The European Research Journal 2023;9(5);948-962 Original Article

DOI: 10.18621/eurj.1281464 *Rehabilitation*

Turkish speech-language therapists' perceptions and experiences of augmentative and alternative communication

İbrahim Can Yaşa, Selin Tokalak

Department of Speech and Language Therapy, Bahçeşehir University, Faculty of Health Sciences, İstanbul, Turkey

ABSTRACT

Objectives: In this study, it is aimed to reveal what extent speech and language therapists (SLT) working in Turkey used augmentative and alternative communication (AAC) systems in their working area. For this purpose, it was investigated how they perceive AAC in terms of its scope and role; AAC applications within the scope of interventions for communication, language and speech disorders; best practice insights on AAC; what factors are seen as facilitating or limiting the implementation of AAC within the scope of intervention and suggestions for providing the best practice for AAC.

Methods: Phenomenology, one of the qualitative research methods, was used in the study. The subject of the study is the opinions of SLTs working in Turkey on their clinical practices and thoughts on the use of AAC. The study group consists of 15 SLTs from Turkey and determined by using maximum diversity sampling method. The semi-structured interview forms were used in which SLTs' views, suggestions and expectations about AAC applications in the service delivery as a data collection tool. The obstacles and difficulties in these applications were discussed. Content analysis was used and also carried out using the qualitative data analysis program MAXQDA 2018. In order to ensure the consistency of the data analysis, the data were analyzed by another field expert and the 92% consensus was tried to be reached by using the consistency formula.

Results: Participant opinions consist of benefiting status from AAC, opinions on the importance of AAC, preferred case groups and reasons for AAC implementation, opinions on current best practice understanding on communication and language intervention/use of AAC, opinions on current working conditions on AAC practices, opinions on the limitations of the use of AAC in communication and language intervention and recommendations for ensuring effective use of AAC themes.

Conclusions: The results of the study show that supporting individuals who can benefit from AAC in the context of intervention services for communication disorders requires great effort. In addition, SLTs stated that they strongly believed in AAC and its potential value for individuals with communication disorders, but did not have sufficient self-confidence about their current or developing skills in this area. It is also seen that clinicians need training and support from employers, professional or government agencies that set policies and standards to achieve their AAC related goals.

Keywords: Augmentative and alternative communication systems, speech and language therapy services, qualitative research, speech, language

Received: ***April 14, 2023;*** *Accepted:* ***April 25, 2023;*** *Published Online:* ***May 12, 2023***

How to cite this article: *Yaşa İC, Tokalak S. Turkish speech-language therapists' perceptions and experiences of augmentative and alternative communication. Eur Res J 2023;9(5):948-962. DOI: 10.18621/eurj.1281464*

e-ISSN: 2149-3189

Address for correspondence: *İbrahim Can Yaşa, PhD., Assistant Professor, Bahçeşehir University, Faculty of Health Sciences, Department of Speech and Language Therapy, Çırağan Cad., Osmanpaşa Mektebi Sokak, No: 4-6, 34353 Beşiktaş, İstanbul, Turkey. E-mail: ibrahimcan.yasa@bau.edu.tr, Phone: +90 212 381 91 56*

Augmentative and alternative communication (AAC) systems are defined as a clinical practice field addressing the requirements of individuals who have significant and complex communication disabilities characterized by impairments in language-speech production and/or understanding, including oral and written communication modes [1].

AAC refers to an area of study as well as clinical and educational practices. AAC includes attempts to examine and, when necessary, compensate for the temporary or permanent impairments, activity limitations, and participation restrictions of individuals who have severe language-speech production and/or comprehension impairments, including oral and written communication modes [1]. AAC response services and technologies are part of habilitation and rehabilitation services. Rehabilitation refers to intervention strategies and technologies intended to help people who have acquired disabilities regain competence, but habilitation refers to intervention strategies and technologies intended to help people who have a developmental disability develop competence for the first time. In this context, there is a wide variety of AAC systems designed to meet the requirements of individuals who have complex communication requirements. These systems include both unassisted and assisted options. Although unassisted AAC does not require any external equipment or technology, assisted AAC requires some type of equipment or technology. Examples of unassisted AAC include vocalizations and approximate speech, gestures, cues, and blink codes (e.g., raising eyes to indicate "No" or closing eyes to indicate "Yes") [2].

In the national literature, a limited number of studies on AAC can be found [3]. One of them deals with the AAC use of health personnel working in the intensive care unit [3]. In the the study, it was found that healthcare personnel and patients mostly preferred to use non-technology AAC; It is stated that healthcare personnel are more aware of low-tech AAC than high-tech AAC and they are more knowledgeable about their use. At the same time, it is observed that very few of the health personnel have received training on AAC. In another similar study [4], the necessity of using a high-tech application to provide alternative communication for individuals treated in the intensive care unit is emphasized to the current literature and the lack of clinical practice in the field of speech and language therapy.

It is emphasized in the international literature that SLTs must show expertise in some fields by exploring the concepts of best practice and professional expectation [5] and AAC is accepted as one of these application areas. However, previous studies reported that limited specialist experience can be achieved among SLTs because of the specific nature of the job [6] and the inadequacies in undergraduate education [7]. One aspect of clinical skill is the extent to which professional practice is based on study evidence. The ability to implement such approaches depends on the quality of the approach and the clinician's familiarity with the underlying evidence base.

