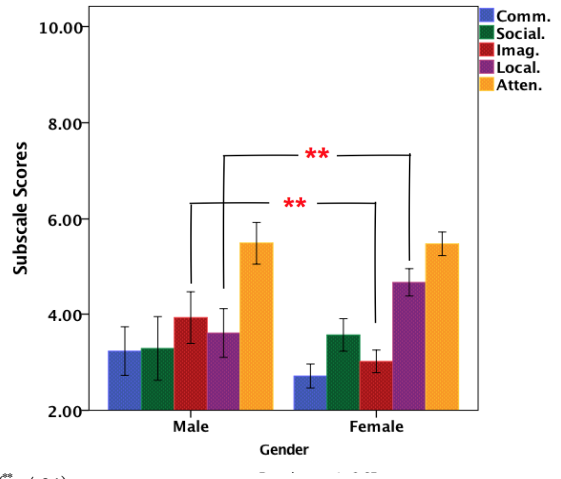


Figure 2. Subscale scores of male and female in Group 1



(**p<.01)

Figure 3. Subscale scores of male and female in Group 2

2. Differences between Groups

1) Total AQ score

As illustrated in table 2, the results of total AQ scores comparing Group 1 and 2 presented that Group 1 (17.88) showed demonstrated lower scores than Group 2 (19.45) in total AQ scores. There was a significant group difference (t=-2.120, p=.035), but no gender difference in total AQ score(see Figure 4.).

2) Subscale score

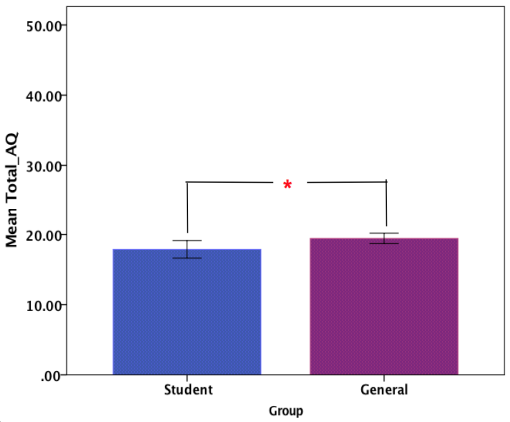
In the subscale results, both groups presented their highest score in Attention switching and the lowest score in Communication. And, there was a significant group differences in Communication (t=-2.475, p=.014) and Imagination (t=-3.276, p=.002), and the marginal group difference presented in Social skills(see Table 3. and Figure 5.).

표 3. 대학생 그룹과 일반 성인그룹간의 하위영역 점수 비교

Table 3. Compared group results of total AQ score and all subscales between two groups

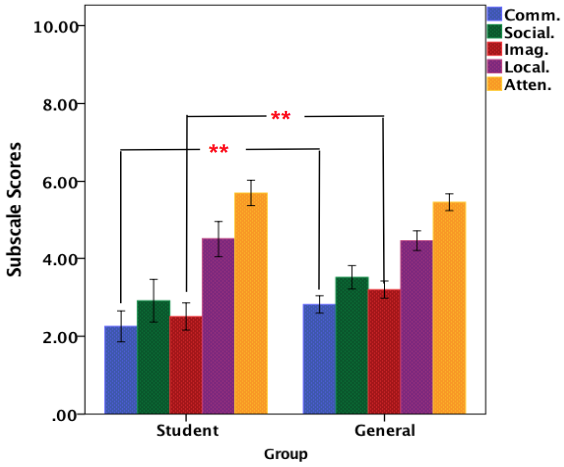
	t	df	Sig. (2-tailed)
Communication	-2.475	372	.014*
Social Skills.	-1.952	372	.052
Imagination	-3.176	372	.002**
Local details	.205	372	.838
Attention switching	1.122	372	.263
Total AQ	-2.120	372	.035*

(*p<.05, **p<.01)



(*p<.05)

Figure 4. The group comparison of mean total AQ score



(**p<.01)

Figure 5. The results of group comparison in subscales

3. Comparison among Korean, UK, and Japan

In the results of the three-country comparison, there were similarities and differences among countries.

