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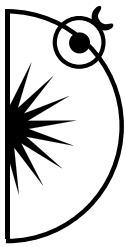

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ABAS-3 and the PAC-1 in the Study of Adaptive Behaviour of Children and Adolescents with Deeper Intellectual Disabilities

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Abstract

The aim of the analysis was to determine the structure of the adaptive behaviour of people with deeper intellectual disability, as assessed with Adaptive Behaviour Assessment System (ABAS-3). It was also to establish the determinants of the disability with the use of other variables of the psychosocial functioning of these people. The predictors were defined for the so-called General Adaptive Composite (GAC), the ABAS-3 three adaptive domains and ten areas of individual adaptive skills, measured with ABAS-3. The analysis also addressed convergent validity of the tool. It was determined by exploring interrelations between ABAS-3 and PAC-1 Inventory. The r-Pearson test was applied, followed by stepwise multiple regression analysis. The study was conducted on a group of 140 children and young people with moderate and severe intellectual disability. The average age was 13.30 years, with SD=5.06 years. The GAC and ABAS-3 adaptive domains scores positively correlate with the individual areas in PAC-1, with the power of the correlation being greater in the group of assessments carried out by teachers than the analogical assessments carried out by parents. The regression models created for the parents' group enable a conclusion that the higher the GAC score – including assessment of communication and practical knowledge skills, capability of

managing and completing tasks – the higher the growth in socialization, participation in play and domestic activities. On the other hand, in the models created for the group of teachers, the predictor for the GAC score, for the domain of conceptual skills and for the domain of social skills was the area of socialization. For the domain of practical skills, the predictor was the area of self-care.

Key words: ABAS-3, PAC-1 Inventory, adaptive behaviour, social functioning, severe and moderate intellectual disability.

Introduction

The multidimensional definition of intellectual disability focuses on limitations in particular spheres of functioning. This fact is explained by numerous research reports on the social construction of disease and the impact of social attitudes, roles and norms on that construction (Aronowitz, 1998). The definition in question also unveils how the historical contrast between biological and social causes of disability have been eliminated from its scope (Institute of Medicine, 1991), and, finally, how the current definition grew to recognise the multidimensionality of human functioning (Luckasson et al., 1992; Luckasson et al., 2002). Relatively recently observed is an increased interest in a new approach to defining intellectual disability (Luckasson et al., 2002), even though over the past half century the basic defining criteria have not changed significantly (Denning et al., 2000; Bach, 2007; Brown, 2007; Polloway et al., 2010; Kirenko & Łaba-Horecka, 2018).

Extensive research on the concept of human functioning led the researchers to develop a multidimensional model, outlined by AAIDD (American Association on Intellectual and Developmental Disabilities, formerly AAMR – American Association on Mental Retardation) in their seminal Manual of 1992 (Luckasson et al., 1992), and then revised in the Manual of 2002 (Luckasson et al., 2002). The Manual establishes five dimensions: intellectual capacity (Gottfredson, 1997), adaptive behaviour, health, social participation and context. It also discusses support measures for enhancing human functioning.

R.L. Schalock et al. (2010) identified the significance of assessment in the diagnosis, classification and support system for people with intellectual disabilities. They suggested that the evaluation should be carried out according to the following criteria: (a) the assessment tools and procedures should be tailored to the assessment objective; (b) assessment results should have the best validation available; (c) the results should be effectively applicable and properly applied (Dunst et al., 2006).

In 2002, AAIDD proposed an assessment scheme structured around three functions: diagnosis, classification and planned support (Luckasson et al., 2002). The aim was to indicate that the tools and assessment results can be applicable with certain, but not necessarily with all social groups.

The definition of intellectual disability developed by AAMR does not provide explanation on whether all the adaptive skills under analysis are correlated, which led to serious interpretation issues. Likewise, the lack of appropriate assessment tools for these skills turned out problematic. These challenges were satisfactorily met when in 2000, the Adaptive Behaviour Assessment System (ABAS) was published by P.L. Harrison and Th. Oakland. This tool measures adaptive behaviour, including cognitive, social and practical skills. The second edition of ABAS (ABAS-II) came out in 2003, while the third – ABAS-3 – in 2015.