It is not known to what extent the study literature influences the practice of SLT in intervention settings for communication disorders; however, basic knowledge and skills that are listed by the American Speech-Language-Hearing Association (ASHA) include understanding of developmental disabilities, family-centered approaches, different service delivery models and teams, AAC, evidence-based interventions and ability to conduct evidence-based reviews [8]. These areas follow a set of guiding principles according to best practices for early evaluation and intervention [9]. Services in this field must be (a) family-centered and culturally and linguistically sensitive; (b) support the child's development and participation in his or her natural environment; (c) coordinated and team-based, but comprehensive and (d) based on "the highest quality evidence in other words available". The evidence mentioned in the last principle may be internal or external. Clinical opinion, which is supported by professional training experiences, theory, internal evidence, values, and beliefs comes from a variety of sources, including the application of evidence. The values and beliefs of other professionals and clients, professional consensus, and government policy also contribute to internal evidence. The scope of external evidence is more limited and is based on empirical published studies and for this reason relevant to contemporary concepts of evidence-based practice [10, 11].

Key study areas for clinicians providing speech and language therapy services include family-centered practice, early language intervention strategies, and AAC. It is reported that the levels of evidence in these

areas can vary considerably. It is already known that the evidence base for the use of AAC generally consists of clinical studies with some single-subject experimental studies that support the use of AAC to increase functional communication skills [12]. In this context, accepted practices in the AAC field, the selection of such simultaneous communication and graphic symbol teaching strategies are supported by only very limited evidence under the criteria of evidence-based practice. For this reason, the purpose of the present study was to explore these issues for SLTs and to explore the extent to which clinicians include AAC in their studies. The obvious point of this purpose was to address their perceptions of what constitutes AAC and its use. The study questions were as follows.

1. How do SLTs describe AAC in terms of its scope and role?
2. What are the AAC practices of SLTs in the scope of interventions for communication, language, and speech disorders?
3. What is SLTs' understanding of best practices regarding AAC in general?
4. What factors facilitate or limit the implementation of AAC in the context of best practice presentation and intervention for communication, language, and speech disorders?
5. What are the SLTs' recommendations for ensuring best practices for AAC?

METHODS

Participants and Ethics Committee Approval

The study group consisted of 15 SLTs, which were determined by using Maximum Diversity Sampling, one of the purposeful sampling methods, from SLTs working in Turkey. Every effort was made to accommodate as many SLTs as possible by adapting to their programs. Participants worked in speech and language therapy services for less than one year to 5 years. One of the participants worked in Ankara, one in Kocaeli, one in Eskişehir, and the others in Istanbul. Although one participant worked in a private hospital, another participant worked in a disability-free living center, the other participants worked in private counseling centers (n = 5), special education and rehabilitation centers (n = 3), a private counseling center, and a special education and rehabilitation center (n = 5). Since very few male therapists work in the field of speech and language therapy in Turkey, only 3 male SLT participants were included in the study, and all the other participants were female (n = 12). To ensure anonymity, the names of all participants were referred to by coding as "AA, BB" without any causal relationship.

The study was approved by the Bahçeşehir University Research and Publication Ethics Committee (Date: 25.01.2023, Decision no: 2023/01). Also, care was taken to act in line with ethics in all study processes. Participants filled out a written consent form declaring that they voluntarily participated in the study. Before starting the interviews, the participants were given preliminary information on the study, and they were reminded that their personal information would be protected by the researchers and that they had the right to stop participating in the study at any time.

Study Pattern

In the present study, phenomenology, which is one of the qualitative study methods, was used. The case of this study was the opinions of SLTs working in Turkey on their clinical practices and thoughts on the use of AAC. The concept of "phenomenon" is at the center of the phenomenological pattern. The concept of phenomenon, in another common usage, refers to everything experienced in life. Each of the subjects such as perception, consciousness, thought, emotion, memory, language is within the concept of the phenomenon. According to Vagle (2014) [13], the phenomenon is about how we associate ourselves with the world in our daily lives. Phenomenological studies try to understand and explain the experiences and the experiences of the individuals in these experiences in the process. The main purpose is to try to understand and interpret experiences in the deepest and richest way possible. For this reason, in such studies, it is ensured that the cases are handled with a descriptive approach. The phenomenological design was revealed in the study by describing the current situation regarding the use of AAC for the intervention of language and speech disorders in Turkey, and to determine the factors that were considered to limit the use of AAC in

clinical practice and to present recommendations for its effective use. The data obtained with the phenomenology design in the study is an important source for the detailed analysis of qualitative study questions.

Interviews

Semi-structured interview forms were used as the data collection tool in the study in which SLTs' views, suggestions, and expectations about AAC practices in service delivery and the obstacles and difficulties in these applications were discussed. To prepare semi-structured interview questions, the literature was reviewed [5] and a draft interview form was prepared. Draft questions were presented to the field experts. Opinions were received to check the correctness and comprehensibility of the questions in terms of grammar. Semi-structured interview questions were prepared in line with the feedback of the experts. In this context, 9 open-ended questions were included in the interview form (Appendix 1).

The data were collected in the study with video recordings of individual interviews with speech and language therapists online with "Zoom Video Communications". In this context, the participants were interviewed online between 25.01.2023 and 15.03.2023 at a convenient time. The interviews were video-recorded to be transcribed later, with the permission of the participants.

Qualitative Analysis

The Content Analysis Method was used in the analysis of the data obtained in the study by using the qualitative data analysis program MAXQDA 2018, along with the analysis stages used by Thomas and Hardene (2008) [14]. These stages are described below.

Coding the Findings

At this step, the findings in the form of direct quotations or basic concepts that were extracted from the primary study were coded by reading them line by line. After all the findings were coded, the second step was started.

Developing Descriptive Themes

The codes obtained at this step were compared according to similarities and differences and grouped to form a hierarchical tree structure. Each group created was called a theme. Each theme was created to cover the definitions and meanings of the grouped codes.