1) Total AQ score

Comparing to the mean total AQ scores among three counties, there was no significant country effect. In the total AQ score results, Group 1 (University Students) of Japan exhibited the highest mean total AQ score among three countries, and the mean total AQ in Korean group was placed between UK and Japan. Contrary to the Group 1 results, the Group 2 in Korean data displayed the highest mean total AQ score than UK and Japan(see the Table 4. and Figure 6.). Also, Korean males showed higher mean AQ than females in both Group 1 and 2, as same as previous UK and Japanese studies.

2) Subscale score

In subscale results, there was no country difference as

same as total AQ result. Both Korean Group 1 and 2 presented the lowest score in Communication and the highest score in Attention switching. The UK data displayed the lowest score in Social skills for Group 1 and Imagination for Group 2, while both groups presented the highest scores in Local details. Japan showed the lowest scores in Imagination for both groups, but the highest scores in Attention switching for Group 1, and Local details for Group 2(See Figure 7.).

Moreover, both Korean groups illustrated distinctively higher scores in Attention switching than other two countries, although there was no significant country difference.

Table 4. 한국, 영국, 일본의 AQ 점수 비교

Table 4. Comparison of AQ scores between Korea, UK, and Japan

Con.	Score	Group 1		Group 2	
		Mean	*SD*	*Mean*	*SD*
Korea	Comm.	2.25	1.89	2.82	1.89
	Social.	2.91	2.61	3.51	2.53
	Imag.	2.51	1.66	3.20	1.85
	Local.	4.51	2.21	4.45	2.13
	Atten.	5.67	1.55	5.47	1.81
	Total	17.88	5.99	19.45	6.17
UK	Comm.	2.9	2.0	2.3	2.2
	Social.	2.3	2.2	2.6	2.3
	Imag.	2.5	1.9	2.3	1.7
	Local.	5.3	2.2	5.3	2.3
	Atten.	4.5	2.0	3.9	1.9
	Total	17.6	6.4	16.4	6.3
Japan	Comm.	3.7	2.08	2.8	2.07
	Social.	3.9	2.6	3.4	2.38
	Imag.	3.2	1.78	3.2	1.67
	Local.	4.8	1.95	4.9	1.96
	Atten.	5.2	2.01	4.3	2.06
	Total	20.7	6.38	18.5	6.21

* Wakabayashi et al. (2006)