The original version of ABAS-3

ABAS-3 reflects current standards for describing adaptive behaviour and diagnosing the conditions which may affect it. The tool can be used with people from birth to 89 years of age in different social environments. In Poland, standards have been developed for the age group 0–20 (Otrębski et al., 2019a).

ABAS-3 consists of five sheets that require reading skills at primary school level. Adaptive behaviour is studied at three different levels. The highest level, the so-called General Adaptive Composite (GAC), contains all the examined skill areas and provides comprehensive assessment of adaptive behaviour. The next, lower level is occupied by three adaptive domains, consisting of individual skill areas:

- Conceptual (CNC) – skills needed to communicate with others, put knowledge to practical use, control and complete tasks;
- Social (SOC) – skills necessary to engage in interpersonal relations, activities requiring social responsibility and advertent use of leisure time;
- Practical (PRC) – skills needed to take care of personal and health needs, to look after the home, classroom or workplace, and to function in society.

The areas of individual adaptation skills occupy the third and the lowest level (Harrison & Oakland, 2015).

The GAC and the adaptive domains scores consist of standard results (M=100, SD=15), confidence intervals for standard results and centile ranks. However, the results for the individual areas of adaptive skills are the converted

ones (M=10, SD=3). The descriptive classification (very low, low, below average, average, above average and high) can be used to facilitate the interpretation of results by expressing the numerical ranges in descriptive terms (Harrison & Oakland, 2015).

The standardization procedure for the Polish adaptation of ABAS-3 was carried out in accordance with the procedures applied in the American version of the tool (Otrębski et al., 2019a, p. 71).

Own research*

It is assumed, following P.L. Harrison and Th. Oakland (2015), that although ABAS-3 provides comprehensive assessment of adaptive behaviour, it should not preclude the complementary use of other tools. ABAS-3 can be used to investigate the structure of the phenomenon of adaptive behaviour itself and to search for its determinants by, for example, testing the psychosocial functioning of people with intellectual disabilities along with other variables. Such analyses serve primarily to determine the psychometric properties of the tool. In this article, they serve to determine validity, which is extremely important in the context of its adaptation to the specific cultural circumstances.

The aim of the undertaken research was to determine the predictors for GAC, the three adaptive domains and the ten areas of individual adaptive skills assessed in ABAS-3. To an extent, the analysis also aimed at determining convergent validity of the tool. The theoretical layer of validity is mainly confirmed by the construction of the tool, based on the multidimensional model proposed by AAIDD. Convergent validity was estimated on how ABAS-3 relates to PAC-1 Inventory. This was done with the r-Pearson's test and, consequently, with a stepwise multiple regression analysis, which enabled determining the arrangement of explanatory variables, i.e. individual dimensions in PAC-1 Inventory. The latter are crucial in explaining the explained variable (ABAS-3) and in estimating the power of their correlation in the constructed regression model.

PAC-1 Inventory, as part of H. C. Gunzburg's PAC tool (Progress Assessment Chart), in the Polish adaptation by T. Witkowski, is used for individualised diagnosis and, consequently, individualised social rehabilitation measures (Witkowski, 1997). PAC consists of items that are arranged in four areas, which

* The research was conducted under the license of Western Psychological Services, A Division of Manson Western Corporation in the United States of America dated 11.03.2015. The permission was granted simultaneously for the use all ABAS-3 sheets in Poland.

in turn are divided into components ordered by difficulty levels. The examined person usually performs only part of the tasks, while the remaining ones are used in individual work. In this way, each person's individual level of social skills can be determined.

Items in each inventory (PPAC, PAC-1, PAC-2) are arranged in the following areas: I. Self-care (SC); II. Communication (CS); III. Socialization (SL); and IV Activities (AC). Each of them contains the following components (as exemplified here by PAC-1):

I. 1. Table behaviour (TB); 2. Motor skills (MS); 3. Toilet skills and washing up (TS); 4. Dressing up (DP);
II. 1. Language (LS); 2. Recognition of differences (DR); 3. Recognition of numbers and sizes (NS); 4. Use of pencil and paper (PP);
III. 1. Participation in play (PL); 2. Home and household activities (HA);
IV. 1. Manual dexterity – finger movements (MD); 2. agility – motor control (AG).