Generation of Analytical Themes

Although this step is close to the findings of primary studies in the development of themes, new interpretative structures, and explanations are generated by going beyond primary studies to produce analytical themes. Going beyond primary studies requires the use of descriptive themes that are derived from the inductive analysis to answer study questions that were suspended for a while. For this purpose, more abstract analytical themes are generated as a result of comparing descriptive themes and discussing them with other researchers.

Credibility and Consistency Step

The most important factor in accepting a qualitative study as a scientific study is credibility and consistency. In this context, the credibility and consistency of the study must be ensured.

The data were analyzed by another field expert besides the researcher and a consensus was tried to be reached to ensure the consistency of the data analysis in the study. The consistency formula of Miles and Huberman (1994) [15] was used to calculate the consensus.

The formula is as follows.

Reliability = [Consensus / (Consensus + Disagreement)] × 100 = 189/ (189+15)] × 100 = [189/204] × 100 = 0.926

As a result of the analyses, the consensus between the researcher and the field expert was found to be 92%. Miles and Huberman (1994) [15] reported in the literature that the consistency of study results of 70% and above is high.

The credibility of the study was supported by an expert review. In order to strengthen the validity of the research findings, direct quotations were made from the statements of the participants while the result was compiled into a report. In the study, different views were tried to be given in all aspects in the findings in line with the diversification strategy. Instead of revealing a common view from the expressions of the participants, the differences were emphasized. In the "triangulation" strategy, a wide variety of sources, people and opinions are discussed in order to allow the truth to be expressed from different perspectives [16].

One of the applications to ensure transferability in

qualitative research is "detailed description". Detailed description is defined as “transferring the raw data in a rearranged manner according to the emerging concepts and themes, without adding comments to the reader” [17]. It is a common method to quote directly from the statements of the participants in order to make detailed descriptions. In this study, the transferability aspect of the research was tried to be strengthened by giving place to the direct statements of the participants.

For ensuring internal reliability, the data was transferred as it is without adding any comments in the findings section so that the reader can have the opportunity to read the data without including the researcher’s comments. Secondly, in order to increase the rate of acceptance of the research by others, the principal researcher and the assistant researcher agreed on all processes including data collection, analysis process and conclusion stage.

The researcher also tried to provide the opportunity to obtain comparable results for researchers who will undertake similar studies by sharing information expressing his/her own position. Participants, who are also data sources, are described in detail. This is one of the features that can be taken into account in determining the sample group in terms of reproducibility of the research and revealing the differences in similar studies to be conducted in the future. In addition to all these, it was given importance to express the data collection and data analysis processes of the research in detail for those who will do similar research.

In order to ensure the confirmability of the research, the raw data (audio recordings) of the study are protected and stored by the researchers, open to review by other researchers at any time.

A total of 15 participants were interviewed and the dataset obtained as a result of translating the interviews was 52 pages long.

RESULTS

The findings obtained from the individual interviews conducted with the speech-language therapists, who constituted the study group, were analyzed under categories in this part of the study. These categories can be seen in Table 1. In this section, the information obtained as a result of the qualitative analysis of the data set obtained by translating the semi-structured interviews conducted with the 15 SLTs included in the research is explained. In order to reveal the opinions, practices and suggestions of SLTs towards AAC, 7 main themes were determined. These are Benefiting Status from AAC, Opinions on the Importance of AAC, Preferred Case Groups and Reasons for AAC Implementation, Opinions on Current Best Practice Understanding on Communication and Language Intervention/Use of AAC, Opinions on Current Working Conditions on AAC Practices, Opinions on the Limitations of the Use of AAC in Communication and Language Intervention and Recommendations for Ensuring Effective Use of AAC. Then, the expressions of the participants within the framework of these themes were examined and categories belonging to each theme were created.

Status of Benefiting from AAC

The status of the participants who made up the

Table 1. Categories of participant opinions

Categories
Status of injury from AAC
Opinions on the importance of AAC
Preferred case groups and reasons for AAC practices
Opinions on current best practice approach on communication and language intervention/use of AAC
Opinions on current working conditions regarding AAC practices
Opinions on limitations on the use of AAC in communication and language interventions
Recommendations for effective use of AAC

AAC = augmentative and alternative communication

Table 2. Benefit status of participants from AAC

Category	Themes	Frequency (f)
Status of benefiting from AAC	Those who do not benefit from AAC	9
	Low-tech systems	5
	High-tech systems	1

AAC = augmentative and alternative communication

study group is given in Table 2. AA, who is among the participants who said that s/he never benefited from AAC, said, *"Unfortunately, no. I have never been able to benefit from AAC because I did not have such a case portfolio, therefore, I did not benefit from it"*. The opinion of a participant on the use of low-tech AAC is as follows. *"Well, usually, if we talk about these applications, I can use a little more picture matching, sometimes a little more PECS-like things, or being able to continue the written statements, written instructions, or I can benefit from the research in the part we call communication board, I can say that, well, or rather half-cost, there are 3 different types of AAC, which is paid, as far as I know, I can say that I have benefited from AAC with those that are a little more unassisted and assisted, a little more assisted, or do not have more technological tools"*. GG, who expressed his opinion within the scope of the high-tech systems theme, said, *"Once, I tried in a dysarthric case, who was in an old, very old group, but we could not do it very well because he was too old. His wife was also very old so they did not want to use it, so we did not use it either. Well, I wanted him to write in the form of write-voice, in other words, from a place like Google Translation, because writing, reading everything was fine, just because he was dysarthric, he had severe articulation problems, well… he had to use writing and write-voice practice"*.