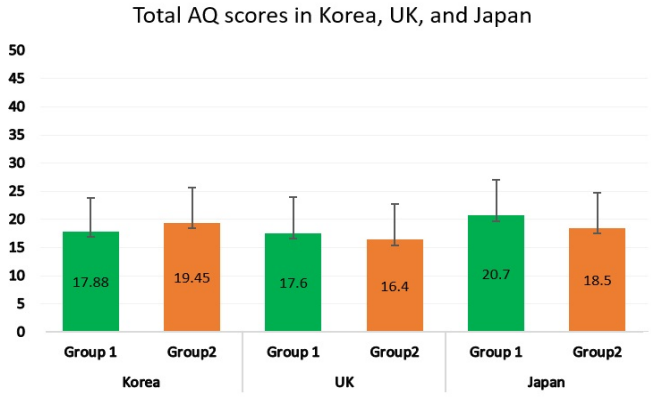


Figure 6. The comparison of total AQ between the countries

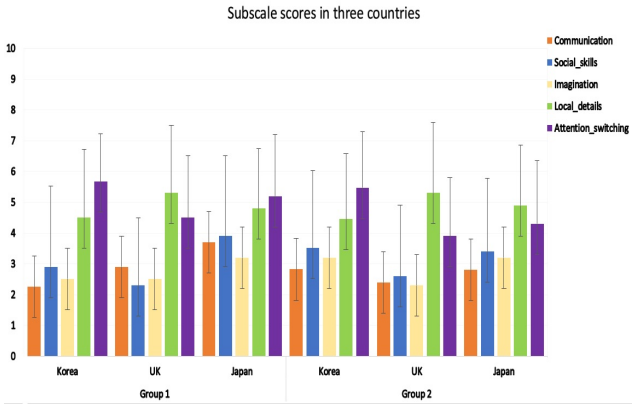


Figure 7. The comparison of subscale scores between the countries

V. Discussion

The present study explored the tendency of autistic traits in Korean adults, including the university students and general adults using a translated Korean-version of the AQ questionnaire, and the results were compared with the previous UK and Japanese studies. The results of this study indicated a couple of interesting features and the suggestions.

First, the Korean results illustrated that Group 1 (student group) showed lower total AQ scores than Group 2 (general group), and males demonstrated slightly higher total AQ scores than females in both groups while there was no significant gender differences. These results were consistent with the previous studies from Ruzich et al. (2015) and Wheelwright et al. (2010). In subscales results, Group 2 showed the significant gender differences in Imagination and Local details while Group 1 presented no significant gender difference. The pattern of results in subscales presented similarities with the Japanese study in somewhat.

Second, the group comparison in Korean data displayed that there was a significant group difference in Total AQ, Communication, and Imagination between the groups. These results might be impacted by the significant difference of age between two groups and imbalanced the gender ratio. Also it can be illustrated that older Korean showed the autistic traits than younger Koreans. To confirm this tendency, the future study should include more participants and should be matched to the age range in each group.

Third, the Korean mean total AQ in both groups exhibited slightly higher than other two countries, while there was no significant statistical difference. But, the

propensity of this result should be confirmed and analyzed in the future AQ study. The one interesting point was that Korea and Japan are found to have a somewhat similar tendency in their scores compared to the UK, as mentioned earlier. The score of each subscale in Korea and Japan tended to increase in the following order; Communication, Imagination, Social skills, Local details, and Attention switching. The results are compared in more detail through subsequent studies but can be interpreted as cultural differences between Asia and Europe or English-speaking country at this point. To sum up, this study descibed that there were no statistically significant differences among the three countries in terms of total AQ and subscale score and the results of present study correspond to the previous UK and Japanes study. It can suggest that the AQ questionnaire could be used culture - independently.

Although more follow-up research is required, this study confirms the possibility of validation and reliability of the use of the Korean-version AQ questionnaire.

In order for this preliminary study to be meaningfully used in the area of communication disorders, the following points are suggested. First, the follow-up study should include the individuals with ASD and investigate the definite differences between the ASD and neuro-typical individuals. Some previous studies suggested that the AQ can be useful to gauge the appropriateness of the referral (Wakabayashi et al., 2007; Baron-Cohen et al., 2001; Wheelwright et al., 2010). And simultaneously, it said to whether the use of the AQ as a population screening tool should be more studied. Second, it is necessary to sufficiently homogenize the age, gender ratio, occupation type, and subjects that can affect outcomes. Finally, we also need to confirm the correlation between other evaluation tools and the AQ questionnaire in the future study.

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부록 1. 한국어판 AQ
Appendix 1. Korean version Autism-Spectrum Quotient