The research was conducted on 140 children and young people with moderate and severe intellectual disabilities, including 50 female (35.71) and 90 male (64.29) subjects. The age average was 13.30 years, with a standard deviation of 5.06 years. The respondents represented 28 educational institutions.

Research results

An analysis of the correlation between the ABAS-3 (GAC, adaptive domains and areas of individual adaptive skills) and PAC-1 (areas and components) score, separately for parent and teacher assessment groups, revealed significant and positive correlations at average and high levels (Guilford, 1965). This demonstrates the convergent validity of ABAS-3 (Tables 1–2).

As expected, there were significant and positive correlations between GAC score, the adaptive domains and the particular areas in PAC-1 (Table 1). However, the power of the correlation obtained in this way is greater for each r-Pearson coefficient for the group of teacher assessment (high level), in contrast with the group of assessments made by parents (average level). Therefore, since all correlation coefficients are directly proportional, it can be concluded that teachers rate their students' adaptive behaviour higher than their parents.

Table 1. r-Pearson correlation coefficients: ABAS-3 (GAC and adaptive domains in parents' and teachers' assessment), PAC-1 (areas)

PAC	PGAC	PCNC	PSOC	PPRC	TGAC	TCNC	TSOC	TPRC
SC	0.43	0.44	0.37	0.40	0.56	0.52	0.49	0.54
CS	0.40	0.49	0.43	0.32	0.57	0.59	0.51	0.55
SL	0.49	0.53	0.52	0.39	0.54	0.54	0.54	0.50
AC	0.42	0.45	0.37	0.36	0.50	0.50	0.48	0.45

At: $r>0.32 – p<.001$

Source: Authors' research.

Also, the correlations between the GAC score, the ABAS-3 adaptive domains and the individual components of PAC-1 are in line with the authors' expectations: they are both significant and positive (Table 2). Although a greater power of correlation was expected for both groups assessing adaptive behaviour of their students/children with moderate and severe intellectual disabilities, yet, here too, almost each r-Pearson coefficient was higher for teachers than parents. However, with the former group, average power of correlation dominated over high power, while with the latter group, average power dominated over low. Still, the direction of the correlations justifies a claim that the variables measuring individual aspects of the adaptive behaviour of the subjects are convergent.

Table 2. r-Pearson correlation coefficients: ABAS (GAC and adaptive domains in parents' and teachers' assessment), PAC-1(parts)

PAC	PGAC	PCNC	PSOC	PPRC	TGAC	TCNC	TSOC	TPRC
TB	0.51	0.55	0.50	0.44	0.68	0.64	0.61	0.66
MS	0.34	0.36	0.24	0.34	0.47	0.47	0.34	0.46
TS	0.35	0.32	0.30	0.34	0.43	0.38	0.41	0.42
DP	0.33	0.33	0.28	0.31	0.40	0.37	0.38	0.39
LS	0.32	0.42	0.43	0.25	0.57	0.59	0.57	0.53
DR	0.42	0.50	0.42	0.34	0.54	0.57	0.49	0.51
NS	0.38	0.45	0.38	0.32	0.51	0.53	0.41	0.51
PP	0.37	0.45	0.36	0.29	0.53	0.55	0.46	0.51
PL	0.39	0.42	0.48	0.28	0.46	0.45	0.54	0.41
HA	0.51	0.55	0.46	0.44	0.52	0.54	0.44	0.49
MD	0.40	0.43	0.36	0.31	0.46	0.46	0.45	0.41
AG	0.40	0.42	0.34	0.38	0.50	0.49	0.46	0.45

At: $r>0.19 – p<.05$; $r>0.25 – p<.01$; $r>0.32 – p<.001$

Source: Authors' research.