Opinions on the Importance of AAC

The opinions of the participants, who constituted the study group, regarding the importance of AAC are given in Table 3. Some examples of participant responses to the themes of this category are as follows. *"I find AAC important if I am not aiming for a verbal* output" (Supporting Conversational Non-Linguistic Communication Skills) (EE). *"I find AAC very important. Because, well… if verbal production is limited, I think the case must be used as a supplement"*. (Supporting Speaking Skills) (FF).

Preferred Case Groups and Reasons for AAC Application

Some examples of participant responses to the themes in this category are as follows. *"I mean, I think that I might need AAC, especially in individuals who have aphasia. Therefore, this is as a comment this way"* (Acquired Language and Speech Disorders) (AA). *"Especially motor disorders, advanced dysarthria. I see that children with an advanced course of dysarthric conditions have a sense of humor in this context. I think that AAC is especially valuable in such children. In other words, as the group, I work most specifically with. I need it very much in dysarthria and Broca's Aphasia"* (Motor Speech Disorder and Acquired Language and Speech Disorders) (CC). *"Dysarthria. Or It could be Apraxia. Then, maybe those with mental retardation. We either looked*

Table 3. Opinions of participants on the importance of AAC

Category	Themes	Frequency (f)
Opinions on the importance of AAC	Supporting speaking skills	5
	Supporting conversational non-linguistic communication skills	10

AAC = augmentative and alternative communication

at severely mentally retarded people, it could be autism with limited verbal output, or it could be Down Syndrome. In other words, there may be any problem because of genetic diseases. It can be used in language disorders, in severe language disorders" (Motor Speech Disorder Cases, Cases with Communication Disorder Because of Intellectual Disability, Cases of Developmental Language Disorders) (EE). *"Firstly, Autism, then, Aphasia. In this way, the language features expected here cannot be framed by certain standards. In other words, it can be seen in many different varieties. For example, of course, we do not recommend AAC to every autistic person, but we can come across children to whom we can recommend it. In other words, I can say that language skills differ greatly from each other. In other words, because of other physical or physiological limitations accompanying Aphasia"* (Autism Spectrum Disorder Cases, Aphasia Cases) (JJ). The case groups are given in Table 4.

Opinions on Current Best Practice Approach on Communication and Language Intervention/Use of AAC

Some examples of the participant responses to the themes in this category are as follows. *"It must be planned individually because it is not possible to say anything average. In line with the individuals' capacity, it can be planned following their strengths, by considering their competence and their physical movement for a case with Cerebral Palsy, for example, supporting the areas where they are not strong. For example, some AACs even occur with some eye movements, if it is necessary to develop a system that can be applied to the case by the family completely suitable for the case"* (Individual Approach Selection) (DD). *"When the expectation is completely focused on AAC in terms of parents and other educator groups, because when we say AAC directly, the reaction we face when they work on the most basic is from the parents, there are reactions such as 'Sir, will we not study speaking? Isn't it our purpose to talk?' Rather, our first goal is to explain to the family that this is a system that will support language skills to support speaking, and to convey that the priority of the family is the development of this system rather than speaking"*. (Family Being a Model) (BB). *".Well, then, it must be an application where the child is studied on a certain material and the family also participates in it, and if the child goes to school, it must be supported by the teachers at the school for generalization and application in daily life. You know, I think it is important to do this as teamwork in this way"* (Application of Focused AAC Practices by Speech Language Therapists, Using Different Learning Materials, Family Being a Model, Providing Interactive Communication with the Family) (FF). *"I think the best use is just a little bit more related to the therapist's managerial situation using that material. Regardless of the material used, I can answer such as the therapist's management of activity about that material or about the case group, you know, I think the best practice is the situation in which the therapist feels best, frankly. When we look at the ideal conditions, I think that the therapist's financial resources (laughs), material things must be high, opportunities must be high, or the environment applied must*

Table 4. Opinions of the participants on the case groups they particularly preferred for AAC practices and their reasons

Category	Themes	Frequency (f)
Case groups for which AAC is important	Motor speech disorders	3
	Autism spectrum disorder	9
	Acquired language and speech disorders	5
	Developmental language disorders	2
	Communication disorders because of intellectual disability	1
	Aphasia	7

AAC = augmentative and alternative communication

have a supportive condition along with the environment. In other words, it has to be used around it, it has to be used by itself, after all, this is an education and it has to be an ideal condition to ensure the continuity of education there. I think there must be no such thing as 'I went and used it once, I used it once', let us change it. It has to be sustainable" (Structured Practice Environment, Enhanced Continuous Natural Contextual Language Teaching) (LL). The opinions on current best practice approaches are given in Table 5.

Opinions Regarding Current Working Conditions in AAC Practices

Some examples of participant responses to the themes of this category are as follows. *"Well, not very convenient because we go from one session to the next. You need to make a preparation beforehand in AAC, you have to prepare lists of targeted words, etc. For this reason, I do not have much time like this, 5-10 minutes in between, but the room gets packed, and a family meeting is not possible"* (Lack of Structured Application Environment) (EE). *"I think that I have an ideal environment, in fact, it may be a problem only in terms of providing sufficient resources"* (Lack of Different Materials/Resources) (DD). *"The conditions I work in are actually suitable for AAC practice, but because of the intensity of the cases, I cannot find time to prepare because we have too many sessions"* (Time Limitation) (KK). *"I mean, even if we implement it, families do not understand much or they may have difficulties. I think it would be ideal to have a process where they understand the logic of this business and are also willing to implement it"* (Lack of Family Involvement) (BB). Opinions regarding current working conditions are given in Table 6.