1. 나는 혼자 보다는 다른 사람과 함께하는 것을 좋아하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
2. 나는 같은 방식으로 계속 반복해서 일을 하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
3. 나는 뭔가 상상하려고 하면 그것을 쉽게 그림(형상)으로 생각할 수 있다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
4. 나는 자주 다른 것을 보지 못할 정도로 하나에 깊이 몰입하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
5. 나는 자주 나는 다른 사람들이 듣지 못하는 작은 소리에 신경 쓰는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
6. 나는 주로 자동차 번호판이나 유사한 일련의 정보에 신경을 쓴다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
7. 나는 예의 있게 말했다고 생각했음에도 자주 다른 사람들은 내말이 무례하다고 한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
8. 이야기를 읽을 때 등장인물이 어떻게 생겼을지 쉽게 상상할 수 있다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
9. 나는 날짜세기에 집중한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
10. 사교모임에서 나는 여러 명의 다른 사람들과의 대화를 지속적으로 잘 파악
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
12. 나는 다른 사람들이 관심을 두지 않는 세세한 것에 집중하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
13. 나는 파티보다는 도서관에 가는 것이 더 좋다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
14. 나는 이야기를 쉽게 만들 수 있다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
15. 나는 사물보다는 사람들에게 마음이 더 끌린다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
16. 나는 뜻대로 되지 않아 속상한 일에 매우 신강하게 신경 쓰는 편이다.하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
11. 나는 사회적인 상황이 편하다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
17. 나는 사회적인 수다를 즐긴다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
18. 대부분 내가 말하는 중에는 다른 사람이 쉽게 끼어들지 못한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
19. 나는 숫자에 집착하는 편이다
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
20. 나는 이야기를 읽을 때 등장인물의 의도를 파악하기 어렵다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
21. 나는 특별히 소설 읽는 것을 좋아하지 않는다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
22. 새로운 친구를 사귀는 것이 어렵다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
23. 나는 매번 모든 것의 패턴을 찾아낸다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
24. 나는 박물관 가는 것보다는 영화관에 가는 것이 좋다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
25. 나는 일상에 방해를 받더라도 화가 나지 않는다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다

26. 나는 대화를 어떻게 계속 진행해야 하는 지 알지 못할 때가 많다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
27. 나는 누군가 나에게 이야기를 할 때, 그 사람의 의도를 파악하는 것이 쉽다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
28. 나는 세밀한 부분보다 전체 그림에 더 집중하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
29. 나는 전화번호를 잘 외우지 못한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
30. 나는 보통 상황이나 사람들의 외모에서 작은 변화를 눈치 채지 못한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
31. 나는 내 이야기를 지루하게 듣는 사람에게 어떻게 말해야 하는 지 안다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
32. 나는 한 번에 한 가지 이상의 것을 쉽게 하는 편이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
33. 전화로 얘기할 때, 언제 내가 말할 차례인지 잘 모른다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
34. 나는 자발적으로 일하는 것을 좋아한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
35. 나는 자주 유머의 핵심을 잘 이해하지 못한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
36. 나는 상대방의 얼굴을 보는 것만으로도 그 사람이 무엇을 생각하고 느끼는지 파악하기 쉽다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
37. 무언가에 방해를 받더라도 나는 빠르게 내가 전에 하던 일로 되돌아 갈 수 있다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
38. 나는 일상수다를 잘한다
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
39. 사람들이 나에게 같은 것을 계속해서 하는 것 같다고 자주 말한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
40. 나는 어렸을 때 아이들과 역할놀이를 포함한 게임을 즐기곤 했다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
41. 나는 사물의 범주에 관한 정보들을 모으는 것을 좋아한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
42. 나는 내가 다른 누군가가 되는 것을 상상하기 어렵다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
43. 내가 참여할 수 있는 어떤 활동들을 신중하게 계획하는 것을 좋아한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
44. 사회적 행사를 즐긴다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
45. 나는 사람들의 의도를 알아차리는 것이 어렵다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
46. 나는 새로운 상황에 놓이면 긴장한다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
47. 나는 새로운 사람들과의 만남을 즐긴다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
48. 나는 사교적이다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
49. 나는 사람들의 생일을 잘 기억하지 못한다
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다
50. 나는 아이들과 역할놀이를 포함한 게임을 하는 것이 편하다.
[1] 매우 그렇다 [2] 약간 그렇다 [3] 약간 그렇지 않다 [4] 매우 그렇지 않다

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원저자의 승인을 받아 번안 검토하였음