Determining the convergent validity of the tool also included analysis of interrelations between the areas of individual adaptive skills in the assessment by parents and teachers, i.e. the lowest level of adaptive behaviour tested in ABAS-3, and the individual components of PAC-1. The area of movement and motor skills (M), which is typical for research on young children up to 5 years old, was excluded from the study. The analysed population consisted only of 24 subjects that met the criteria[1].

The next stage of the analysis was to apply stepwise multiple regression in order to determine the arrangement of explanatory variables, which in the researched case were the areas and their components in PAC-1, which were vital in explaining the explained variable of the adaptive behaviour of children and young people with moderate and severe intellectual disabilities. The regression analysis also aimed at estimating the power of their correlation in the constructed model. The essence of the stepwise regression method is to screen the function of a minimum set of explanatory variables, along with maximising the coefficient of determination and minimising the mean square of deviations from the regression model. This is done in order to identify the dimensions of those variables that most often correlate with each other against those which tend to stand in opposition. In other words, it is an attempt to distinguish the stimulators and inhibitors of the phenomenon under study. Stimulators are variables with positive regression parameters, while inhibitors are variables with negative ones. On the other hand, non-significant statistical variables, the so-called neutral ones, do not partake in the analysis of the studied interdependencies. At the same time, multiple regression coefficients have different units of measure, therefore they cannot be used for direct comparison of how powerful the correlation of individual explanatory variables with the explained variable is.

Table 3. Summary of regressions for the explained variable ABAS-3 (GAC and adaptive domains in parents' assessment) and the explained variable PAC-1 (areas)

Dependent variable PGAC		R=0.47 R2=0.22 F(2.14)=19.74 p<.000***			
		β	B	It is .	P
PAC-1	SL	0.35	0.50	3.00	.003**
Dependent variable PCNC		R=0.51 R2=0.26 F(2.14)=24.38 p<.000***			
		β	B	It is .	P
PAC-1	SL	0.36	0.45	3.17	.001**

[1] Due to formal constraints, details analysis is not included in this article.

Table 3. Summary of regressions for the explained variable ABAS-3 (GAC and adaptive domains in parents' assessment) and the explained variable PAC-1 (areas)

Dependent variable PSOC		R=0.50 R2=0.25 F(3.14)=15.11 p<.000***			
		β	B	It is .	P
PAC-1	SL	0.58	0.74	4.16	.000***
Dependent variable PPRC		R=0.41 R2=0.16 F(3.14)=8.95 p<.000***			
		β	B	It is .	P
PAC-1	SC	0.34	0.26	2.34	.020*

*p<.05; **p<.01

Source: Authors' research.

In the models created for the parents assessing adaptive behaviour of their children, accounting for 16 to 26% of the variability of the explained adaptive behaviour variables in the GAC score and the three adaptive domains, there was one regression coefficient for social functioning in each of them that reached the level of statistical significance (Table 3). It should therefore be assumed that an increase in the score for the adaptive composite, the skills necessary for communicating with others, for practical application of knowledge, task control and completion, as well as the skills necessary for engaging in interpersonal relationships, for undertaking activities requiring social responsibility and advertent use of leisure time is accompanied by a directly proportional increase in socialisation, including participation in play and household activities. Directly proportionate correlations also obtain between the adaptive skills needed to take care of personal and health needs, care for the home and all those places where one functions in society. as well as social functioning in the area of self-care, that is, in the components: table behaviour, motor skills, toilet activities and dressing up.

By contrast, in the models created for the teachers assessing adaptive behaviour of their students, the variation rates for the explained adaptive behaviour variables in the GAC score and in the three adaptive domains are much higher, ranging from 33 to 51%. In each model, there are one to three regression coefficients in social functioning that reach the level of statistical significance (Table 4). For the parents' group, the predictor for the GAC score, the domain of conceptual skills and the domain of social skills was the area of socialization, while for the domain of practical skills, the area of self-service. In the teachers' group, this correlation pattern is still present, taking identical values for the domain of social skills. Yet, in the remaining models, the correlation covers also other areas of social functioning, including communication correlat-

ing with the GAC as well as with the conceptual and practical domain. Also, self-service is found correlating with the GAC. All the above predictors are in a directly proportional relationship, except for the model for the variable domain of practical skills, where the area of activities, manual skills and agility has an inhibitory effect.