Limitations on the Use of AAC

Some examples of participant responses to the themes in this category are as follows. *"It is probably because of education when we get down to the basics. Therefore, it means that it was not sufficiently dealt with, in other words, at the time of the AAC. While reading this section, AAC was not emphasized much. In other words, the reason why it was not emphasized much may be that its current sample was very small. There may also be results that show that the places where AAC is used are very few or that it is not a very effective method in terms of its statistical status. I think that putting these things forward will put AAC in the foreground, in other words, this method of intervention"* (Lack of Education of Practitioners, Lack of Widely Use of the Application) (AA). *"I mean, those who prevent rather than limit them, especially in the pediatric group, do you have concept knowledge or not? In other words, whether they have general concept skills or not. You have to look at them. A judgment hindering and limiting us. But when we look at the adult geriatric group, I do not think there is a limiting situation. There are many methods. However, when we look at Aphasia within the scope of other acquired lan-*

Table 5. Opinions of participants on current best practice approach on communication and language intervention/use of AAC

Category	Themes	Frequency (f)
Opinions on AAC' current best practice on communication and language intervention/use		
	Structured practice environment	6
	Being a model of the family	2
	Individual approach selection	5
	Implementation of focused AAC practices by speech therapists	1
	Using different learning materials	4
	Providing interactive communication with the family	1
	Enhanced continuous natural contextual language teaching	2

AAC = augmentative and alternative communication

Table 6. Opinions of participants regarding current working conditions in AAC practices

Category	Themes	Frequency (f)
The environment in which AAC is implemented	Lack of structured application environment	7
	Lack of family involvement	1
	Lack of different materials/resources	2
	Time limitation	2

AAC = augmentative and alternative communication

guage disorders, it is one that can be used physically by someone who has accelerated. How can I say? Does the individual have a problem using his other limbs or not, this may affect us in the use of AAC. There is an example of Hawking that we all know. He also uses it, but it is very, very difficult to access, this is a difficult situation in terms of technological production rather than material and non-material possibilities. How can I say that this situation has become widespread as much as possible? The society is more aware of this - not the society - institutions, and managers as well" (Not Widely Use of Application, Lack of Technology Infrastructure System, Lack of Awareness of Institution Managers for Application) (BB). *"Firstly, we did not see AAC in the courses adequately in our undergraduate education. Related to this and afterward, training is not organized very often. I think the biggest reason is the lack of information"* (Lack of Implementation Information) (DD). "*I considered this in terms of family participation, in saying this, you know, it is usually an environment where we work one-to-one with the child. You know, the family also needs to participate in the intervention actively, so in that case, it is not very suitable, you know, where we work, we mostly work one-to-one with the children. Well, we can include families in therapy for a certain period, but I think that this period must be a little longer in AAC. Yes, because of this, it is not very suitable physically. Well, just like this, sometimes children are like that, well, they are sometimes limited in terms of attention, so the participation of the family is constantly changing, you know, these factors affect the situation in general"* (Lack of Structured Application Environment) (FF). *"Firstly, we do not have a lot of knowledge. Since it is not a field, in other words, used very much in Turkey, it is necessary to search the literature, and because there is literature in English or a foreign language, we lack in this regard, so I think it must be supported or on it. Sorry, from a technological standpoint"*. (Lack of Implementation Information) (GG). *"Firstly, I think that there is a shortage of materials, less material diversity, or I cannot organize these materials in line with our case groups, because, as I mentioned before, therapists work very hard in Turkey in terms of time, so they do not have a chance to say that I also produced this or that. For this reason, we are a little bit dependent on foreign materials. You know, instead of producing the more active part within the scope of purchasing something always, I think this is our first biggest situation: having trouble producing things. Another situation is that we can explain this to the families, transfer AAC, and continue this AAC around the environment because you have to give the AAC that you prepared to the family. We need to reproduce the materials. You know, it has to be a suitable material for reproduction. For this reason, a therapist actually creates a certain burden in an extra financial context, so I can say that it actually creates difficulties for us in terms of the material itself, in terms of environment, material, and time"* (Lack of Practical Materials, Practitioners' Time Limits, Family Not Being a Model) (LL). Limitations on the use of AAC are given in Table 7.

Recommendations for Effective AAC Use

Some examples of participant responses to the themes in this category are as follows. *"A detailed explanation and a sample project at first. Sample, or rather an exemplary project. In the past, primary schools used to be exemplary schools, for example, a clinic only on this and sharing the results of the studies. Besides, I think it will be the biggest method that*

Table 7. Opinions of participants on limitations on the use of AAC

Category	Themes	Frequency (f)
Limitations/barriers to the use of AAC	Practitioners' lack of education	11
	Not widely used application	3
	Lack of technology infrastructure system	2
	Lack of practice awareness of institution managers	2
	Lack of structured application environment	1
	Lack of implementation material	1
	Time limitation of practitioners	1
	Limitation of family participation	1