Table 4. Summary of the regression of the explained variable ABAS-3 (GAC score and adaptive domains in teachers' assessment) and the explanatory variable PAC-1 (areas)

Dependent variable TGAC		R=0.59 R2=0.35 F(4.13)=18.21 p<.000***			
		β	B	It is .	P
PAC-1	CS	0.27	0.16	2.09	.038*
	SC	0.32	0.20	2.07	.040*
	SL	0.26	0.34	1.99	.049*
Dependent variable TCNC		R=0.59 R2=0.35 F(2.14)=36.12 p<.000***			
		β	B	It is .	P
PAC-1	CS	0.40	0.20	3.78	.000***
	SL	0.22	0.25	2.03	.044*
Dependent variable TSOC		R=0.54 R2=0.51 F(3.14)=28.92 p<.000***			
		β	B	It is .	P
PAC-1	SL	0.36	0.48	3.29	.001**
Dependent variable TPRC		R=0.58 R2=0.33 F(4.13)=16.96 p<.000***			
		β	B	It is .	P
PAC-1	SC	0.44	0.32	2.84	.005**
	CS	0.27	0.18	2.07	.040*
	AC	-0.36	-0.49	-2.19	.030*

*p<.05; **p<.01; ***P<.000

Source: Authors' research.

Table 5. Summary of regressions for the explained variable ABAS-3 (GAC score and adaptive domains in parents' assessment) and the explained variable PAC-1 (parts)

Dependent variable PGAC		R=0.60 R2=0.36 F(7.13)=10.56 p<.000***			
		β	B	It is.	P
SC	TB	0.54	1.27	4.57	.000***
	LS	-0.28	-0.68	-2.22	.028*
CS	DR	0.36	0.88	2.13	.035*
SL	HA	0.48	1.35	4.09	.000***
Dependent variable PCNC		R=0.67 R2=0.45 F(8.13)=13.25 p<.000***			
		β	B	It is.	P
SC	TB	0.61	1.24	5.37	.000***
CS	TS	-0.31	-0.68	-2.43	.016*
SL	DR	0.47	1.01	2.78	006**
	HA	0.44	1.09	3.85	000***
Dependent variable PSOC		R=0.62 R2=0.38 F(7.13)=11.59 p<.000***			
		β	B	It is.	P
	TB	0.51	1.06	4.37	.000***
SC	MS	-0.38	-0.90	-3.21	.001**
	PL	0.23	0.50	2.19	.030*
SL	HA	0.40	1.00	3.32	.001**
Dependent variable PPRC		R=0.54 R2=0.29 F(7.13)=7.82 p<.000***			
		β	B	It is.	P
SC	TB	0.55	1.38	4.41	.000***
	PP	-0.37	-0.94	-2.14	.033*
	DR	0.39	1.02	2.19	.030*
CS	LS	-0.27	-0.72	-2.09	.039*
SL	HA	0.31	0.93	2.51	.013*
AC	MD	-0.36	-0.96	-2.17	0.32*

*p<.05; **p<.01; ***P<.000

Source: Authors' research.

In the detailed models created for the parents' group assessing adaptive behaviour of their children with profound intellectual disabilities, accounting for between 29 and 45% of the variability of the explained variables for adaptive behaviour in the GAC score and the three adaptive domains, there were – in each of them – between 4 and 6 partial regression coefficients in social functioning that reached the level of statistical significance (Table 5). In each of the resultant models, two areas of social functioning display significant correlations: socialization – and within its scope, the variable for domestic activities and self-care – correlates with table behaviour, while

to a slightly lesser extent, the area of communication and the smallest area of activities.

It can therefore be concluded that the positive predictors for the GAC score and the three adaptive domains are the above two variables for social functioning – strongly emphasized by the parents. The GAC score is also positively influenced by the skill of recognising differences, and simultaneously is inhibited by language skills and their development. The same holds true for the conceptual domain, except that the inhibiting factor here is skills of using toilet and washing up. In the social domain, on the other hand, an additional positive predictor was participation in play, while motor skills are an inhibitor. The adaptive dimension of practical skills is stimulated by the variable of difference recognition, but also inhibited by such factors as: use of pencil and paper, language and manual dexterity – finger movements.

Significantly developed regression models are obtained for the group of teachers assessing adaptive behaviour of students with moderate and severe intellectual disabilities. They account for between 52 and 58% of the variation of the explained variables relating to adaptive behaviour in the GAC score and the three adaptive domains. The individual models contain from 3 to 7 partial regression coefficients in social functioning reaching statistical confidence level (Table 6). In each of them, two areas of social functioning stand out, which marks an analogy to the parents' group. However, the conspicuous partial coefficients in this case are self-care – in particular, table behaviour – a full range of activities, with agility as a stimulant and manual dexterity as an inhibitor. Of slightly weaker impact was the area of communication, while for socialisation, this impact was the smallest of all. The two coefficients are positive predictors of the GAC score and the three adaptive domains, while the third coefficient in social functioning is their inhibitor. However, the models created are more capacious – with the obvious exception of the model for the practical skills dimension – hence the GAC score is also positively influenced by the factor of language development. The conceptual domain, on the other hand, is also conditioned by the factor of language development, as well as the factor of difference recognition and domestic activities. An additional inhibiting factor here is toilet skills. Difference recognition and language development are also stimulators of the socializing domain, whereas manual dexterity, counting skills and skills of recognizing size are its inhibitors.

Table 6. Summary of the regression of the explained variable ABAS-3 (overall score and adaptive domains in teacher's assessment) and the explanatory variable PAC-1 (parts)

Dependent variable TGAC		R=0.75 R2=0.57 F(8.13)=21.66 p<.000***			
		β	B	It is.	P
SC	TB	0.83	1.78	8.03	.000***
CS	LS	0.27	0.60	2.98	.003**
	MD	-0.35	-0.79	-2.61	.010**
AC	AG	0.31	0.72	2.75	.007**
Dependent variable TCNC		**R=0.76 R2=0.58 F(10.13)=17.78 p<.000***			
		β	B	It is.	P
SC	TB	0.76	1.43	7.36	.000***
	TS	-0.37	-0.76	-3.09	.002**
CS	DR	0.38	0.73	2.29	.023*
SL	LS	0.29	0.56	2.56	.011*
	HA	0.22	0.49	2.27	.025*
AC	MD	-0.31	-0.62	-2.24	.027*
	AG	0.31	0.63	2.78	.006**
Dependent variable TSOC		**R=0.72 R2=0.52 F(9.13)=15.43 p<.000***			
		B	B	It is.	P
	TB	0.67	1.45	6.10	.000***
SC	MS	-0.29	-0.71	-2.58	.011*
	LS	0.32	0.72	2.66	.008**
	NS	-0.46	-0.96	-3.01	.003**
CS	DR	0.34	0.77	1.99	.048*
	AG	0.40	0.96	3.28	.001**
AC	MD	-0.31	-0.71	-2.10	.037*
Dependent variable TPRC		**R=0.73 R2=0.54 F(6.13)=26.15 p<.000***			
		B	B	It is.	P
SC	TB	0.85	2.04	8.39	.000***
	AG	0.25	0.67	2.25	.026*
AC	MD	-0.59	-1.49	-4.26	.000***

*p<.05; **p<.01; ***P<.000

Source: Authors' research.

Discussion

Researchers using ABAS-3 indicate that it enables comprehensive assessment of adaptability throughout lifetime. The results can be compared in different age groups or in the same individuals retrospectively. In addition, all the results can be categorised in a descriptive mode (Harrison & Oakland, 2015; Hill et al., 2019; Jordan et al., 2019). ABAS-3 allows enhancements in careful planning of the therapeutic intervention, anticipating the consequences of emerging dif-

ficulties affecting the development or deterioration of functional skills. These factors play a crucial role in planning and implementing rehabilitation measures (Dégeilh et al., 2018; Ricci, 2018).