AAC = augmentative and alternative communication

AAC will show itself as an intervention method, in other words, it will be the way" (Sample Case Practices) (AA). *"AAC must be included more in undergraduate education in general"*. (Including SLT Candidates' Course Contents on the Use of AAC in Undergraduate Education) *(BB). "Of course, firstly, courses directly related to AAC can be taught in undergraduate education. Also, training on AAC can be organized for colleagues working in the field, maybe in the form of in-service training. Maybe there is no such option in the institutions we work with, but maybe more AAC-related training can be organized through the association"* (Including SLT Candidates' Course Contents on the Use of AAC in Undergraduate Education, Organizing *In-Service Training for Practice) (DD). "Even if not in workplaces, for example, training can be given among our community. I know that there is training given by more knowledgeable people, but I think I heard it very little, I just could not attend it either. Well. The general progresses in the form of small-scale seminars errr... I think it would be more effective if it was explained more, for example, in congresses or places like this. But I do not know if there are people who are competent in AAC or if there are people who use it actively, maybe it is because of their scarcity, of course, every SLT has to take responsibility at some point"* (Experienced Practitioners in AAC Implementation, Organizing In-Service Training for Implementation) (GG). *"The fact that education is given on AAC in schools can be extended to one semester or even two semesters. In my opinion, if training is organized for this at the same time, yes, I think that the deficiency in this area can be eliminated"* (Including SLT Candidates' Course Contents on the Use of AAC in Undergraduate Education) (KK). *"I think the first one is undergraduate education. During undergraduate education, maybe this is unassisted, errr. Or, maybe within the scope of informing about aided and unaided AAC, maybe case groups can be distributed to the students in the technological devices part, and we can say to these case groups that they must design an AAC board, maybe a communicative board, and I think it may be directed to the students to use it. I think it must be shown. Of course, in terms of this material, let us all say come on, let us design friends, and at least if there is a material cycle that can be given to them, if they have a file, they can be used better in the future, but if we are all SLTs, let us go to the big SLTs, let us graduate SLTs. If we say let us think comprehensively, maybe we can separate a certain framework in congresses, the same language can be spoken in a certain symposium or all together under the association, let us see who we can design better in which case group, what can come out, it may be necessary to inform families since, if family information is missing, how much SLT can be applied? Whether they want it or not, of course, there can be misunderstandings about this AAC. These also must be fixed. So the framework for both the environment, therapists, and undergraduate SLTs' must be handled case-by-case because what we want applies to many case groups, not just one case group. It is necessary to show the frameworks and diversity of this"* (Including SLT Candidates' Course Contents on the Use of AAC in Un-

Table 8. Opinions of participants on recommendations for effective use of AAC

Category	Themes	Frequency (f)
Recommendations for effective AAC use	Case studies	7
	Experienced practitioners for AAC implementation	7
	Including SLT candidates' course contents on the use of AAC in undergraduate education	7
	Organizing practice-oriented in-service training	4

AAC = augmentative and alternative communication, SLT = speech and language therapists

dergraduate Education, Experienced Practitioners on AAC Practice, and Sample Case Studies) (LL). Recommendations for effective use of AAC are given in Table 8.

DISCUSSION

The aim of the research is to reveal the opinions, practices and suggestions of SLTs, who work in various institutions in Turkey and have different demographic characteristics, towards ACC. In this context, how SLTs define ACC, their current practices towards ACC, their views on the importance of ACC and the preferred case groups and reasons for ACC, their best practice understandings towards ACC, current working conditions for ACC practices. their opinions about ACC, the limitations of ACC use, and the recommendations for effective ACC use are described.

Participant opinions differed regarding what could be considered AAC. Their confusion about AAC is perhaps not surprising in light of the variety of definitions in the literature. AAC is defined as any communication method complementing (augmenting) or replacing (providing an alternative) ordinary speaking and/or writing methods when insufficient to cover the requirements of the individual [18]. The opinions of some participants in the present study were considered to reflect this definition, focusing on facilitating understanding and functioning as environmental support.

The American Speech, Language, and Hearing Association defined a clinical practice addressing the requirements of individuals who have significant and complex communication disabilities characterized by impairments in language and speech production and/or understanding, including augmentative and alternative communication, oral and written modes of communication [1]. It is considered that the fact that some of the study participants perceived AAC as a method for providing communication through writing or a different method in cases with limited speech production, was in line with the American Speech, Language and Hearing Association's AAC definition.

Benefiting Status from AAC

Although most of the participants (n =9) said that they did not benefit from AAC in their current clinical practices, a few of them mentioned AAC practices they performed through low or high-technology systems. When talking about PECS and visual supports for applications realized through low-tech systems mentioned here, the use of various artificial intelligence applications for applications performed through high-tech systems was also mentioned. Iacono and Cameron [5] also reported similar applications of SLTs for AAC as vocabulary, preparing graphical symbols, creating low-tech images, and programming high-tech systems.

Opinions on the Importance of AAC

All participants said that they found AAC important for the intervention of communication disorders. Although a small proportion of the participants were aware of the limited studies supporting the effectiveness of AAC for the intervention of communication disorders, the majority seemed to have the impression that the evidence was strong, particularly in facilitating or inhibiting speech. Although there is much debate about how AAC affects speech development, study evidence points to increased speech development in most, if not all, individuals introduced to AAC [19]. There is growing evidence documenting many posi-

tive benefits of AAC, such as improving communication, promoting language development and understanding, increasing participation, and reducing frustration and problem behaviors [20, 21].

Opinions on Preferred Case Groups for AAC

Although most of the participants reported that they found the use of AAC especially important in interventions for Aphasia and Autism Spectrum Disorder (ASD) because of their speech-based language difficulties, some participants said that they were working with dysarthric clients, some with developmental language disorders, communication difficulties because of intellectual disability, and voice disorders and shared that they cared about the use of AAC. This relationship between various AAC practices and ASD is seen in the literature [22-24]. However, individuals who have speech and language disorders also have a wide range of communication requirements and abilities. In this context, there is no typical candidate for AAC. It is already known that AAC can be applied to clients from all age groups, from socioeconomic, ethnic, and racial backgrounds. The unifying characteristics of people who can be accepted as candidates for AAC are their need for adaptive support to communicate effectively because their verbal and/or written communications are temporarily or permanently insufficient to meet all their communication requirements. Also, it is already known that various developmental or acquired conditions can cause significant difficulties in speaking or writing without adaptive support. Common developmental causes of such severe communication disorders include severe intellectual developmental disability, Cerebral Palsy, Down Syndrome, Autism Spectrum Disorder, and developmental apraxia of speech. Acquired medical conditions that result in the need for AAC support include Amyotrophic Lateral Sclerosis (ALS), Multiple Sclerosis, traumatic brain injury, stroke, high-level spinal cord injury, and several other degenerative cognitive and linguistic disorders [2].