The research reported herein focused on determining the predictors for the General Adaptive Composite and the three adaptive domains measured by the Adaptive Behavioural Assessment System (ABAS-3). The obtained results unveiled that the results form a specific arrangement. Empirical results were highlighted the most. This was particularly the case with the results obtained with the use of such statistical methods whose margin of overinterpretation is minimal. Stepwise multiple regression makes it possible to obtain relatively precise descriptive characteristics of the observed interrelations. As such, these results may be interpreted in terms of main conclusions to the study. However, this holds good only for a selection of the results discussed, as the study also contains observations that are in fact proposals for further research. This is the case when the observations concern verifying the particular hypotheses of the study concerning adaptive skills – as the explained variable – as well as social functioning – as an explanatory variable.

The conclusions to the study are listed in the following points:

1. The score for GAC and the ABAS-3 adaptive domains correlate positively with the individual areas of PAC-1. The power of the correlations is higher for the teachers' assessments than for the parents'. This result may be caused by the fact that PAC Inventory is often used by teachers alone, without consultations with parents. The observed correlation may reveal a weakness in PAC Inventory, or it may suggest an overly subjective assessment by the teachers. It should be added here that the test is usually performed by the head teacher of the class.
2. Teachers rate their students' adaptive behaviour higher than their parents. It can be generally assumed that special educators in Poland have a great deal of competence for work with students with intellectual disabilities. They are skilled to arrange social situations, give various hints and structure tasks so that students achieve their consecutive goals, planned in individualized educational and therapeutic programmes (IEP). Unfortunately, if these goals are not verified at later stages, in natural situations enabling effective functioning, they fail to reach their generalization stage.
3. Correlations between the GAC, the three adaptive domains as well as individual components of PAC-1 allow us to confirm the convergence of the variables measuring individual aspects of adaptive behaviour of

the researched subjects. PAC-1 inventory is a tool that offer an immediate assessment procedure, while ABAS-3 is noticeably more extensive, as it requires the involvement of parents or carers. Yet, as the analysis revealed, the tools can complement one another. Pursuant to the regulations governing Poland's system of education, individualized programmes for education and therapy for a student with disabilities (IEP) must be developed for the whole educational stage no later than 30 days after the student begins a school year. Therefore, expecting teachers to perform extensive testing in such a short period is rather unrealistic. Thus, one can conclude that PAC makes a highly expedient tool in such circumstances, yet its use should be complemented at a later stage by other diagnostic measures. Thanks to this approach, each IEP can be expanded to cover new objectives and procedures, as indicated in wide-scale diagnosis. Adaptive skills that are particularly important in the domestic environment – such as use of leisure time, community life and home life – where the power of correlation was at most average or low, should be addressed in IEPs. Parents need support in developing these skills as they deem them extremely vital. All in all, the procedures of designing IEPs are undoubtedly worth further research.

4. In the models developed for the parents' group, the analysis carried out allows us to conclude that the higher the GAC score, the higher the level of socialisation, participation in play and household activities. Parents recognise these correlations and appreciate every new skill acquired by their children. They are aware that the skills acquired at school are developed further by being implemented at home, which is what they particularly care about. ABAS-3 and PAC-1 complement one another and unveil the developmental needs of students with intellectual disabilities that are vital to their parents.
5. In the models created for the teachers' group, the predictor for the GAC score and the domain of conceptual and social skills was the area of socialization. The predictor for the domain of practical skills was the area of self-care. In the other models, using a wider array of social functioning skills, communicating is the predictor for the GAC score, for the conceptual domain and for practical skills. Finally, self-care is the predictor for the GAC score. All the indicated predictors are in a directly proportional relationship, except for the domain of practical skills, where activities, manual dexterity and agility have an inhibitory effect. As evidenced by our analysis, teachers assume that people with

moderate and severe intellectual disabilities are capable of achieving a higher level of adaptive behaviour if they are more agile and display greater manual dexterity. Consequently, low levels in these skills thwart development. Teachers recognise the importance of such areas of social functioning like table behaviour and manual skills – which they rate low. Likewise, they assess low, even though to a lesser extent, communication and socialisation skills of the researched group. Unfortunately, our analysis reveals that the researched group undergoes social adaptation rather than experiencing social participation.

Until present, testing with PAC inventory has been conducted by teachers. They completed the questionnaires, and consulting parents was infrequent. It must be remarked here that all too often, the testers treat the parent as a person who interferes with therapeutic work. ABAS-3 breaks with such practices, since it imposes an overt demand that the parent be a partner in testing. Parents evaluate their children's adaptive behaviour lower than teachers because they experience these skills in different contexts. Home environment is more natural than a school classroom since domestic activities are naturally less structured. The education system for people with moderate and severe intellectual disabilities offer education for students up to the age of 24. Hence, the system is required to prepare them for adult life, including developing skills such as advertent use of free time, participating in games or living at home, toilet activities and dressing up independently or behaving at the table. Parents' assessments reveal a certain weakness in the system and an insufficient share of parental partnership. Skills such as agility or manual dexterity, which act as inhibitors in teachers' assessment, are crucial for everyday performance in family environments.

A critical appraisal of the Polish adaptation of ABAS-3 makes it clear that the tool can hardly be said to be user friendly, particularly when contrasted with PAC-1. Some of the translated terms – especially from parents' perspective – are ambiguous, or they tend to ignore the essence of the assessed phenomena. It is worth bearing in mind that parents cannot be expected to have specialist terminology, and it is important that they understand all the terminology used in the sheets. Therefore, the terms used in a new Polish version of ABAS-3 should be subject to consultation with practitioners, including teachers and parents.

Taking the above into account, it seems that until ABAS-3 becomes available as a tool for diagnosing adaptive behaviour and for planning treatment of people with moderate and severe intellectual disabilities in Poland – if this ever happens – PAC Inventory is worth considering and using, on condition that it actively engages parents. If parents' assessment happens to be lower than teach-

ers', urgent measures are required to develop the assessed skills in the family context, as the latter environment functions as the predictor for social functioning. A school classroom hardly ever meets these conditions.

Closing remarks

ABAS-3 generates norm-referenced, scaled results and age equivalents. Skills and domains comply with AAIDD, DSM-5 and IDEA (Individuals With Disabilities Education Act) as well as RTI (Response to Intervention) guidelines, which allows planning both individual and systemic solutions. Each subsequent measurement of adaptive skills is crucial as long as the disorder or other condition affects the daily functioning of the student. ABAS-3 allows assessment over the whole lifespan of the examined person. The tool provides information needed to make right clinical decisions and to design effective individualised interventions. The Polish version of the tool can only be used until the age of 20, which is undoubtedly its serious weakness and limitation.

From a purely pragmatic perspective, it should also be stated that the cost of the Polish adaptation of ABAS-3 must also count as its weakness. In order to obtain a localized Polish ABAS-3 textbook, test sheets and result comparison sheets, as well as the intervention plan, one has to reckon with an expense of over a thousand PLN (over 200 EUR). For many educational institutions and teachers this cost is a barrier. However, it must be acknowledged that the tool is well worth the price. ABAS-3 not only enables diagnosis, but also offers many post-diagnostic support measures (Otrębski et al., 2019b).

Comprehensive measures are only feasible on condition that the institutional system of disability assessment and the system for developing strategies for working with students with intellectual disabilities are compatible – at least to the extent foreseen in the American version of ABAS-3. It is to be hoped that the planned Polish edition of ABAS-3 is ultimately extended to include the full adaptation (to cover the age bracket 0–89 of the examined persons with intellectual disability), and that the Polish health, education and social welfare systems can use the same, collaboratively developed tools for the diagnosis and planned support of people with disabilities. Only then will ABAS-3 be fully applicable to the purpose for which it is developed, and the results obtained will be useful and properly applied. These advantages are available in the original tool.

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