The opinions of the SLTs who participated in the study on the case groups who had communication problems because of Aphasia, ASD, and intellectual disability, which they reported in the literature that they preferred for AAC practices, and these case groups mentioned in the international literature were considered to overlap.

Opinions on the Best Practice Approach to AAC

A variety of opinions were found in the evaluation and intervention approaches reported by the participants, reflecting an implicit understanding of what can be considered current best practice; structured practice environments, use of different learning materials, integrating AAC into everyday situations and interactions, and family involvement. In this context, Iacono [24], Snell [25], and Iacono and Cameron [5] also mentioned similar opinions. It was not understood fully whether participants used such strategies and approaches because they saw it as best practice or because of their evidence-based understanding. It is considered that some practices such as PECS may were preferred because the participants received special training or these were mentioned in speech and language therapy undergraduate/master education.

Opinions on the Current Working Conditions regarding AAC Applications and Limitations on the Use of AAC

Most of the participants expressed their thoughts that when they tried to fulfill all clinical roles and duties, they also did not have enough time during the day to present the best AAC practice to their clients. This was supported by the findings of the study of Beamish and Bryer [26] which showed that time constraints pose a significant challenge for clinicians in their attempts or desire to implement best practices. This obstacle is also mentioned in some other studies conducted on AAC practices [27]). Also, some participants talked about the difficulty of convincing and/or educating clients' families about AAC use. Clinicians currently at risk of burnout are known to face the potential for greater stress, or at least frustration, from their need to address family concerns and other professionals' misconceptions about AAC while remaining sensitive to family requirements and stress [5]. It is reported in the literature that clinicians who provide AAC as a component of speech and language therapy services are likely to benefit better from a family-centered approach with appropriate management and organizational support [28]. An example of such support is the employers' commitment to saving clinicians time by creating positions that are dedicated to the development of AAC systems [5]. Also, some participants mentioned that the current technological equipment is not sufficient to create a favorable setting

for AAC practices. Smith and Connly [29] and McNaughton *et al*. [19] also mentioned a similar situation in their study.

Recommendations for Effective AAC Use

Among the suggestions of the participants in the effective use of AAC are the organization of case study training, the organization of training to be provided by experienced practitioners in AAC practice, the presentation of content on the use of AAC in the practical and theoretical training of SLT candidates, the conduct of individual literature studies and the organization of in-service training. Similarly, McNaughton *et al*. [19] also reported a need for training in existing AAC technology as part of continuing professional development at pre-service and in-service levels. In general, the present literature on AAC and speech and language disorders suggests that clinicians must conduct a systematic review of study evidence to be informed about practices [10, 11]. Considering the resources and time required to conduct systematic reviews, it seems likely that clinicians will need expert assistance, training, and access to electronic literature databases [5].

Limitations and Recommendations for Further Studies

The present study provided qualitative insights into the use of AAC in the intervention of communication disorders from the perspective of SLTs. The results are presented in light of the data obtained from the individual interviews conducted with the participants. Considering the directed nature of the interviews because of their small sample and semi-structured nature, more detailed qualitative studies through individual or focus group interviews with larger sample groups will contribute to a better understanding of issues on AAC practices, such as the participation of clinicians with various experiences in the field. The next step may be to explore the perceptions of other professionals and families regarding AAC, considering the multidisciplinary nature of service delivery to individuals who have communication difficulties and the need to understand family issues to facilitate family-centered processes. The results of the present study point to potential barriers, but direct empirical evidence seems to be lacking. Also, there is a need to determine to what extent the results of the present study reflect the experiences of other SLTs. For this reason, the findings were considered to represent a first step towards developing a more comprehensive quantitative questionnaire in this field. More studies are needed on how government agencies with organizations that establish policies, develop clinical education programs and provide intervention services for communication disorders can contribute to facilitating best practices without overburdening clinicians and families.

CONCLUSION

The results of the present study showed that supporting individuals who might benefit from AAC in the context of intervention services for communication disorders requires great effort, often involves struggling with families, and might threaten overall job satisfaction because of excessive job demands. Despite this, clinicians who participated in the study reported that they strongly believed in AAC and its potential value for individuals who have communication disorders but did not have sufficient self-confidence in their current or developing skills in this field. It was recognized that clinicians need training and support from employers, professional bodies, or government agencies that establish policies and standards to achieve their AAC-related targets. Future studies on relevant issues raised by current and other studies are also necessary in this regard. Although the extreme job demands revealed by the research were interpreted as a valuable result by the researchers, it was thought that this situation was related to the inflexibility of SLTs to new needs and it was realized that this perception should be changed.

Authors' Contribution

Study Conception: İCY, ST; Study Design: İCY, ST; Supervision: İCY, ST; Funding: N/A; Materials: İCY, ST; Data Collection and/or Processing: İCY, ST; Statistical Analysis and/or Data Interpretation: İCY, ST; Literature Review: İCY, ST; Manuscript Preparation: İCY, ST and Critical Review: İCY.

Informed Consent

Written informed consent was obtained from the speech and language therapists who participated in the study.

Conflict of interest

The authors disclosed no conflict of interest during the preparation or publication of this manuscript.

Financing

The authors disclosed that they did not receive any grant during conduction or writing of this study.

Acknowledgements

The authors would like to thank all the speech and language therapists who participated in the study despite all their busyness.

Appendix 1. Semi-structured interview questions

1. Which patient group/groups do you work with in general?
2. How would you define AAC?
3. Have you used/do you benefit from AAC currently or in your previous intervention attempts?
4. Why do you think AAC is important?
5. In your opinion, for which case group is AAC more important, why?
6. What are your thoughts on how AAC should be the best practice for communication and language intervention/use?
7. Do you think you are working in an environment that allows you to apply current best practices and/or explore approaches in using AAC?
8. What are the limitations/obstacles in the use of AAC? From where?
9. What are your suggestions for a more effective use of AAC?

REFERENCES

1. American Speech-Language-Hearing Association ASHA). Roles and responsibilities of speech-language pathologists in schools [Professional Issues Statement]. 2010. Available from www.asha.org/policy/.
2. Beukelman DR, Pat M. Augmentative and Alternative Communication : Supporting Children and Adults with Complex Communication Needs, Brookes Publishing, 2012. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/bahcesehir-ebooks/detail.action?docID=1787388. Created from bahcesehir-ebooks on 2023-03-20 17:27:11.
3. Fidan K. The knowledge, experiences and recommendations of the health personnels working in the intensive care unit about augmentative and alternative communication: A mixed method study. [Unpublished MSC thesis]. Üsküdar University, Health Sciences Institure, İstanbul. 2021.
4. Yırtık HN, Yelek EN, Karahan Tığrak T, Bozkuş İB, Kulak Kayıkçı ME. [Development of a prototype and determination of high-tech augmentative and alternative communication system requirements for individuals in intensive care units]. Hacettepe Üniversitesi Sağlık Bilimleri Fakültesi Dergisi 2023;10:58-84. [Article in Turkish]
5. Iacono T, Cameron M. Australian speech-language pathologists' perceptions and experiences of augmentative and alternative communication in early childhood intervention. Augment Altern Commun 2009;25:236-49.
6. Hemmings B, Hill D, Davies S. Evaluating a rural-based early childhood intervention service. Spec Educ Perspect 2004;13:31-54.
7. Kemp C, Hayes A. Early intervention in Australia. In: Guralnick M, ed., The developmental systems approach to early intervention. Baltimore, MD: Paul H. Brookes, 2005: pp. 401-23.
8. American Speech-Language-Hearing Association. (2008a). Core knowledge and skills in early intervention speech language pathology practice [Knowledge and Skills]. Available from: http://www.asha.org/policy
9. American Speech-Language-Hearing Association. (2008b). Roles and responsibilities of speech-language pathologists in early intervention: Technical report [Technical Report]. Available from http://www.asha.org/policy
10. Reilly S. What constitutes evidence? In: Reilly S, Douglas J, Oates J, eds., Evidence based practice in speech pathology. London: Whurr, 2004: pp. 18-34.
11. Schlosser RW, Raghavendra P. Evidence-based practice in augmentative and alternative communication. Augment Altern Commun 2004;2:1-21.
12. Iacono T. The evidence base for augmentative and alternative communication. In: Reilly S, Douglas J, Oates J, eds., Evidence-based practice in speech pathology, London: Whurr Publishers, 2004: pp. 288-313.
13. Vagle MD. Crafting phenomenological research. Walnut Creek, Ca: Left Coast Press. 2014.
14. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Med Res Methodol 2008;8:45.
15. Miles M, Huberman M. Data management and analysis methods. Thousand Oaks, CA: Sage Publications. 1994.
16. Erdoğan Ç, Demirkasımoğlu N. [Teachers' and school administrators' views of parent involvement in education process]. Kuram ve Uygulamada Eğitim Yönetimi 2010;16:399-431. [Article in Turkish]
17. Murray J, Goldbart J. Augmentative and alternative communication: a review of current issues. Pediatrics and Child Health. 2009;19(10):464-8.
18. Millar D, Light J, Schlosser, R. The impact of augmentative and alternative communication on the speech production of individuals with developmental disabilities: a research review. J Speech Lang Hear Res 2006;49:248-64.
19. McNaughton D, Rackensperger T, Benedek-Wood E, Krezman C, Williams MB, Light J. A child needs to be given a chance to succeed: parents of individuals who use AAC describe the benefits and challenges of learning AAC Technologies. Augment Al-

tern Commun 2008;24:43-55.
20. Campbell PH, Milbourne S, Dugan LM, Wilcox MJ. A review of evidence on practices for teaching young children to use assistive technology devices. Topics Early Child Spec Educ 2006;26:3-13.
21. Hodgdon LA. Visual strategies for improving communication: Practical supports for school and communication. Michigan: Quirk Roberts Publishing. 2000.
22. Johnston S, Nelson C, Evans J, Palazolo K. The use of visual supports in teaching young children with Autism Spectrum Disorder to initiate interactions. Augment Altern Commun 2003;19:86-103.
23. Mirenda P, Brown K. A picture is worth a thousand words: using visual supports for augmented input with individuals with autism. In: Mirenda P, Iacono T. eds., Autism and AAC. Baltimore: Paul H. Brookes, 2008: pp. 303-32.
24. Iacono T. Language intervention in early childhood. Int J Disabil Dev Educ 1999;46:383-420.
25. Snell ME. Using dynamic assessment with learners who communicate nonsymbolically. Augment Altern Commun 2002;18:163-76.
26. Beamish W, Bryer, F. Practitioners and parents have their say about best practice: Early intervention in Queensland. Int J Disabil Dev Educ 1999;46:261-78.
27. Kent-Walsh J, Light J. General education teachers' experiences with inclusion of students who use augmentative and alternative communication. Augment Altern Commun 2003;19:104-24.
28. Scope. More than my child's disability: A study of family-centered practices and family experiences of Scope early childhood intervention services and supports. (Research Project). Melbourne: Scope (Vic). 2004.
29. Smith MM, Connolly I. Roles of aided communication: perspectives of adults who use AAC. Disabil Rehabil Assist Technol 2008;3:260-73.